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Abstract: Case Reports/Series

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BRUGADA SYNDROME MIMICKING AS AN ACUTE CORONARY SYNDROME: A CASE REPORT

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Background: The Brugada syndrome (BrS) is an inherited disorder associated with sudden cardiac death due to ventricular arrhythmia in a patient with a normal heart structure. The diagnosis of BrS is made based on characteristic ECG findings, which are spontaneous or drug-induced. In this report, we present a patient with BrS that mimics acute coronary syndrome.

Case illustration: A 45-year-old-man presented to the Emergency Department (ED), complaining of chest pain accompanied by diaphoresis since 3 days ago and getting worse 3 hours before admission to ED. The patient reported intensifying pain in the chest that feels heaviness, radiating to the jaw, left arm, and back. The patient heart rate was 92 bpm, blood pressure was 140/85 mmHg, and normal heart sound. The laboratory result showed no abnormalities. ECG examination revealed a right bundle branch block pattern with ST elevation in lead V1-V2, and inverted T wave in lead V1-V2. A radiological study using chest x-ray showed no abnormalities. Abnormal repolarization and depolarization are pathological mechanisms of BrS, but not all of the same mechanisms are responsible for all patients. Coronary vasospasm, right coronary artery spasm, and increase vagal tone It is believed to be the underlying pathophysiology of chest pain in our patients.

Conclusion:
We described a patient with BrS that mimics acute coronary syndrome. This study discusses the pathophysiology and possible mechanism of chest pain in our patients.

KEYWORD: *Brugada syndrome, pathophysiology, acute coronary syndrome*

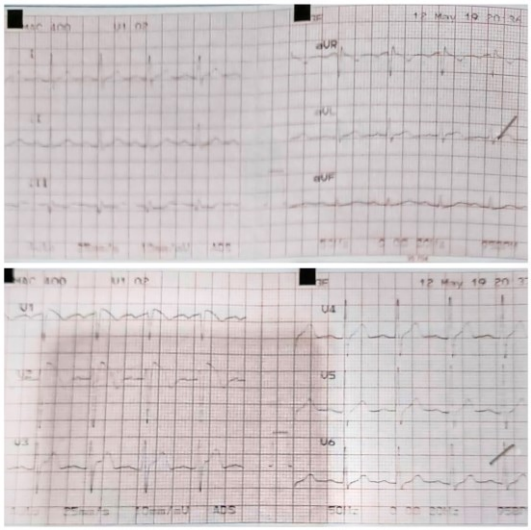

Figure 1. The 12-lead ECG shows the type 1 Brugada ECG pattern

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CASE REPORT / CASE SERIES

Acute Kidney Injury in Non-ST Elevation Myocardial Infraction: Identifying and Managing Population at Risk

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[1]Rumah Sakit Jantung dan Pembuluh Darah Harapan Kita

Background: Despite the need to undergo quick clinical judgement and early intervention in settings of very high or high risk non-ST elevation myocardial infarction (NSTEMI), one should always remember the crucial complication of contrast induced acute kidney injury (CI-AKI) following percutaneous coronary intervention (PCI) procedure. Early identification of patients more likely suffering from CI-AKI and prompt intervention are deeply needed so that various adverse outcomes such as irreversible kidney injury, need for dialysis or even death can be avoided.

Case Illustration: Male, 57 years old with NSTEMI, type II DM and renal insufficiency underwent PCI with stent implantation at LM-LAD and LCx. He had been predicted with high risk of CI-AKI based on Mehran score of 12 so preventive measures were done prior to PCI procedure. The patient developed CI-AKI post PCI procedure so we continued hydration while simultaneously evaluating his kidney function and urine output. Renal function and urine output gradually improved until it finally returned to its baseline at day 13 of hospitalization.

Conclusion:
CI-AKI is a serious complication that may follow after PCI procedure in patients with NSTEMI. Therefore, it's necessary to identify the predisposing factors so that we could estimate our patients' risk of developing CI-AKI and undergo appropriate management to avoid irreversible kidney injury, need for dialysis or even death.

KEYWORD: *Non-ST-elevation myocardial infarction, contrast-induced acute kidney injury, percutaneous coronary intervention*

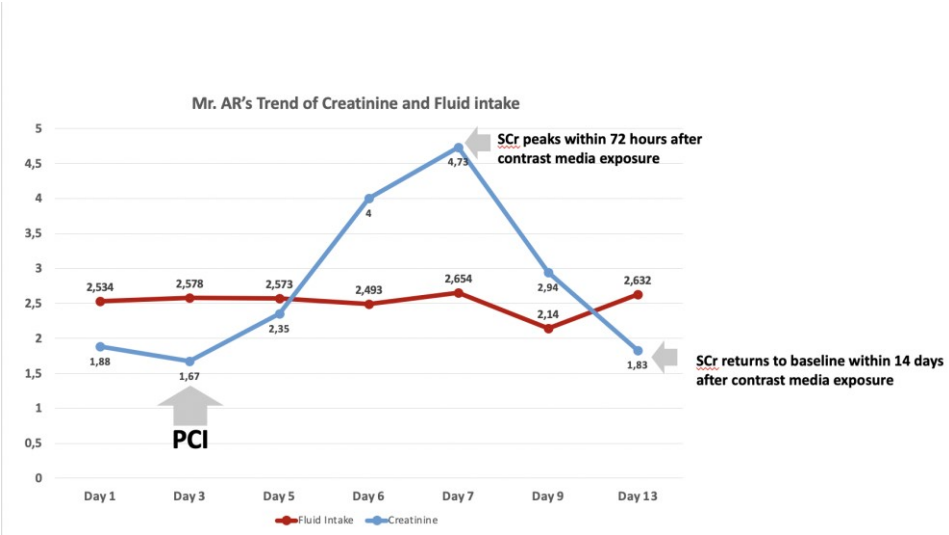

Figure 1. Mr. AR's Trend of Creatinine and Fluid Intake

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CASE REPORT / CASE SERIES

Invasive Physiologic Study Across Various Spectrum of Coronary Artery Fistula with Concomitant Stenosis

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[1]Rumah Sakit Jantung dan Pembuluh Darah Harapan Kita

Background: Most CAFs are asymptomatic but it might have serious hemodynamic consequences causing myocardial ischemia and heart failure prompting intervention. There's no widely accepted guidelines or consensus to manage patients with CAFs. The decision to undergo intervention is usually based on the presence of symptoms, size and anatomic features of the fistula.

Case Illustration: We presented 5 patients with CAFs undergoing FFR/iFR in our institution. Only one showed significant iFR suggesting significant hemodynamic burden. Number of fistulas varied from 1 – 3, mostly arose from LAD and terminated in PA. Only one patient underwent RHC showing relatively normal flow ratio supported by normal iFR reading. One patient presented with patent stents in LAD and OM2 despite subtotal occlusion in proximal PDA, the other presented with insignificant stenosis in RCA, and the other two presented with no concomitant stenosis. We only underwent intervention in patients with abnormal FFR/iFR reading by implanting stent. Upon 1-year-follow up, all patients are currently doing well with no significant complaints of chest pain or dyspnea.

Conclusion:
FFR/iFR can be considered as a modality to guide the need to intervene CAFs with or without significant stenosis. Yet, it's still dilemmatic which to intervene first in the presence of CAFs with significant coronary artery stenosis. Therefore, the decision which to intervene first is currently still in the discretion of attending physician. Further well-designed studies are needed to confirm the role of FFR/iFR hoping this modality might someday help in guiding decision-making in patients with CAFs.

KEYWORD: *coronary artery fistula, coronary artery stenosis, free fractional reserve (FFR), instantaneous wave free ratio (iFR)*

Characteristics	Mrs. SD	Mrs. NS	Mrs. RDS	Mrs. RH	Mr. AR
Number of fistulas	One	Three	Two	One	One
Origin	Left anterior descending	Left anterior descendingLeft circumflexRight coronary artery	Left mainLeft anterior descending	Left anterior descending	Left main
Termination area	Left atrium	Pulmonary artery	Pulmonary artery	Pulmonary artery	Pulmonary artery
Qp:Qs	No available data	No available data	0.9	No available data	No available data
PVR/SVR	No available data	No available data	0.095	No available data	No available data
PARi	No available data	No available data	0.916	No available data	No available data
Concomitant stenosis	Absent	20-30% in proximal RCA	Absent	RCA: moderate stenosis in mid, subtotal stenosis in proximal PDAPrior history of DES implantation in LAD in 2014 and OM2 in 2015 (both stents are currently patent)Prior history of LAD-PA fistula coiling (2014)	LAD: 40 – 50% stenosis in proximal, 70% stenosis in midLCx: 50 – 60% stenosis in proximalRCA: 90% stenosis in mid
iFR reading	iFR LAD: 0.97	iFR LAD: 0.95iFR LCx: 1.0iFR RCA: 1.07	iFR LAD: 0.96iFR LCx: 1.0iFR RCA: 1.0	Proximal LAD: 0.99 (located between LAD-PA coil and LAD stent)Distal LAD: 0.88	iFR LAD: 0.81iFR LCx: 1.0
Intervention	Optimal medical therapy	Optimal medical therapy	Optimal medical therapy	Optimal medical therapy	DES implantation in mid RCA and mid LAD
Long-term outcome	No upcoming episodes of chest pain	No upcoming episodes of chest pain	No upcoming episodes of chest pain	No upcoming episodes of chest pain	No upcoming episodes of chest pain

Table 1. Characteristics of Five Patients with CAFs and Concomitant Stenosis Undergoing FFR/iFR in Our Institution

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CASE REPORT / CASE SERIES

External Counter Pulsation (ECP) in Patient With Refractory Angina and Heart Failure: A Case Report

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Background: Refractory angina pectoris (RAP) prevalence is estimated to be 5-10% of stable CAD patients and expected to rise each year. Despite of high survival rate, there is an unmet clinical need of symptoms control which leave patients with poor quality of life. In the other hand, heart failure is a global burden affecting ±26 million people worldwide. Heart failure has high hospitalization and mortality rate, hence leaving patients with poor quality of life. Extended External Counter Pulsation (EECP) can improve coronary perfusion and cardiac output which benefits patients with refractory angina and heart failure.

Case Illustration: A 63 years old patient was admitted due to angina pectoris. A catheterization was performed showing long diffuse stenosis on the LAD and 70% stenosis on the RCA (figure 1). CABG and PCI were not able to be performed. Later she has been experiencing angina attack for over 3 months and was found to develop symptoms of heart failure with ejection fraction of 47%. She was diagnosed with Refractory Angina Pectoris CCS III and CHF ec CAD NYHA III. Assessment of quality of life by EQ-5D-5L showed poor VAS score (50). Thirty five EECP sessions for 1 hour/day for a total of 35 therapy was delivered with average pressure of 2.5 psi. By the end of the EECP session, she was evaluated for her symptoms, ejection fraction and heart-wall motion, and quality of life. Of which there were marked improvements of symptoms (CCS I, NYHA I), ejection fraction (EF 67%), and quality of life (EQ-5D-5L VAS 70). EECP has shown a promising treatment for refractory angina pectoris and heart failure by the following mechanisms: diastolic augmentation which increase coronary circulation; increased venous return which increase cardiac output; systolic unloading which reduce cardiac workload; improved endothelial function & neurohormonal factors; and induced collateral development. These mechanisms lead to alleviation of angina and improved cardiac function which eventually increase patients' quality of life.

Conclusion:
The EECP benefited refractory angina pectoris with heart failure patient. EECP improves symptoms of angina, cardiac function, and the quality of life.

KEYWORD: *Enhanced External Counter Pulsation (ECP), Refractory Angina Pectoris (RAP), Heart Failure, Quality of Life*

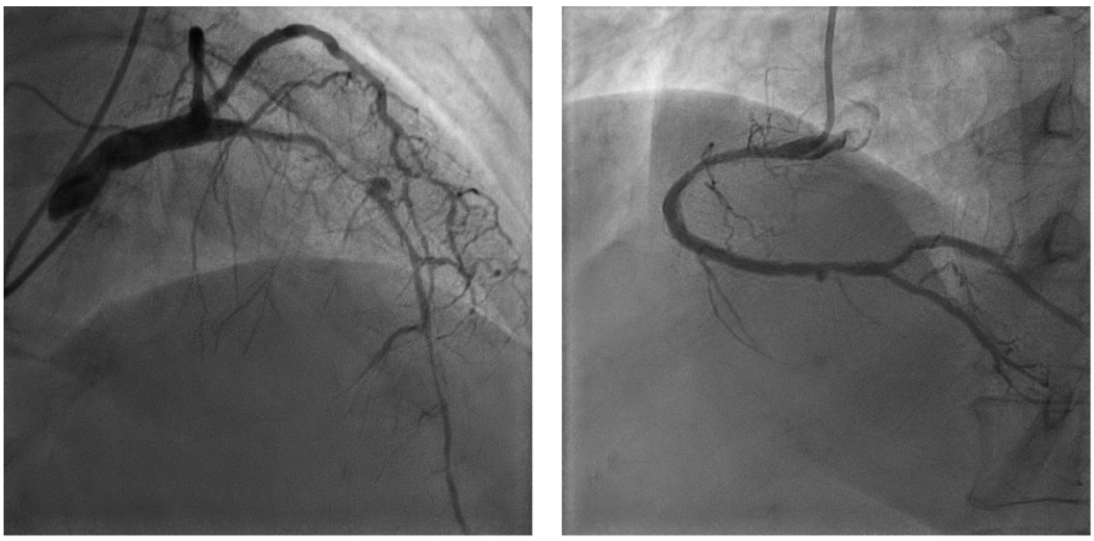

Figure 1. Coronary Angiography showing long diffuse stenosis on LAD and 70% stenosis on RCA

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CASE REPORT / CASE SERIES

Complete Heart Block in NSTEACS Patient : Successful Initial Transvenous Cardiac Pacing in Maluku

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Background: Complete Heart Block (CHB) is a rare complication of cardiac ischemia. There was limited studies are available on the incidence, treatments trends, and conduction disorder as complication after Non-ST elevation Acute Coronary Syndrome (NSTEACS). This case report aims to report the rare complication after NSTEACS and to report the first cathlab conducted in Maluku.

Case illustration: We report a case of 59-years-old female patient who admitted to Emergency Room with dizziness as a chief complaint. The patient also had history of chest pain two weeks before at the other hospital. She has been diagnosed with NSTEACS with first degree AV Block. The patient was admitted to Adult Cardiovascular Intensive Care Unit and diagnosed with CHB, Anterior NSTEACS. The patient was planned to perform Temporary transvenous cardiac pacing procedure. Pacing was performed with the Pacemaker lead inserted into the apex of the right ventricle.

Conclusion : Complete Heart Block is a rare complication of cardiac ischemia. Coronary angiography for CHB patients with cardiac ischemic should also be perform in establishing the cause. It is therefore important to be vigilant for potential complication in cardiac ischemia of which develop conduction disorder.

KEYWORD: *CHB, cardiac ischemia, NSTEACS, anterior, transvenous cardiac pacing*

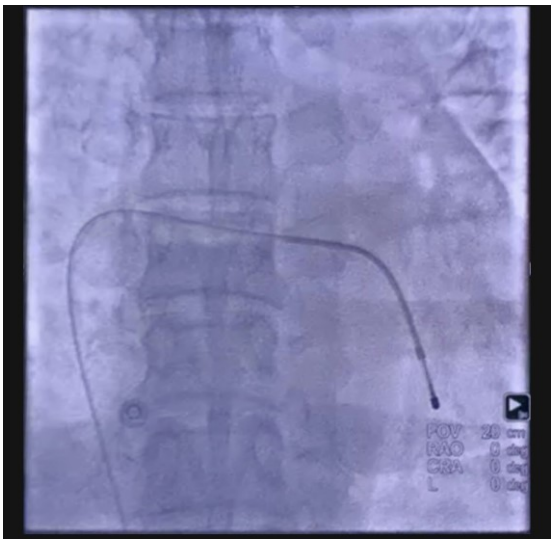

Figure 1. Pacing insertion position

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CASE REPORT / CASE SERIES

Carotid Artery Stenting of 75 Years-old Man with Carotid Artery Disease and Coronary Artery Disease

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Background: Carotid artery disease was predisposed event of transient ischemic attack, and ischemic stroke. Atherosclerotic plaque usual found at carotid bifurcation. Mostly found at elderly population, and most common in man than women.

Case illustration: 75 years-old man with chief complain loss of conscious 2 times last week with history of coronary artery disease post percutaneus coronary intervention. Physical examination found bruit sound at right carotid artery. Duplex ultrasound showed stenosis at right internal carotid artery with peak systolic 209.31 cm/s. Digital Digital substraction angiography found internal right carotid artery stenosis 90% by NASCET or 97% by ESCT. Then carotid artery stenting performed by self-expendable stent. Angiographic evaluation shows good. Duplex ultrasound showed PSV turn into normal range. The symptoms relieved. Double antiplatelet given for a month.

Conclusions:
In conclusion, we reported patient with carotid artery disease with carotid artery stenting in elder presenting syncope and dizziness.

KEYWORD: *Carotid disease, coronary disease, carotid artery stenting, carotid stenosis*

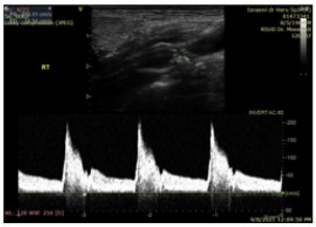

Figure 1. Right internal carotid artery stenosis showed by DUS

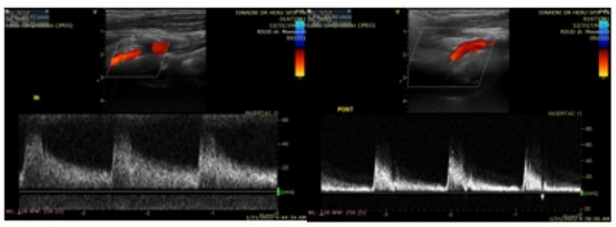

Figure 3. Right internal carotid artery PSV after CAS

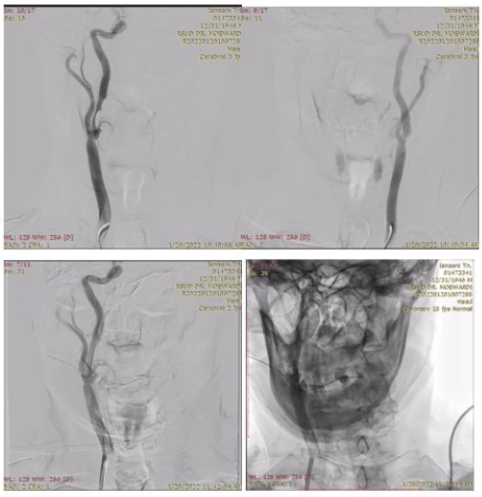

Figure 2. Before and After Carotid Artery Stenting

Examination of Patient with Carotid artery disease

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CASE REPORT / CASE SERIES

Does Digoxin Has a Good Outcome? The Case of 67-Year Old Man, Presenting Acute Decompensated Heart Failure With Precipitating Factor AF RVR: Case Report

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[1]RSUD dr. H. Slamet Martodirdjo Pamekasan, Jawa Timur

Background: Atrial fibrillation (AF), one of the heart rhythm disorders, is frequently linked to an aggravating factor in acute decompensated heart failure (ADHF). Additionally, the therapeutic management might be challenging, particularly if the patient's heart function is deteriorating. The state of AF and ADHF itself will have an impact on the patient's prognosis, particularly in unstable hemodynamic circumstance. In this case study, we present a case of ADHF with precipitating factor AF RVR.

Case illustration: We report the case of a 67-year-old male with major complaint was shortness of breath and history of heart failure. Patient heart rate was 160 bpm irregular, blood pressure was 144/76 mmHg, fine crackles at the bases of both lungs was heard. The ECG showed AF with rapid ventricular responses. Chest X-ray showed cardiomegaly with left pleural effusion and aortic sclerosis. The patient was diagnosed with acute decompensated heart failure, AF RVR, and CHA2DS2-VASc=2 score. The patient was given rate control medication with digoxin, oral anticoagulants for stroke prevention management, and diuresis with furosemide for congestion symptoms. Clinical improvements were seen after 4 days of treatment, but unfortunately, on the fifth day, the symptoms began to worsen. Also, the patient refused to receive treatment in the intensive ward, so the monitoring was not optimal, and led to the patient's death afterward. One of the causes in acute heart failure is tachyarrhythmia, and in our patient, rate control therapy with digoxin may be a good alternative. Digoxin can decreasing the atrioventricular (AV) conduction, but due to its limited therapeutic window, the caution of side effect should be taken seriously. The used of CHA2DS2-VASc score and the earliest feasible administration of oral anticoagulants (OAC) are two equally crucial aspects of AF management.

Conclusion:
Heart failure (HF) and AF frequently co-occur when there is AF, as a cardiac arrhythmia with a high prevalence. The safety and treatment methods for this condition must be clearly identified. In patients with HF and AF, rate control is typically the preferred option; however, given the limited therapeutic window, dose selection must be modified.

KEYWORD: *Acute decompensated heart failure, Atrial Fibrillation, Digoxin, oral anticoagulants*

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CASE REPORT / CASE SERIES

The Misleading ECG Presentation Towards Culprit Lesion in ST Elevation Myocardial Infarction : A Case Report

N.P. Pranidya[1], M. K. Pratama[1], M. P. Aristya[2], P. Wulandari[1], A. A. Hakim[1], M. N. Hutapea[1]
[1]Badan Pengusahaan Batam Hospital
[2]St. Elisabeth Batam Kota Hospital

Background :
Electrocardiogram is considered to be the most important method for determining the infarct-related artery, especially in STEACS cases, which recognizing this is helpful for timely discrimination of the culprit artery for reperfusion therapy. Acute myocardial infarction is one of the leading causes of death world-wide. In some cases, such as Isolated Right Ventricular (RV) Infarction, that has been reported by many times around the world, the inferior lead ST elevation seems to be covered by the precordial lead ST elevation.

Case Illustration :
A 48 years old male was referred to the emergency unit with acute chest pain in the last 9 hours. It was elevated with exertion, described to be heavy, and radiated to his left shoulder, and jaw. It was not followed by other symptoms and he was a heavy smoker without any medical history before. His vital sign and physical examination appeared to be within normal limit. No sign of fluid overload was found during the initial assessment at the emergency unit. Chest X-Ray, and routine laboratory workups were normal. However, ST elevation in ECG of anterior precordial lead was sought, and elevated serum Troponin-I level was also reported. The ACS Algorithm was immediately activated and insertion of coronary artery stent was performed under 90 minutes after the admission. Surprisingly, the culprit lesion was revealed to be located at the distal part of the right coronary artery (RCA), contrary to the ECG findings. However, the procedure was done without any complication and the patient was discharged in good condition.

Conclusion :
For every case of ACS found in the daily practice, looking for the possibility of other vessels involvement beside the ECG findings may assist a comprehensive management for the patient.

KEYWORD: *ST Elevation, Right Coronary Artery, Isolated RV Infarction, Electrocardiogram, Acute Coronary Syndrome*

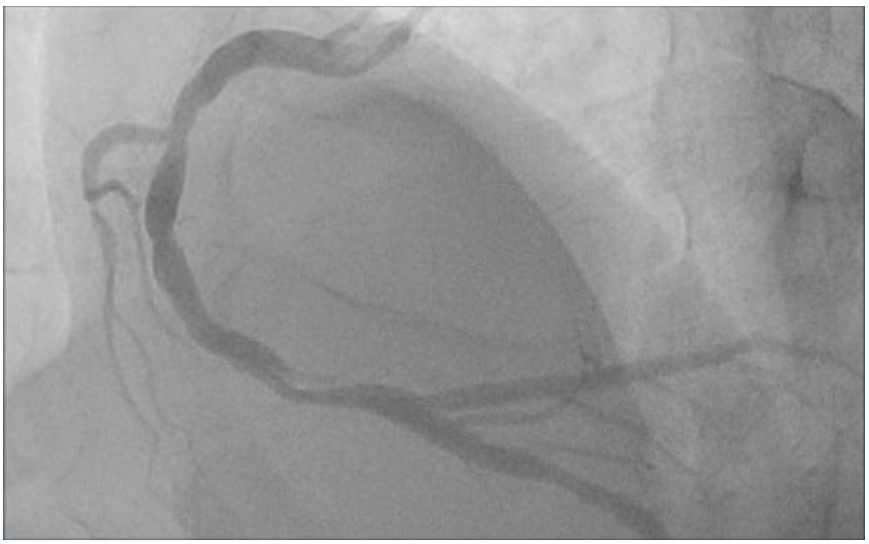

Figure 1. Critical stenosis at Distal Right Coronary Artery

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CASE REPORT / CASE SERIES

Pregnancy Complicated by Thyroid Heart Disease: a Case Report

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[1]University of Mataram

Background: Hyperthyroidism is known to give effects on the cardiovascular system such as arrhythmias, vascular changes, widened pulse pressure, and myocardial remodeling. It can also affect pregnancy by harming both maternal and fetal conditions. Uncontrolled thyrotoxicosis can increase the risk of complications such as preeclampsia, maternal congestive heart failure, pregnancy loss, prematurity, low birth weight, stillbirth, and IUGR.

Case illustration: A 35 years old pregnant women presented with dyspnea. This complaint started since a year ago and progressively worsened since her 3rd month of pregnancy. Other symptoms were swollen legs since 3 days before admitted to the hospital, palpitations since one year ago accompanied by thyroid enlargement and sweating. The patient's blood pressure was 140/50 mmHg and heart rate was 97 bpm. On physical examination, a mid-systolic scratching sound was heard over the upper part of the sternum or second left intercostal space at the end of expiration, which is called The Means–Lerman scratch that occurs in patients with hyperthyroidism. This patient Wayne's Index was 24. Chest x-ray showed a pulmonary edema and cardiomegaly. An echocardiography revealed normal LV systolic function (EF by teich 65%), abnormal LV diastolic function grade 3, and mild concentric left ventricle hypertrophy. Laboratory results showed TSHs, FT3, and FT4 were 0.17 uIU/mL, 35.7 Pmol/L, and >100.00 Pmol/L. This patient was diagnosed with G3P2 gestational age 22-23 weeks and thyroid heart disease with heart failure preserved ejection fraction. This patient was given furosemide, propanolol, and propylthiouracil. After the symptoms subside, furosemide was discontinued. The therapy was given with monitoring of fetal heart rate and an improvement was seen throughout the hospitalization.

Conclusions:
Increasing screening when it is suspected and early treatment of thyroid disease can help decrease the risk of maternal and fetal complications.

KEYWORD: *Heart failure, Hyperthyroidism, Pregnancy, Thyroid Heart Disease*

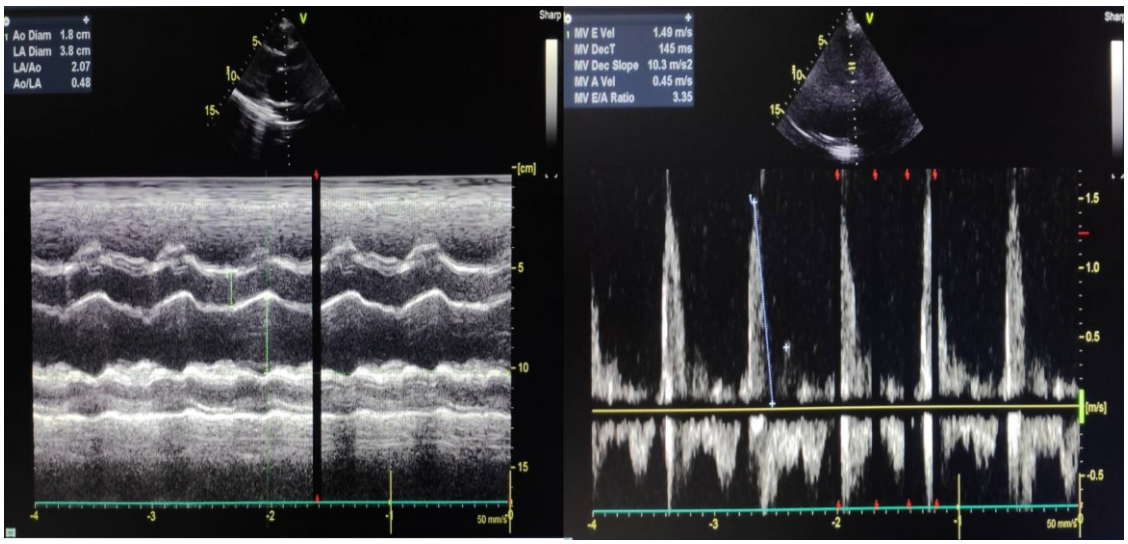

Figure 1. Echocardiography showing abnormality of LV diastolic function grade 3 and a mild concentric left ventricle hypertrophy

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CASE REPORT / CASE SERIES

Severe Aortic Stenosis Presenting as STEMI : A Case Report

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Background: ST Elevation MI is an event in which transmural myocardial ischemia results in myocardial injury or necrosis. There are STEMI that not caused by coronary occlusion, named Myocardial infarction non obstructive coronary artery (MINOCA), 6–11% of patients with acute MI have nonobstructive coronary arteries and among those population presented with MINOCA only 2.8%-4.4% presenting as STEMI. In this case severe aortic stenosis induced poor myocardial perfusion with no occluded coronary artery as the reason that led to STEMI.

Case Illustration: A 59-year old male patient came with typical chest pain radiating to the back 8 hours before admission, diaphoresis, and history of shortness of breath has been felt for 2 months that deteriorates recently. All vital signs were normal, bibasilar crackles was found. ECG showed ST-elevation on lead v1-v3. Lab result showed elevated Troponin I. Patient was diagnosed with anterior STEMI, underwent primary PCI, and was found to have no significant coronary lesion. Aortic valve was heavily calcified. Catheter pullback from LV to Aorta showed peak gradient difference of 51 mmHg.

Conclusion :
Aortic Stenosis (AS) rarely causes STEMI. Not only obstructed Coronary artery as solely reason of AMI, but other reasons as well are MINOCA. AS has to be severe enough to generate failure of cardiac coupling so to elevates troponin levels and induces transmural ischemia. The treatment for the case is to recover the supply and demand mismatch by balloon valvuloplasty as a bridge to surgical valve replacement.

KEYWORD: *Aortic stenosis, STEMI, MINOCA*

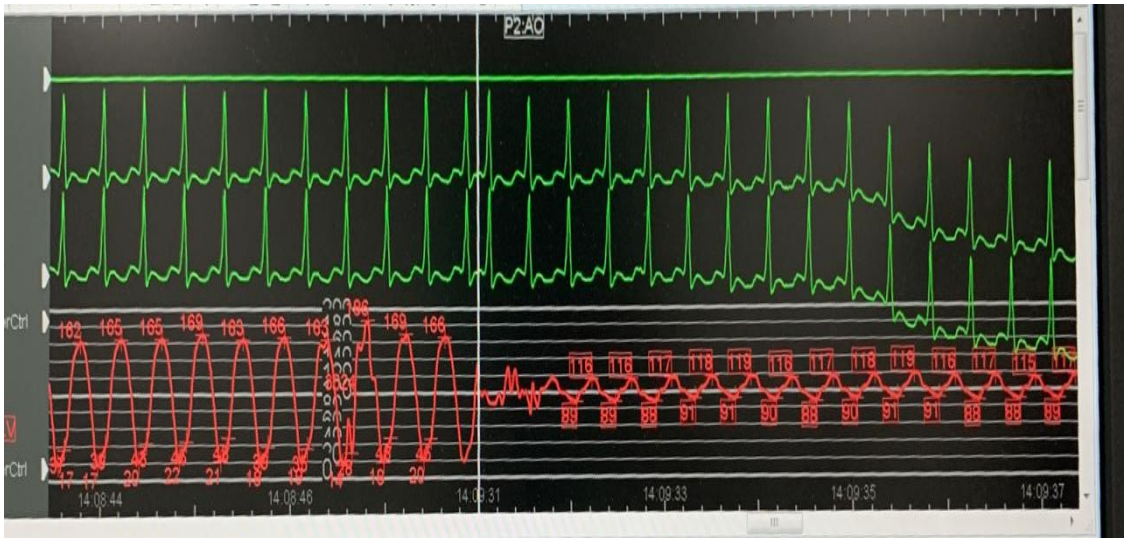

Figure 1. Pullback LV Pressure Gradient

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CASE REPORT / CASE SERIES

Transesophageal Echocardiography Assisted Ablation of Papillary Muscle Origin Premature Ventricular Contraction: A Challenging Structure in Perpetual Motion

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Background: Catheter ablation is the most recommended interventional therapy for premature ventricular contraction. Interestingly, papillary muscle origin premature ventricular contractions are especially difficult to treat due to its perpetual motion during heart contractions, resulting in higher recurrence rate after ablation procedure. Hence, many recommendations encourage using echocardiography to better assist the catheter trajectory. In this study, we demonstrate that transesophageal echocardiography was comparable to intracardiac echocardiography in assisting 3D-ablation of papillary muscle origin premature ventricular contraction with desirable outcome.

Case Illustration: A 41-years old female with worsening lethargy and recurring left chest discomfort. 12-lead electrocardiogram showed infrequent premature ventricular contraction of right bundle branch block morphology with 24 hours Holter showing frequent multifocal premature ventricular contraction complex (20.85%), right bundle branch block morphology, superior axis, RS-transition at precordial leads V3-V4, QRS duration 111-122 msec, predominantly posterior papillary muscle origin and infrequent premature atrial contraction (0.21%). Activation and pace mapping of the 2 dominant premature ventricular contractions were obtained assisted by transesophageal echocardiography, locating the premature ventricular contractions origin at the left ventricular posterior papillary muscle. Papillary muscle potential were identified as a pair of small electrical signals captured prior and in close proximity to the premature ventricular contraction potential. As widely known, premature ventricular contraction recurrence is highly dependent on the accuracy of catheter tip in ablating the premature ventricular contraction origin. Hence, additional visualization modality using transesophageal echocardiography was employed to ensure good catheter contact.

Conclusion: Transesophageal echocardiography poses as a promising modality in ensuring good contact of catheter tip with challenging heart structures that are in perpetual motion. Based on our experience, a 3D-electroanatomic mapping combined with real-time transesophageal echocardiography is able to clearly navigate catheter position relative to the papillary muscle which is crucial to suppress likelihood of recurrence, but with lesser cost and wider availability compared to intracardiac echocardiography.

KEYWORD: *papillary muscle, premature ventricular contraction, ablation, transesophageal echocardiography*

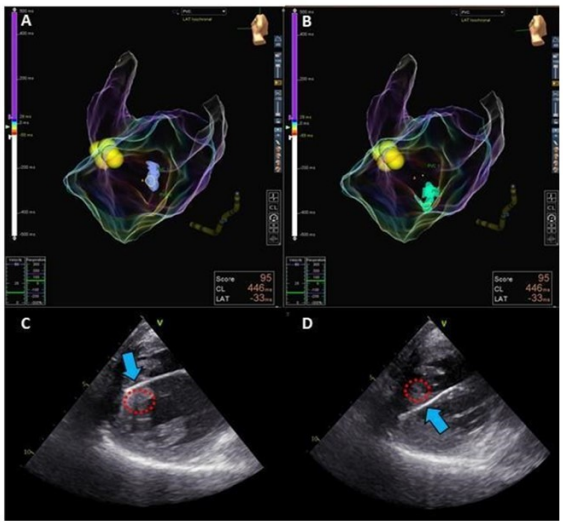

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Figure 1. 3D-ablation procedure visualized by TEE.
Top panels showing the ablation target site with blue (panel A, PVC-1) and green (panel B, PVC-6) circles. Real-time TEE showed ablation catheter (blue arrow) in good contact positioned superior (panel C) and inferior (panel D) to the posterior PM (red-dotted circle).

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CASE REPORT / CASE SERIES

Narrow QRS Tachycardia treated with digoxin after unsuccessful vagal maneuver, setting in the primary health care center

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Background: Narrow QRS complex tachycardia (NCT) represents an umbrella term for any rapid cardiac rhythm greater than 100 beats per minute (bpm) with a QRS duration of fewer than 120 milliseconds (ms). In the general population, the SVT prevalence is 2.25/1000 persons and the incidence is 35/100 000 person-years.

Case illustration: A male smoker, 44 years old came to the emergency with a history of palpitation for the past two hours. It was the very first time he complained about it. He also felt fatigued and light-headedness. His heart rate was 180 bpm, and another vital sign and physical examination were normal. A resting ECG showed narrow QRS complex tachycardia. Laboratory examination showed leukocytosis and mild thrombocytopenia. The patient was treated with vagal maneuvers and intravenous digoxin 0,5 mg. Two hours later, the patient's symptoms subsided, and ECG showed a conversion to sinus rhythm and T-wave inversion in the anterior lead. After one day of care, the patient was sent home. Narrow QRS complexes are due to rapid activation of the ventricles via the His Purkinje system (HPS), which suggests that the origin of the arrhythmia is above or within the His bundle. According to the 2019 ESC guideline, this patient was assessed with narrow QRS tachycardia with a long RP interval. A long RP interval is typical of AT because the rhythm is driven by the atrium and conducts normally to the ventricles. This patient was treated with digoxin. Digoxin binds to and inhibits the sodium/potassium-ATPase (sodium pump) within the plasma membrane of cardiac myocytes. The time to reach the maximum concentration of digoxin was measured to be 1.0 h in one clinical study of healthy patients.

Conclusions:
In conclusion, we described patients with narrow QRS tachycardia with stable hemodynamics treated with digoxin. Two hours later the rhythm converted to sinus and symptoms subsided. Although many guidelines do not pick digoxin as primary therapy for this setting, digoxin is still effective and useful, especially in a primary health care center.

KEYWORD: *Narrow QRS complex tachycardia, digoxin.*

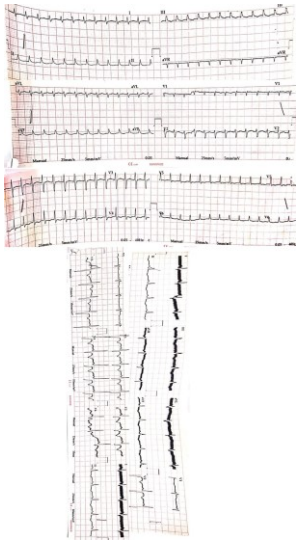

Figure 1. ECG shows narrow QRS tachycardia before digoxin treatment and ECG shows sinus rhythm after digoxin treatment

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CASE REPORT / CASE SERIES

Recurrent Ventricular Tachycardia in Acute Inferior ST - Segment Elevation with Dominant Left Circumflex Artery Occlusion

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Background: Inferior ST-Segment Elevation Acute Coronary Syndrome (STEACS) is usually the result of right coronary artery (RCA) occlusion. Left circumflex artery (LCx) occlusion can also manifest as inferior STEACS, although less frequently, and with differing electrocardiogram (ECG) patterns. In both cases, polymorphic Ventricular Tachycardia (VT) can occur, and develop into Ventricular Fibrillation (VF).

Case Illustration: A 68-year-old man came to the emergency department with palpitation, chest pain and diaphoresis for more than 20 minutes. Six months previously he complained of chest pain triggered by exercise, subsided by rest. There is history of metabolic syndrome and smoking. Heart rate is 200 bpm, regular; respiration rate 28 breaths/minute, pulse oximetry 97% with room air and otherwise normal findings upon physical examination. ECG showed VT (Fig. 1), synchronized cardioversion of 100 joule was given. Follow-up ECG later showed ST segment elevation in inferior leads, more elevated in lead III than lead II. Loading Aspirin and P2Y12 inhibitor to initial management of STEACS. Shortly after, patient experienced seizures and ECG monitoring showed VF; DC shock of 200 joules was given. Patient was later treated for STEACS and prepared for primary percutaneous coronary intervention (PCI). Total occlusion was found in LCx. RCA was normal. Synchronized cardioversion was subsequently performed seven times due to recurrent VT during intervention. After revascularization, patient had no symptoms, heart rate was 70 bpm and ECG revealed sinus rhythm. Echocardiography revealed left ventricular dilatation, mild mitral regurgitation, ejection fraction 46% with hypokinetic in infero-posterior and akinesis in apical segment. After six days of optimal treatment in ICCU, patient was discharged with routine medication.

Conclusion: In few cases, inferior STEACS can be caused by LCx occlusion instead of RCA occlusion. The most common rhythm found in the acute phase is polymorphic VT that degenerates to VF.

KEYWORD: *Inferior STEACS, Left Circumflex Artery, Ventricular Tachycardia*

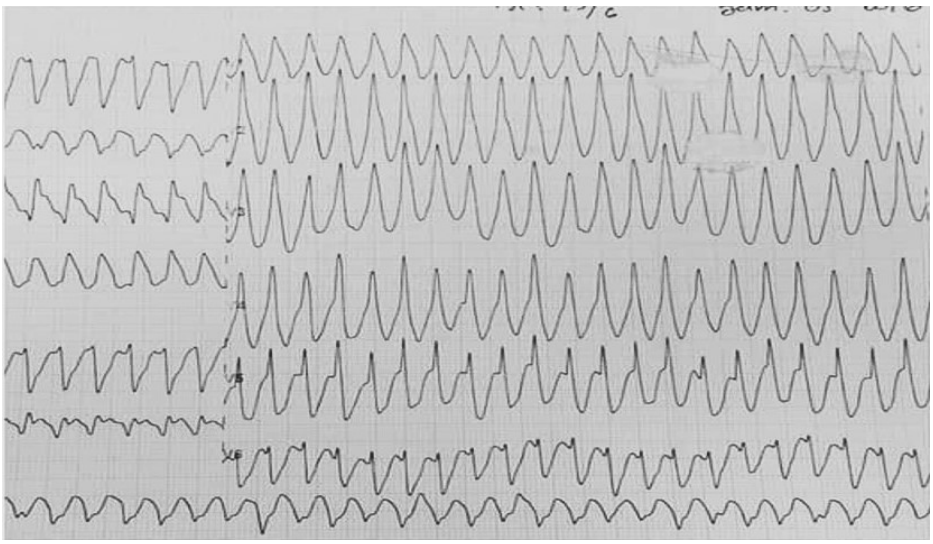

Figure 1. ECG showed Ventricular Tachycardia 200 bpm

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CASE REPORT / CASE SERIES

Chronic Limb Threatening Ischemia in Autoimmune Disease

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Background: Peripheral arterial disease also can manifested in autoimmune diseases patients and frequently asymptomatic and can be difficult to diagnoses. Autoimmune diseases itself represent a broad spectrum of chronic conditions that affecting multiorgan in human. Studies showing that patients with autoimmune diseases has an increased rate of thrombotic events and more frequent cardiovascular disease.

Case illustration: A 48 years old man admitted to our emergency room due to inttermitent claudication following by discoloration of her right finger and left and right toe 1 months prior to admission. The patient also has a history of stroke since 7 years before admission and have not fully recovered. On physical examination showing pain, paresthesia, pulselessness, poikilothermic and cyanosis with discolorization in manus dextra and plantar pedis bilateral. The patients also has a reduced pulsation in ulnar artery bilateral, tibialis anterior artery, tibialis posterior artery and dorsum pedis arteri bilateral. Other physical examination are within normal limit. The laboratory examination showed anaemia, thrombocytopenia, hypoalbuminemia with increase of kidney function tests. Inflammatory marker was increased with elevated CRP. Another examination was within normal limits Doppler echocardiography showing reduced flow of bilateral arterial system with suggestive vasculitis and thrombosis in bilateral brachial, ulnar and radial artery with reduced lower extremities flow of bilateral artery and diffuse thickening at bilateral extremities with severe calcification at left extremities

Conclusion:
Autoimmune diseases represent conditions that affecting multiorgan in human. Among of patients with autoimmune diseases that increasing, risk of thrombotic. Peripheral arterial disease also can manifested in autoimmune diseases patients and frequently asymptomatic and can be difficult to diagnoses. The incidence of PAD also have not been well studied in patients with autoimmune diseases although the presence of PAD is associated with high frequency of another vascular disease such as coronary and cerebral disease. Optimized medical therapy with an option for revascularization still chosen as first line therapy for patients with CLTI with alternative of amputation if revascularization cannot be done.

KEYWORD: *Chronic Limb Threatening Ischemia, Autoimmune diseases*

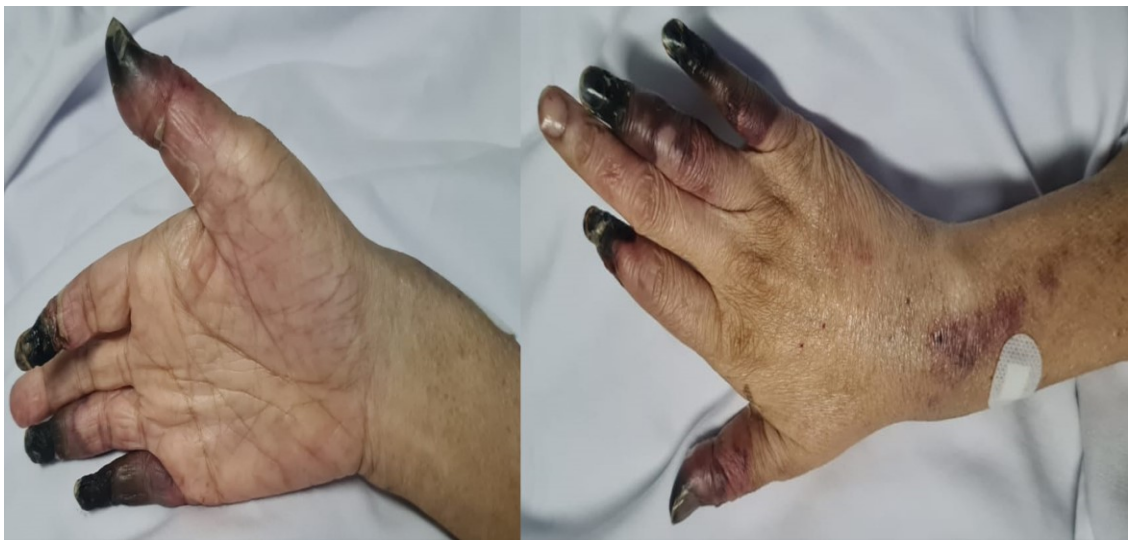

Figure 1. Chronic Limb Threatening Ischemia on Tip of Finger

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CASE REPORT / CASE SERIES

Thrombus Aspiration with Deferred Stenting in Young Aged Patient with ST-Elevation Myocardial Infarction: A Case Report

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[1]RSD Mangusada

Background: The PCI procedure with stenting is the most common procedure performed for STEMI, but the disadvantage of stenting is that it causes in-stent restenosis or distal embolism, which can increase morbidity and reduce the quality of life of patients after PCI. Thrombus aspiration (TA) can be an option other than stenting, which is often performed for young patients with high thrombus burden. In this report, we present a young STEMI patient with a high thrombus burden who was successfully treated with thrombus aspiration and deferred stenting procedure and showed favorable results after 1 month of follow-up.

Case illustration: A 33-year-old man, an active smoker with a positive family history of coronary artery disease, presented to the emergency department with acute chest pain for the past 30 minutes. A vital sign examination was found to be within normal limits with a pain scale of 4. A 12-lead ECG examination revealed ST segment elevation in leads II, III, avF and leads v3R & v4R on the right ECG. Cardiac enzyme examination showed a significant increase in Hs-Troponin at 762.7 ng/L and CK-MB at 38.9 ng/mL. Coronary angiography was performed and there was total occlusion or extensive thrombus burden in the distal right coronary artery with TIMI flow grade 0. The operator decided to do thrombus aspiration. The patient underwent re-angiography and it was found that the distal right coronary artery flow was back but the thrombus was still present (TIMI 2 Flow). The procedure was stopped without stent placement (deferred stenting). The patient was put on dual antithrombotic therapy and warfarin, then was discharged without any symptoms and planned for evaluation the next month. The second coronary angiography resulted in non-significant stenosis in RCA, so the procedure was finished without stent placement. The patient continued the medication with dual antiplatelet therapy for one year.

Conclusions:
In conclusion**,** managements of STEMI with large thrombus burden, especially in young aged, without stenting is feasible. Pharmacological therapy may be adjusted to the availability in the field. We believe that each patient requires an individualized approach based on clinical conditions.

KEYWORD*: Thrombus Aspiration, Deferred Stenting, STEMI, Angiography, Young Age*

Figure 1. Initial angiography at the time of PCI showed complete occlusion of the right coronary artery (TIMI 0 flow)

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CASE REPORT / CASE SERIES

Managing Senile With Total AV Block Due To Hypoglycemia Causing Cardiogenic Shock

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[1]FK USK/RSUD Dr.Zainoel Abidin

Background: Hypoglycaemia is an unusual cause of compromising bradyarrhytmias. Management of bradyarrhytmias in older population is different due to reduced life expectancy, multimorbidity, polypharmacy, and increased vulnerability.

Case Illustration: An 82-year-old man presented to ER with altered mental state, bradyarrhytmias due to TAVB (HR 35 bpm), and cardiogenic shock (BP 84/54 mmHg). A fingerstick blood glucose showed 20 mg/dL. After 100 mL of 40% dextrose infusion, the cardiac rhythm spontaneously turned to normal sinus rhythm at rate 90 beat/min with glucose level of 120 mg/dL one hour later. Patient was sent for Temporary Pacemaker insertion (HR 70 bpm) as TAVB repeatedly occurred and angiography resulted CAD 3VD followed by stenting implantation on LAD with non-dominant RCA. On Cardiac Intensive ward, patient was complicating with severe pneumonia infection, Upper GI Bleeding, and repeated asystole periods. Multi management approach included OMT, adequate antibiotics therapy, inotropic and vasopressor support, and optimizing nutritional intake to maintain the euglycemia. Patient clinical status was improving after five days on ICCU and being discharged. Senile with malnutrition and sepsis are very common and may cause hypoglycaemia. Hypoglycaemia rarely induce total AV Block resulting in cardiogenic shock and fatally lead to cardiac arrest. Previous report observed sinus bradycardia during a chronic hypoglycemic state lasting >*5* months in a male patient after subtotal intestinal resection that resolved quickly after correcting hypoglycemia. CAD multivessel disease and reduced ejection fraction may contribute to higher incidence of cardiogenic shock and prolonged ICCU stay on geriatric.

Conclusion :
Elderly with multimorbidity fall to hypoglycemia may trigger TAVB and cardiogenic shock therefore comprehensive strategy required for better outcome.

KEYWORD: *Senile, TAVB, Hypoglycemia, Cardiogenic Shock, Sepsis*

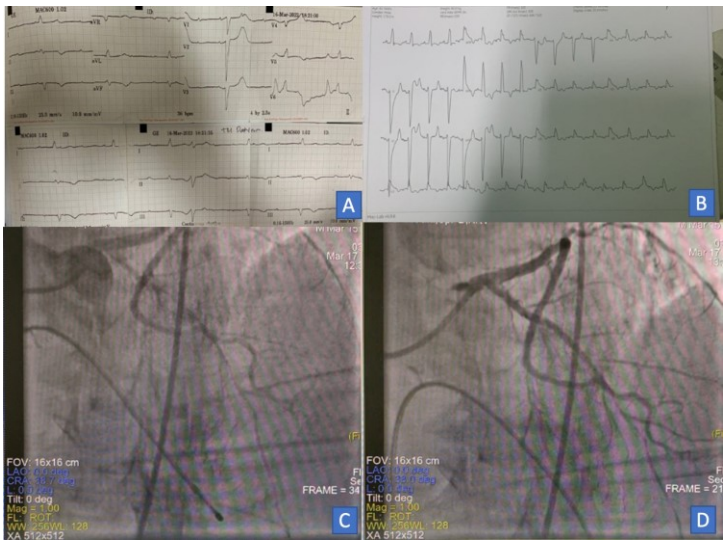

Figure 1. A. Patient ECG on ER Admission B. ECG after hypoglycemia correction C. Coronary Angiography showed 90% on osteal, 95% on proximal-mid of LAD D. PCI 1 DES to LAD

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CASE REPORT / CASE SERIES

Very Late Onset ST Elevation Myocardial Infarction - What Can Still Be Improved?

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Background: The timely and accurate identification of symptoms of acute coronary syndrome (ACS) can be difficult for individuals because such symptoms may be similar to those of other less serious conditions. Individuals may attribute their symptoms to non-cardiac causes, and thus not seek care. The delay in seeking medical advice (DSMA) for symptoms of ACS increases the risk of serious complications, disability, and death.

Case illustration: A 48th year-old-male presented with heartburn and nausea for 20 hours, with history of uncontrolled hypertension. Electrocardiogram showed ST elevation in leads V1-V4 with Q wave and inversion of T wave. Laboratory findings showed elevated Troponin T levels (537,3 ng/L) and hyperglycemia though history of diabetes mellitus denied. Coronary Angiography showed significant stenosis in mid and distal LAD, with insignificant stenosis in LM, proximal LAD, LCx and RCA. PCI was performed with stent placement in mid-distal LAD. Echocardiography showed a reduced left venticular systolic function with ejection fraction was 42-45%, and hypokinesis of the anterior and anterolateral wall.

Conclusion:
A reduction in the DSMA would make it possible to reach the most appropriate therapeutic time window for reperfusion of the culprit artery and to salvage a greater portion of myocardium at risk. Primary prevention through health education is fundamental to adequately trains the population to recognize symptoms of ACS and, thus, reduce DSMA.

KEYWORD: *ACS STEMI, Delayed in Seeking Medical Advice (DSMA), Health Education, Symptom*

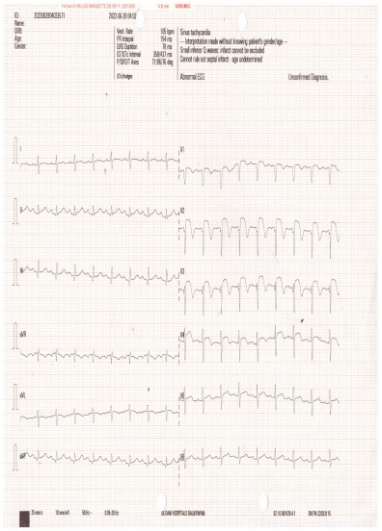

Figure 1. Patient's Electrocardiogram

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CASE REPORT / CASE SERIES

Total Atrioventricular Block in 2 Weeks; Need Permanent Pacemaker or not?

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Background: Total Atrioventricular Block (TAVB) occurs most frequently when the infarction of the inferior wall and results from interference to the blood supply of the atrioventricular(AV) node or upper part of the Bundle of His. Myocardial infarction, particularly with injury to the inferior wall, is also a well-described cause of reversible AVB

Case Illustration: A 61-year-old man admitted to clinic with recurrent chest pain in the past month, diaphoresis and nausea. He has history of smoking, hypertension and diabetes mellitus. Based on physical examination, he has blood pressure 157/89 mmHg and general status were within normal. His electrocardiogram (ECG) showed sinus rhythm, heart rate 71beats/min, Q pathologist lead III, AVF, ST depression lead II, III, AVF, T inverted in V4-V6 without AVB. Then, he was hospitalized and coronary angiography was performed. It was found the proximal of right coronary artery (RCA) had 80% stenosis whereas left anterior descending artery (LAD), left circumflex artery (LCX) were non-significant. The RCA seen ruptured plaques, calcified nodules, alienated plaques with Intravascular ultrasound (IVUS).Afterwards, Primary Percutaneous Coronary Intervention (PCI) for the RCA lesion was performed with two stents. After PCI, he was observed and suddenly the monitor showed bradycardia and TAVB in ECG. Therefore, a temporary pacemaker (TPM) was implanted. During 14 days of follow up, on the 1st-7th days follow up ECG showed TAVB. On the 8th day, PCI was repeated and RCA stenosis 70-80% osteal proximal was found and a stent was placed, after re-PCI, ECG showed second-degree AVB type 1. On the 9th-13nd days, ECG keep showed second-degree AVB type 1. Then, on the 14th days, ECG showed first-degree AVB. Finally, on the 15th days ECG convert to sinus rhythm. Intermittent conduction through the AV node was resolved after 15 days of follow up. Accordingly, permanent pacemaker implantation was postponed and the patient showed that the AV node had recovered to complete conduction

Conclusions:
Total AVB that resolve after revascularization may occur as a direct result of AV nodal ischemia.

KEYWORD: *Total Atrioventricular Block, Myocardial infarct, Pace maker*

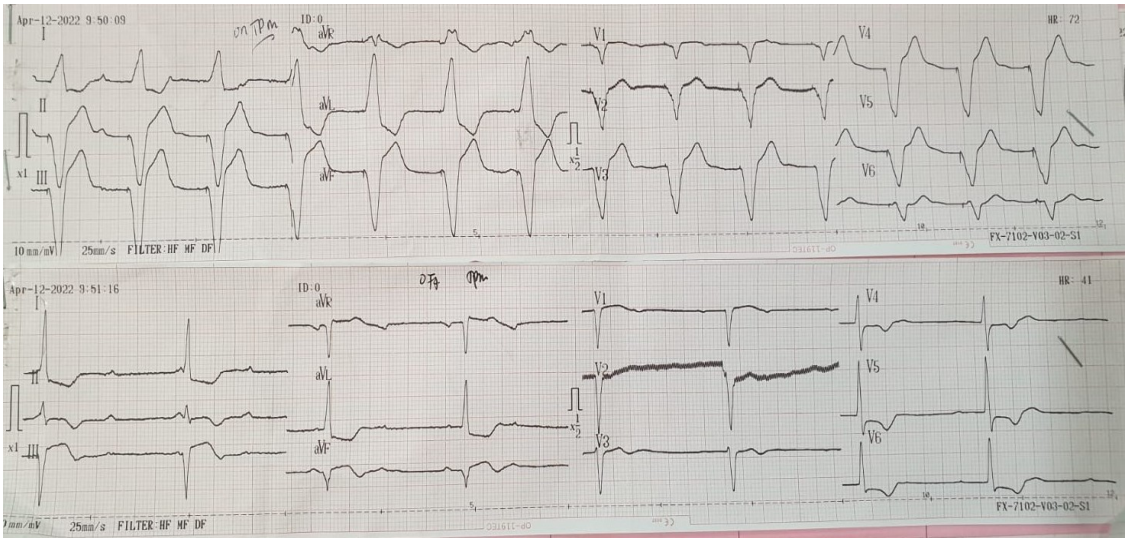

Figure 1. ECG after PCI showed TAVB on-TPM and off-TPM

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CASE REPORT / CASE SERIES

STEMI In Very Young People: Not All Acute Coronary Syndrome Are Similar

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Background: Acute Coronary Syndrome (ACS) is still the most common cause of death worldwide and it continues to increase recently. In Central Java, 1.6% of the population has suffered from ACS. ACS is commonly seen in population of over 45 years old and rarely occurs in young people of younger than 45 years old. ACS in young population was recorded at 2-6% of all STEMI events. In GRACE study, the prevalence of ACS at a young age was 6.3%. This condition is expected to decrease along with the changes in lifestyle within young population.

Case Illustrations:
Case 1: 26-year-old male with 17-hour long typical chest pain before admission. No history of hypertension, diabetes, smoking, alcoholism, and medicine before the attack. Vital sign and physical examination were normal. Electrocardiography (ECG) showed an Anterior STEMI with Troponin levels >40000, D-Dimer 1206.54, Hs-cRP 1.62, LED 25 and others were normal. Primary PCI was performed and showed normal coronary angiography.
Case 2: 25-year-old male with approximately 13-hour long typical chest pain about before admission, known as heavy smoker since age 15, and recently consuming alcohol. Vital signs and physical examinations were normal. His ECG showed an extensive anterior STEMI with troponin >40000, and other parameters were normal. Patient received successful thrombolysis before. Routine PCI was performed and found calcified lesion at proximal-mid-LAD, 1 DES was implanted with the result TIMI flow III.
Based on the INTERHEART study in the Southeast Asian population; smoking, cocaine, and alcohol contribute to the incidence of ACS in young age followed by obesity. Non atherosclerotic process, such as hypercoagulation as in our first case showed another mechanism of ACS that is mostly found in young people. There's no different of ACS management between young and old people. The use of statin must consider an ASCVD risk score and its underlying mechanism.

Conclusion: ACS in young people is not only caused by an atherosclerosis process. Determining the risk factors that cause ACS in young people can help us to manage and prevent ACS in the future.

KEYWORD: *ACS, Atherosclerosis, Non-Atherosclerosis, STEMI, Young People*

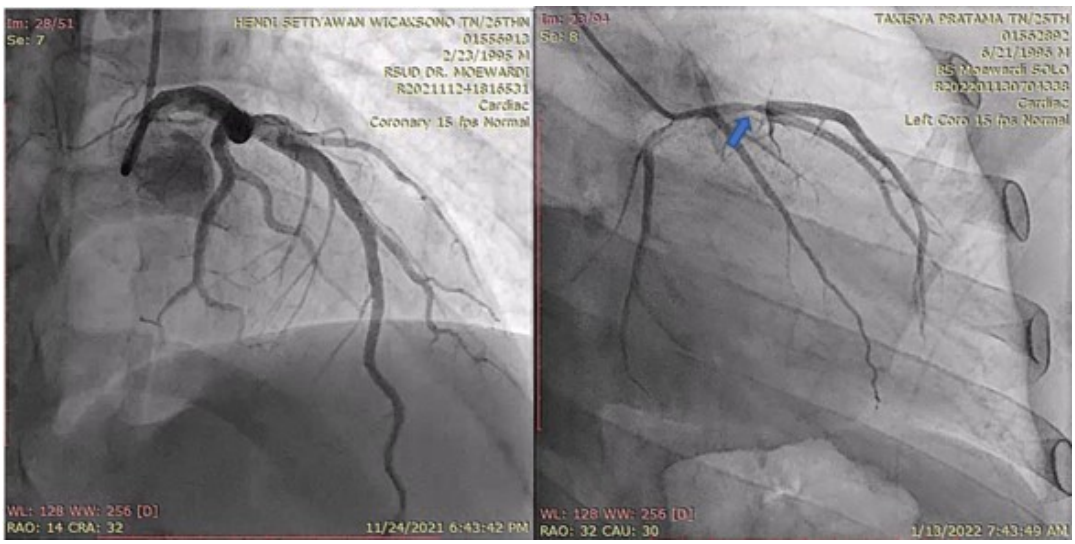

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Figure 1 Coronary Angiography Showed (Left) 1st case with normal coronary angiography, (Right) 2nd case with calcified lesion 90% in proximal-mid-LAD

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CASE REPORT / CASE SERIES

Right Heart Failure (RHF) Caused by Primary Pulmonary Hypertension (PPH)

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Background: According to CDC, HF was still listed 379.000 death, 530.068 prevalence in Indonesia and 9.204 in Bali. HF is a complex syndrome with signs and symptoms structural and functional abnormality of filling or pumping blood by left and right ventricles. PH is the most common cause of the RHF.

Case Illustration: 52 years old man came to emergency room with chief complain shortness of breath and medical history of primary pulmonary hypertension, thrombectomy at his lower extremity, stroke and hypertension. He was a smoker and stop for the last 10 years. Blood pressure was 184/108 mmHg, heart rate was 76 bpm, respiratory rate 28 breath/minute and oxygen saturation 87% room air, increased to 98% with NRM, distention of jugular vein, rhonchi at both lungs and ankle edema in both legs. The laboratory results showed renal insufficiency, prolong homeostasis, increased D-dimer, and positive erythrocyte sediment in urinalysis. Chest X-ray impression was cardiomegaly with pulmonary congestion. TTE showed dilated right atrium and ventricle, LVEF 42%, TAPSE 1.2, RVS' 3, RV FAC 11.2%, RMWA, D shaped LV, mild PR, mild TR with high probability of PH, e-RAP 15 mmHg. MSCTA pulmonal impression was pulmonary hypertension without pulmonary embolism. CAG was performed with conclusion CAD 1VD (CTO at PL). The right heart failure caused by several etiology with different pathophysiology that effect the management and prognosis. Pulmonary hypertension is the most common cause. The goals of management are improving quality of life, increasing exercise capacity and prolong survival.

Conclusion:
We described patient with Right Heart Failure caused by Primary Pulmonary Hypertension on Chronic Heart Failure FC III caused by Coronary Artery Disease 1 vessel disease (CTO at PL) and Hypertensive Heart Disease. This case report emphasized the etiology of right heart failure must be sought in all cases, because its recognition can direct the therapy and influence the prognosis of these patients.

KEYWORD: *Right Heart Failure, Primary Pulmonary Hypertension*

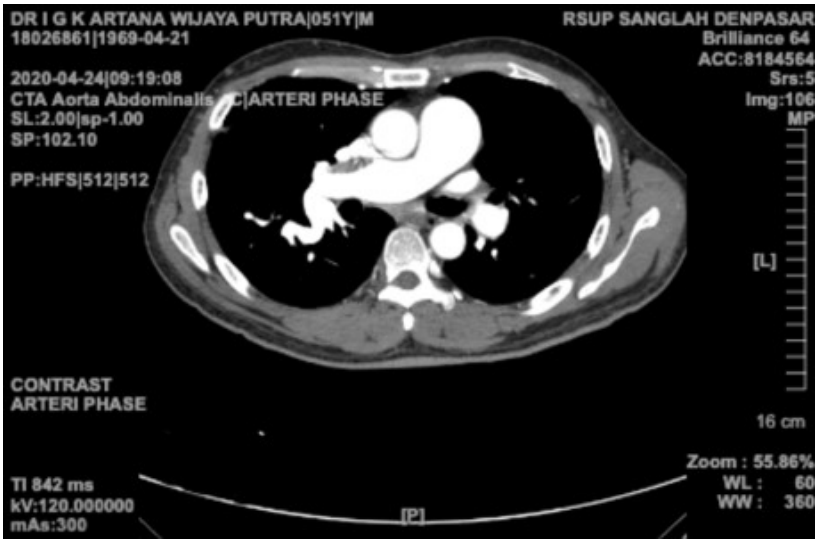

Figure 1. Right Pulmonary Artery Dilation on Pulmonary CT Angiography

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CASE REPORT / CASE SERIES

Bilateral Pulmonary Embolism Without Deep Venous Thrombosis was Observed After Orthopedic Surgery

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Background: Pulmonary embolism (PE) is a common and potentially lethal condition. Despite diagnostic advances, delays in pulmonary embolism diagnosis are common and represent an important issue. Orthopedic surgery especially in the hip area is one of the high-risk condition to induced PE. As a cause of sudden death, massive pulmonary embolism is second only to sudden cardiac death.

Case Illustration: A woman, 69 years old, came to ER with chief complaint of shortness breath since 5 days ago but getting worse in hours. She was discharge after neck humerus (ORIF surgery) a week ago. She also had history of immobilization for one month. Patient had history of controlled diabetes mellitus type II and hypertension. In primary survey, patient's oxygen level was 90%. Initial evaluation showed ECG of sinus rhythm with right axis deviation, and S at lead I, T at lead III but no Q at lead III as sign of PE. Troponin level was not increased and D dimer result >4000 ng/ml. Transthoracic echocardiogram showed dilated RA-RV, mild tricuspid regurgitation and Mc Connel sign at right ventricle. Then patient performed MSCT (Pulmonal Angiography) and found bilateral pulmonary arterial thrombus. As diagnosed with submassive PE, we treated the patient with fondaparinux for 5 days and discharge with oral anticoagulant for 6 months. Submassive PE, seen in about 40% of patients with PE, carries a 5–25% mortality rate. Orthopedic surgery in particular confers a higher risk with half of patients developing VTE without prophylaxis both pre-operatively and post-operatively. The increased risk is mediated by immobility during and after the surgery as well as by direct venous injury and inflammation during surgery. In current guidelines, pharmacologic thromboprophylaxis is preferred over mechanical thromboprophylaxis to reduces the incidence of DVT and PE in the postoperative period.

Conclusion:
Pulmonary embolism is often a misdiagnosed clinical disorder because the clinical presentation was common symptoms and similar to another common diagnosis. Rapid identification and appropriate treatment may often prevent unnecessary morbidity and mortality.

KEYWORD: *Pulmonary Embolism, Orthopedic Surgery, Thromboprophylaxis*

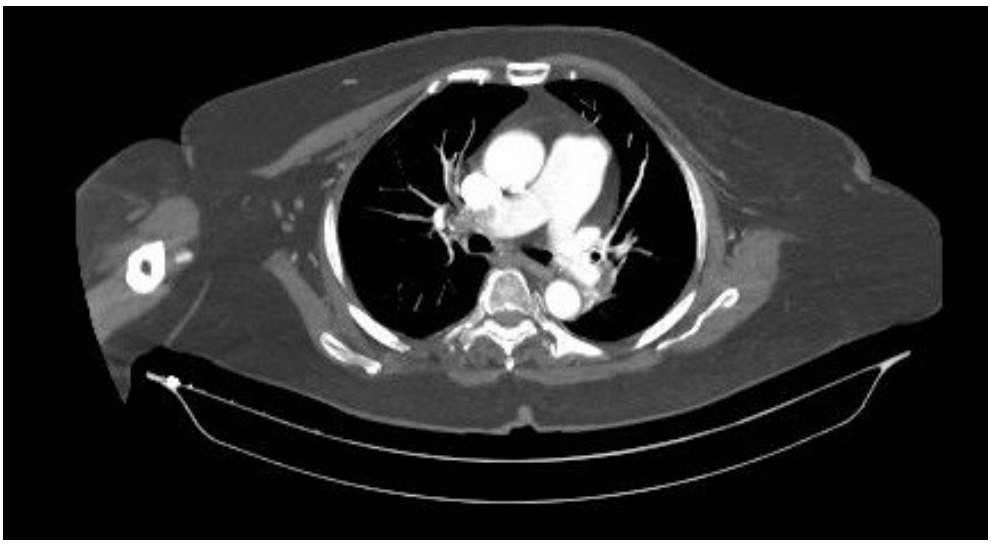

Figure 1 Bilateral pulmonary arterial embolism

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CASE REPORT / CASE SERIES

The Role of Low-Dose Dobutamine Stress Echocardiography in a 62-year-old Woman with Low Flow Low Gradient Aortic Stenosis and Reduced Ejection Fraction

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[2]Department of Cardiology and Vascular Medicine, Dr. Moewardi Hospital, Surakarta, Indonesia

Background : Aortic stenosis is the third most common cardiovascular disease after coronary artery disease and systemic arterial hypertension, and its prevalence increases with age. The progression of aortic stenosis severity contributes to the clinical manifestations and patient's survival rate.

Case Illustration : A 62-year-old woman presented to the emergency department with chief complaint of intermittent chest pain and shortness of breath. Patient also reported syncope. The patient had a history of similar complaints over 2 years ago. Physical examination revealed, her blood pressure 95/57 mmHg, heart rate was 87 beats/minute and respiratory rate was 24 breaths/minute. On auscultation, a grade 4/6 systolic ejection murmur was best heard at the upper right sternal border that radiates to the carotid. An electrocardiography showed sinus rhythm with complete right bundle branch block. The classic symptom and physical examination findings of aortic stenosis lead us to an echocardiography. Transthoracic echocardiography revealed dilatation of all cardiac chambers with abnormal myocardial movement, ejection fraction 13%, calcification in all three aortic valves with low flow low gradient severe aortic stenosis. AVA VTI 0.3 cm^2, AVA planimetry 0.3 cm^2 , AV VMax 3.61 m/s, AV mean PG 32.49 mmHg, SV 24.1, SVi of 33.8 ml, AVAi 0.179 cm^2/m^2, and velocity ratio of 0.10. Low-dose dobutamine stress echocardiography (DSE) is recommended to detect left ventricular flow reserve and to differentiate between true severe and pseudo-severe aortic stenosis. Low-dose DSE test concluded that the patient had true severe aortic stenosis, with an increase AV VMax to 4.32 m/s, AV Mean PG to 44.20 mmHg, and elevated SV more than 20% to 37.37.

Conclusions: Low flow low gradient aortic stenosis is diagnosed when AV mean PG ≤ 40 mmHg, AV VMax ≤ 4.0 m/s, AVA ≤ 1 cm^2, and SVi ≤ 35 mL/minute. It intrigues cardiologists and poses challenge in assessment of severity and appropriate management. Low-dose DSE is the key to proper diagnosis. In this case, we got an increasing flow in the presence of constant AVA with dobutamine infusion indicates presence of true severe aortic stenosis.

KEYWORD: *Aortic stenosis, low-flow low-gradient, low-dose dobutamine stress echocardiography*

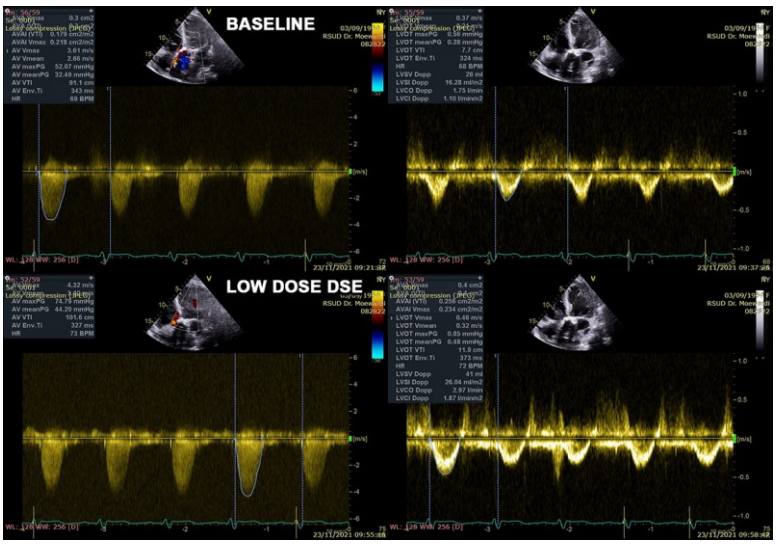

Figure 1. Comparison of echocardiographic results before and after low-dose dobutamine infusion.

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CASE REPORT / CASE SERIES

Primary PCI Successfully Performed Within 120 Minutes in Patient with Inferior STEACS in Peripheral Region

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Background: ST-Segment Elevation Acute Coronary Syndrome (STEACS) is one of the most common cardiovascular diseases with high mortality, but prognosis is good when reperfusion is done promptly. Percutaneous coronary intervention (PCI) is not a routine procedure in Jambi Province, until recently.

Case Illustration: A 59-year-old man with history of smoking, diabetes and hypertension complained of chest pain for 2 hours previously. Electrocardiogram (ECG) showed inferior STEACS. Dual antiplatelet therapy was given first to the patient and primary PCI was performed immediately within 120 minutes after STEACS diagnosis was established. Total occlusion was found in mid right coronary artery (RCA) (fig.1) and no significant stenosis with myocardial bridging in mid left anterior descending coronary artery (LAD). After primary PCI; ECG showed ST elevation reduction in inferior leads followed by improvement of the symptom and hemodynamic stability. Echocardiography revealed left ventricular hypertrophy, regional wall motion abnormality (RWMA) in infero-posterior, ejection fraction 65%. After five days of optimal treatment, ECG showed no ST elevation the patient improved and was discharged. The resources for performing PCI in Jambi Province have only been provided in the past few years, when health professionals and hospital requirements were fulfilled. This shows that a good outcome can be reached when stakeholders give their commitment and support to enable quality healthcare, based on the standard of evidence-based recommendations.

Conclusion:
This case illustrates a primary PCI that was performed in time. It adheres to the recommendation that PCI is performed within 120 minutes of STEACS diagnosis and within 12 hours of symptom onset, and patient outcome was good.

KEYWORD: Inferior STEACS, Right Coronary Artery, Primary PCI

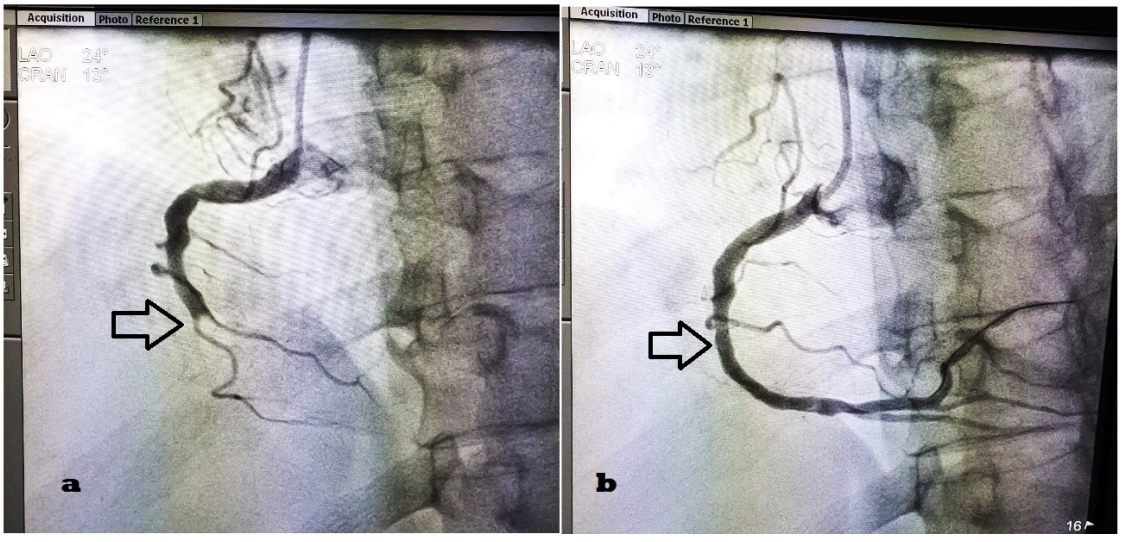

Figure 1. Angiography of the right coronary artery; (a) initial angiography demonstrating total occlusion in mid RCA; (b) after stent placement in mid RCA and blood flow is increased through the artery

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CASE REPORT / CASE SERIES

Acute Cardiogenic Liver Injury In Patient With ST-Elevation Myocardial Infarction: A Case Report

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Background: ST-Elevation myocardial infarction (STEMI) is a life-threatening illness with high morbidity and mortality rates, including acute cardiogenic liver injury (ACLI). Hipoxic liver injury in patient with STEMI as a result of lower cardiac output and tissue perfusion leading to tissue ischemic and necrosis marked by elevated serum transaminases (AST) ten-fold higher than normal level.

Case Illustration: A 53-year old man was admitted to the emergency department with chief complaint of typical chest pain onset 2 hours before. Electrocardiogram (ECG) test revealed STEMI inferior and total AV-Block, heart rate was 42 bpm. Blood pressure was 123/78 mmHg. The patient treated with streptokinase as a trombolytic agent with succesfullfibrinolysis and the ECG converted to sinus rhytm with 62 bpm on evaluation. Patient refused to be referred for primary coronary intervention. Laboratory tests revealed AST level were 333.2 U/L, ten-fold higher (normal level was <35 U/L) and alanine transaminases (ALT) were 93.8 U/L, no history of chronic liver disease. Patients underwent echocardiographic examination with LVEF was 57% after 6 days treatment. The decreased of cardiac output suggesting a cardio-hepatic syndrome in patients with STEMI. No definite treatment is known, some experimental treatment suggest the use of antioxidants, also some studies evaluated the effectivity of using hepatoprotectant agent in acute cardiogenic liver injury. The only established strategy for treating is to correct the underlying disease to improve cardiac output. The elevated transaminases return to normal within 7-10 days after the cardiac output improve. In this case, Our patient was given curcuminoid as additional therapy. The AST back to normal 32.5 U/L after 6 days of therapy.

Conclusions: STEMI followed by liver injury must be treated with optimal therapy using reperfusion strategy to improve cardiac output. Established therapy for treating ACLI is by correcting the underlying disease. Using antioxidants and hepatoprotectant as a treatment still need further experiment.

KEYWORD: *STEMI, Hipoxic liver injury*

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CASE REPORT / CASE SERIES

Inferior Myocardial Infarction Due to Occlusion of The Proximal Right Coronary Artery Identified by Electrocardiography: A Case Report

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Background: Right Coronary Artery (RCA) is one of the main branches of the coronary artery that supplies blood for the right ventricle and the main conduction pathway of the heart. Inferior myocardial infarct (MI) due to RCA occlusion may lead to serious complications and even death. Thus, early detection of inferior MI using electrocardiography is important for early and appropriate management of inferior MI.

Case illustration: A 55-year-old male was presented to the emergency room with chest pain that persist for 9 hours. The chest pain was reported as tightness on the chest that radiated to the left arm and was accompanied by nausea, vomiting, and cold sweat. The patient also had a history of uncontrolled type 2 diabetes mellitus and dyslipidemia. Physical examinations revealed hypotension, tachycardia, clammy limbs, and prolonged capillary refill time. Laboratory findings showed an increased level of Troponin T serum. Electrocardiography revealed a Total Atrioventricular Block (TAVB) with Junctional Rhythm, and the "Tombstone" ST elevation in lead II, III, aVF (inferior infarct), and V3R, V4R, V5R, V6R (right ventricle infarct), and the "Tombstone" ST elevation in lead II, III, aVF (inferior infarct), and V3R, V4R, V5R, V6R (right ventricle infarct). Moreover, the ST-segment elevation was higher in lead III than lead II and there was also a right axis deviation. Therefore, the patient was diagnosed with inferior MI and right ventricle infarction due to occlusion of proximal RCA. However, the patient died before a coronary angiography could be performed.

Conclusion:
A higher ST-segment elevation found in lead III than lead II is predictive of RV infarction due to occlusion in proximal RCA. This specific electrocardiography finding is associated with a poorer prognosis and higher mortality rate in patients with inferior MI.

KEYWORD: *Electrocardiography, Inferior myocardial infarct, Right Coronary Artery*

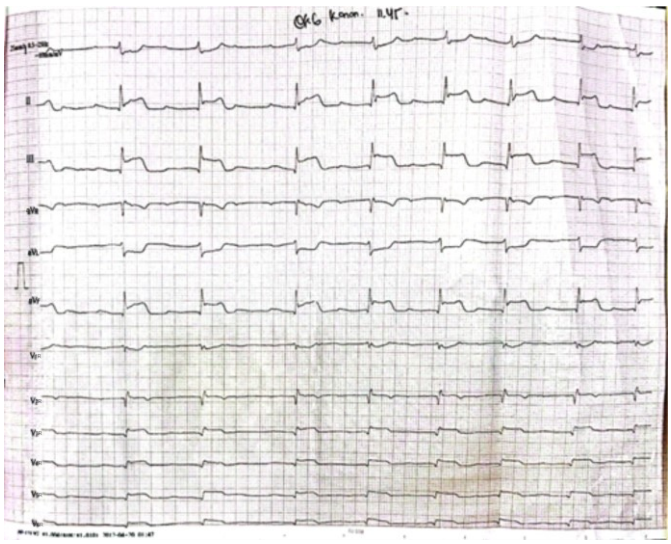

Figure 1. The right-sided electrocardiography of this case showed bradycardia, an inferior myocardial infarction, right ventricle infarction, and a total atrioventricular block with junctional rhythm

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CASE REPORT / CASE SERIES

Myocardial Bridging Unmasks as an Acute Coronary Syndrome from Dehydration

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Background: Myocardial bridging is a peculiar condition that may lead to such changes, yet the vessel obstruction is mostly dynamic and dependent on the cardiac cycle. It can manifest in emergent cases such as acute coronary syndrome when precipitated by some factors. In this report, we present a patient with myocardial bridging as an acute coronary syndrome from dehydration.

Case Illustration: A 50-year-old male with a past medical history of hypertension presented for loss of consciousness came to emergency ward. He was hypotensive with blood pressure 60 mmHg, tachycardic with a heart rate around 140 bpm, and complaining of ill-defined chest pain. Physical exam showed a regular tachycardic rhythm, normal heart sounds, and absent peripheral edema. Treatment started in the emergency department with intravenous fluids and epinephrine. The electrocardiogram (ECG) displayed an ST-segment elevation in lead aVR, along with global ST-segment depressions in the inferolateral leads. Figure 1, which was suggestive of myocardial bridging. The coronaries were otherwise angiographically normal. Epinephrine was discontinued, and after high-volume rehydration, blood pressure soon normalized. Follow-up ECG demonstrated a complete resolution of the ischemic changes and the patient regained consciousness. Echocardiography showed moderate concentric hypertrophy with a normal global systolic function. Myocardial bridging most commonly affects the middle segment of the LAD. The diagnosis can be made using coronary angiography, The myocardial compression of the artery decreases anterograde blood flow during systole and can even extend into early diastole. During tachycardia, diastole becomes compromised, leading to a shortened time for myocardial relaxation; thus, a higher proportion of flow obstruction can be seen within the cardiac cycle. Additionally, increased inotropy can exacerbate the degree of vessel compression, further prolonging the obstructive effect.

Conclusions:
In conclusion, we described patient with myocardial bridging clinically significant in hyperadrenergic states such as dehydration. This case report emphasizes the etiology of myocardial ischemia must be sought in all cases, because its recognition can direct the therapy and influence the prognosis of these patients.

KEYWORD*: Myocardial Ischemia, Myocardial Bridging, Intervensi*

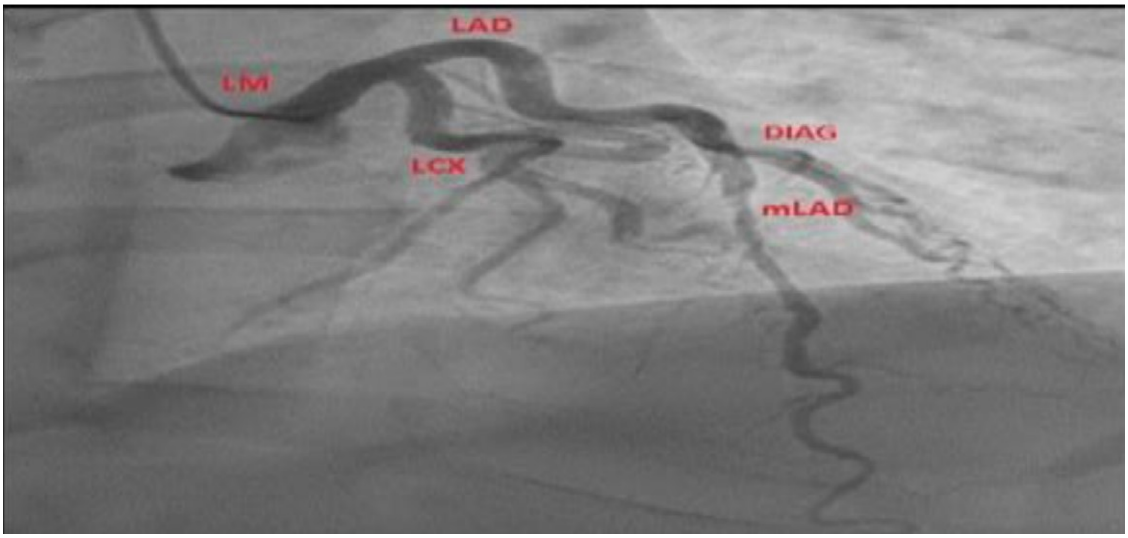

Figure 1. RAO cranial LHC demonstrating significant middle-LAD stenosis during systole.

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CASE REPORT / CASE SERIES

Giant Left Ventrivular Thrombus Formation with HFrEF in Uneffective Revascularization of Myocard Infarct Patient

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Background: The development of a left ventricular thrombus (LVT) was one of the most feared complications in patient with ischemic heart disease and the highest rate observed in acute anterior myocardial infarction (MI) and severe left ventricular (LV) systolic dysfunction.

Case Illustration: A 59 y.o female presented to ER with shortness of breath, PND and DOE 5 days before admission, and 1 year prior with history of MI and ADHF. The result of CAG revealed CAD 3 VD + LM Disease with suggestion to undergo bypass surgery, but the patient refused the surgery (figure 1). Diffuse crackles on both lung auscultation and bilateral pitting pedal edema. Initial workup was significant for low suspicion of ACS from unchanged ECG findings and subsequent CXR signs of pulmonary edema. Laboratory examination with normal cardiac enzyme levels, platelets 129,100/mm3, Cr 1.32mg/dL, Ur 76mg/dL, PT 12.2s, aPTT 49.9s, INR 1.18. TTE was performed and compared to prior examination (*figure 2*), found spontaneous echo contrast in the LV, thrombus at the apical of the LV with a size of 32-50.7 mm, with LV EDV include thrombus 237 ml and LV EDV without thrombus 97ml. Assesment with ADHF on HFrEF NYHA functional class III-IV with giant LVT (*figure 3*), CAD 3 VD + LM Disease with history of ACS, AKI. Patient was treated with HF treatment, anticoagulants (enoxaparin and warfarin) with PT/APTT/INR monitoring, and underwent successful diuresis, discharged 5 days after admission with stable condition.

Conclusion:
Based on a history patient of CAD, active smoker, extensive anterior OMI, HFrEF, akinetics of inferior-inferoseptal segments at basal to apical level on TTE, it showed that patient have a high risk leading to giant LVT. While even there is a high risk of thromboembolic events in patients with HFrEF, there are no convincing data and guideline to support use of systemic anticoagulation as a prevention.[2] in this case, the patient immediately receives optimal anticoagulants and warfarin as soon as the diagnosis is established. But unfortunately, giant thrombus formation make worsening and permanent wall motion abnormalities with severe global hypokinesis.

KEYWORD: *Giant LV Thrombus, HEFRF, myocardial infarct*

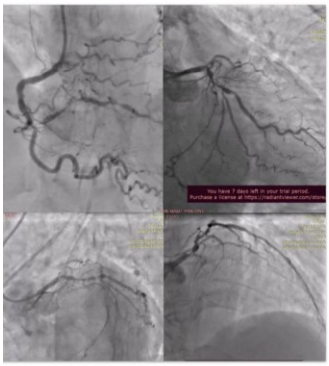


Figure 1. Corangiograohy

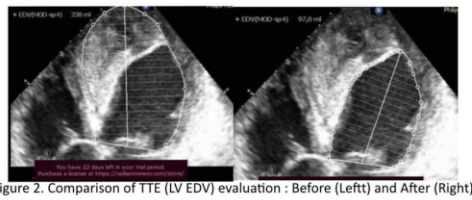
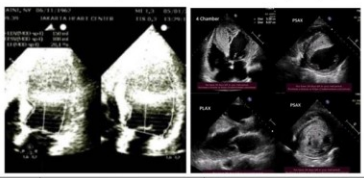


Figure 2. Comparison of TTE (LV EDV) evaluation : Before (Leftt) and After (Right)



ECHO	ADMISSION 1	ADMISSION 2
Chambers dimension	LA-LV dilatation	All chambers dilatation
Ventricular wall	LVH Eccentric	LVH Eccentric
LV Contractility	LVEF 31%	LVEF 20%
RV Contractility	TAPSE 19 mmHg	TAPSE 13 mmHg
Segment	Akinetics of inferior and inferoseptal at basal to apical level and normokinetic of other segments	Global hipokinetic
Other	Without LV thrombus appearance	Very large LV thrombus covers 1/2 of the LV space. The impression of a hard thrombus mixed with a soft thrombus. No bloackage of LVOT, impression thrombus is not reduced in size compared to the previous echo.

Figure 3. Giant LV Thrombus : Before (left), After (right)

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CASE REPORT / CASE SERIES

Single Coronary Artery Anomaly

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Background : Single coronary artery (SCA) anomalies are a subset of coronary artery anomalies. The prevalence of single coronary anomalies in the general population is approximately 0.024% according to Lipton's reports. In rare cases, coronary artery anomalies are isolated, asymptomatic cardiac malformation, and usually associated with other cardiac congenital abnormalities.

Case Illustrations: A 57-year-old man presented to our hospital with unstable angina. The patient complained of progressive chest discomfort that started a few weeks before the presentation. He also had associated palpitations and dizziness. Upon arrival, the patient's electrocardiography showed : sinus rhythm, 60-65 beats per minute, normal axis deviation, and anterior ischemia (T inversion in precordial lead V1-V5). We decided to proceed with a coronary angiography given his clinical presentation with unstable angina. The angiography resulted in approximately 85% blockade of the left circumflex artery (LCX), a normal flow of the left anterior descending artery (LAD), but an absence of RCA with no other vessels coming from the right or non-coronary cusps. A combination of both invasive (percutaneous coronary intervention) and non-invasive (pharmacotherapies) were made. After 2 days of hospitalization, he was discharged with no chest discomfort. This case reports a rare case of an isolated single coronary artery with a presentation of typical chest pain.

Conclusions :
This patient was diagnosed as having a single coronary artery and classified as L2P (according to Lipton's classification). The multi-disciplinary approach of management must be considered to determine an individualized plan based on the presentation and anatomy of each case.

KEYWORD: *Single Coronary Artery, Unstable Angina, Coronary Angiography*

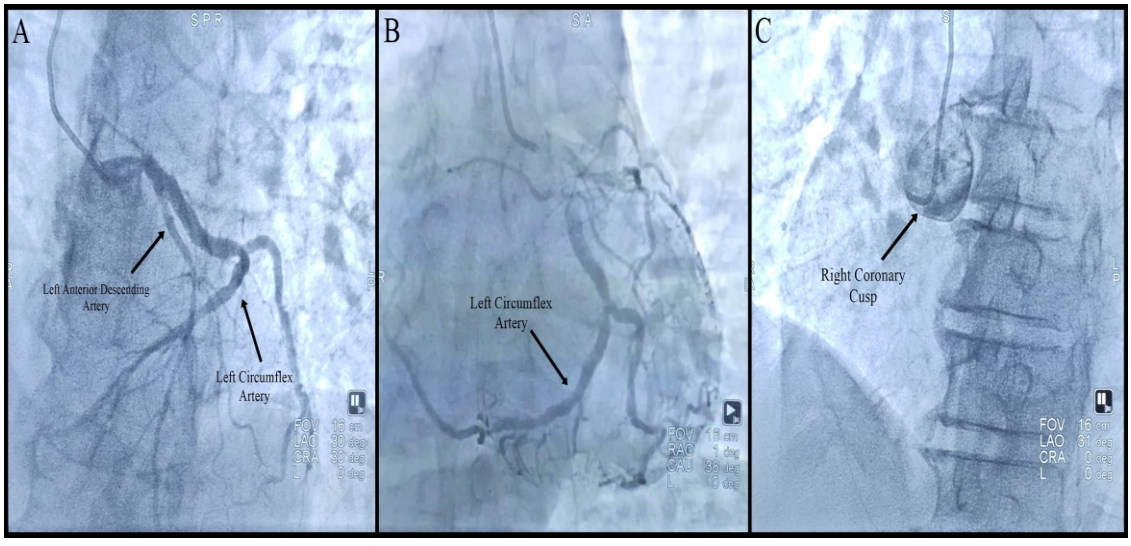

Figure 1. The coronary angiography showed left circumflex artery supplying right coronary artery region (figure B); and an absent of right coronary artery (figure C)

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CASE REPORT / CASE SERIES

The Role of Cardiac MRI in Defining a Curious Case of Dyspnea

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Background:
Dyspnea is a symptom caused by many etiologies. It is a challenge to diagnose an underlying cause of dyspnea, especially when results from other tools are not conclusive. In this case report, initial clinical and radiologic workups suggested a congestive heart failure with history of CTEPH. After doing subsequent tests with normal results in both cardiac and pulmonary systems, Cardiac MRI was finally done and led to the definitive diagnosis of Cardiac Sarcoidosis (CS) with Pulmonary Hypertension.

Case Illustration:
A 47 years old woman came to the ED with dyspnea at sudden onset. She has history of CTEPH from prior hospital and was relatively stable over these 3 years. Previous echocardiography showed LVEF of 60%, LVH concentric with diastolic dysfunction grade II, mild pulmonary emboly with no sign of tamponade, and PASP 45-50 mmHg. In this hospitalization period, her blood pressure was 130/90 mmHg with pitting edema on both legs. She was obese with BMI 33.3 kg/m^2. Initial laboratory tests showed normal value of CKMB and Troponin T. ECG showed sinus rhythm with left ventricular hypertrophy and AV block type I. The new echocardiography result was still similar with the previous one. Exercise stress test was disrupted because of poor tolerance, with ST depression at inferior leads and inverted T wave in all leads. She was temporarily diagnosed with congestive heart failure. More diagnostic workups were done, such as CT thorax with contrast, CT pulmonary angiography, and CT coronary angiography, all showed normal results. Ventilation/Perfusion test of the lung also reported normal lung perfusion. Cardiac MRI results found late gadolinium enhancement (LGE) on the inferior and inferoseptal region. It was concluded as possible cardiac sarcoidosis (50-90%) with pulmonary hypertension (Sarcoidosis-Associated Pulmonary Hypertension / SAPH).

Conclusion:
Cardiac sarcoidosis is a great imitator of many diseases, that patient may present with dyspnea only. Diagnosis of CS is challenging, because gold standard criteria has not been established. Therefore, cardiac MRI should be considered as both initial screening and diagnostic test in patients with dyspnea, especially when other diagnostic workups were not specific.

KEYWORD: *Pulmonary Hypertension, Cardiac MRI, Cardiac Sarcoidosis*

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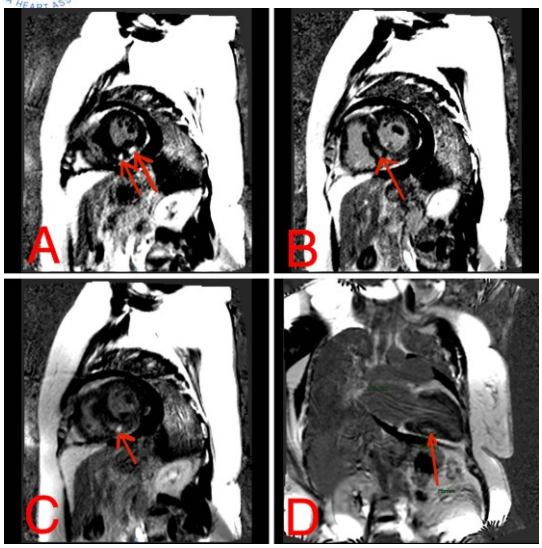

Figure 1. Short axis Cardiac MRI showed multifocal Late Gadolinium Enhancement (LGE) of the inferior and infero-septal LV wall. A: apical wall. B: basal wall. C: mid septum wall. D: Two chambers view.

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CASE REPORT / CASE SERIES

A Case Of Tachyarrhythmia : Pre-Excited Atrial Fibrillation

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Background:
Marked tachycardia with a palpable pulse, usually greater than 150 beats per minute accompanied by cardiac instability, is the hallmark of unstable tachyarrhythmia. The presence of Atrial Fibrillation (AF) when accompanied by an accessory pathway allows rapid conduction directly to the ventricles, bypassing the Atrioventricular Node (AVN). The purpose of this report is to present a rare case of pre-excited AF since diagnosing and treating this disorder proves to be challenging when the pathognomonic waves become buried in tachyarrhythmic patients.

Case Illustration:
A 37 years-old male presented with chest pain and palpitation 30 minutes before arrival, with a history of similar episodes which resolved on its own. Vital signs were significant, with a blood pressure of 100/60, irregular heart rate between 170 and 180, respiratory rate of 28, and normal oxygen saturation. Physical examination was unremarkable. The Electrocardiogram (ECG) suggests pre-excited AF (Figure 1). Synchronized cardioversion was attempted, with the following result: the ECG converted to sinus rhythm with the easily identifiable signs of Wolff-Parkinson-White (WPW) syndrome: delta wave, shortened PR interval, and wide QRS (Figure 2). Urgent cardioversion is required in patients presenting with pre-excited AF. AVN modulating agents should be avoided as they may contribute to a risk of ventricular fibrillation. Amiodarone should not be considered, since there has been a report of enhanced pathway conduction and ventricular fibrillation.

Conclusion:
Pre-excited AF limits the choice of pharmacological treatment, especially in rural regional hospitals. Synchronized cardioversion, which should be available in every regional hospital, is the treatment of choice in pre-excited AF.

KEYWORD: *atrial fibrillation, tachyarrhythmias*

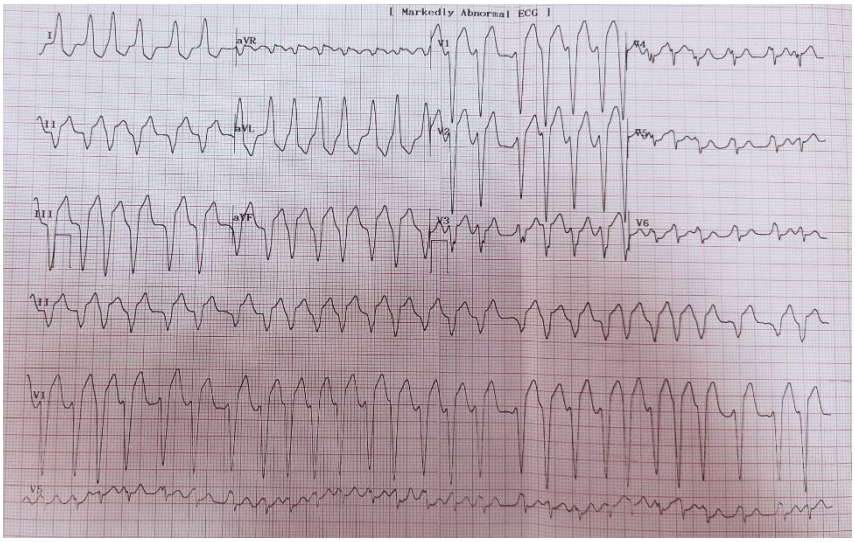

Figure 1. Initial ECG. Notice the wide, irregular QRS complexes with beat-to-beat variation, R-R variation, and rapid ventricular response.

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CASE REPORT / CASE SERIES

A Complicated Case in Secondary Hospital : Conservatife management in Atrial Fibrilation with Hypertensive Heart Disease and Decompensated Cor Pulmonale

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Background: 30% of patients with atrial fbrillation also have atrial fbrillation and heart failure are 2 associated, common cardiovascular diseases that may increase mortality. The sequence of presentation varies, but patients with both conditions are at particular risk of cardiovascular complications,including all-cause and cardiovascular death,stroke, and worsening of heart failure.

Case illustration: A 48 y.o. male came to emergency room with chief complaint shortness of breath. shortness of breath. The complaint is felt intermittently since 1 week and worsened since 3 days. He also complained pounding. The patient has a history of hypertension and is not routinely treated. Patients who smoke are more or less exhausted 1-2 packs of cigarettes in 1 day. Patient heart rate was 148 bpm with irregular ryhtm, blood pressure was 90/60 mmHg, respiratory rate 30x/minute, temperature 36,5,Spo2 91% room air. In physical examination, we found cardiomegaly and rales in 1/3 basal of lungs. Laboratory abnormal was Hb 9. ECG showed Atrial Fibrilation Rapid Ventricular Respon and atrial enlargment. The AP chest X-ray shows an cardiomegaly, accompanied by early lung edema and minimal right pleural effusion. Selection and administration of beta blocker therapy, prostacyclin synthetic analogues, ionotropic agents, ACE inhibitors, intravenous fluids, potassium-sparing diuretics, fibrinolytic agents, and glucocorticoids discharge with no complaints

Conclusions:
We discribe a patient with atrial fibrillation with complicated disease, patient was given HF, Cor pulmonale and atrial fibrillation therapy that can reduce the risk of death of the patient, improve the patient's clinical course and will shorten the duration of hospitalization.

KEYWORD: *Atrial Fibrilation, Hypertensive heart failure, Cor Pulmonale*

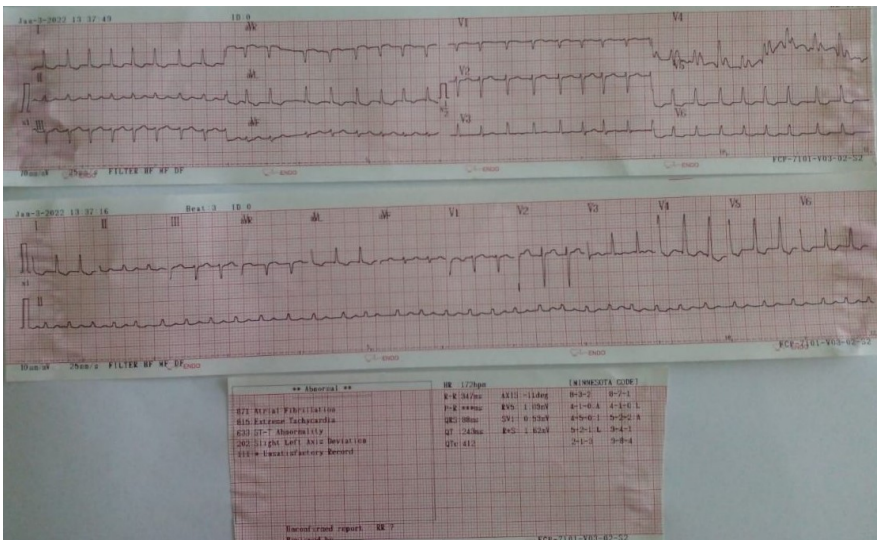

Figure 1. An Atrial 35ibrillation RVR

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CASE REPORT / CASE SERIES

Stable Oxygen Saturation Improvement in a High Risk Patient with Tetralogy Of Fallot Post Right Ventricular Outflow Tract Stenting

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Background: For the past decade, right ventricular outflow tract (RVOT) stenting has been widely used as a palliative therapy prior surgical intervention in patients with tetralogy of fallot (TOF). Previous studies had confirmed the effectiveness of RVOT stenting in improving oxygen level in cyanotic patients.

Case illustration: We report a successful case of right ventricular outflow tract (RVOT) stenting on a 3-year-old with TOF and severe cyanosis. He had become increasingly less responsive to propranolol therapy and getting between 1-3 cyanotic spells a day despite adequate doses of propranolol. He arrived at the emergency room with shallow breathing and his oxygen saturation was 30% only. Emergency RVOT stenting was then takenafter stabilization and intubation in the emergency unit. This procedure was conducted as an emergency measure since the patient had McGoon ratio of 1.2, severely hypoxic, and unresponsive with medication. Previous reports on RVOT stenting had shown 87% success rate in patients with 63% (44-80%) pre-procedural oxygen and improvement in patients from 75% (60-85%) pre-procedural oxygen saturation up to 94% (90-98%) (p=0.008) post-procedure. In addition, RVOT stenting had shown lower risk of mortality compared to Blalock-Thomas-Taussig (BT) shunt, does not require patients to have McGoon ratio above 1.5, improving oxygen saturation and right pulmonary artery size better than modified Blalock-Tausig shunt (mBTS). Hence, considering that RVOT stenting provides better outcomes with less prerequisite criteria, I preferred over BT shunt in our case. Predilatation steps were conducted to prevent stent fracture. After stent was stowed in place, descending aortic oxygen saturation rose significantly from 42% to 95%. Follow-up echocardiography shows perfect resolution of pulmonary stenosis and post intubation removal, the patient oxygen saturation stabilized at 92%.

Conclusion: RVOT stent is a safe and effective palliative treatment in severely cyanotic with recurrent spell TOF patient, unresponsive with medication. This report highlights the stable oxygen saturation improvement after RVOT stenting.

KEYWORD: *right ventricular outflow tract stent, severe pulmonary stenosis, severe desaturation, tetralogy of Fallot*

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CASE REPORT / CASE SERIES

Essential Thrombocytosis Manifested as Acute Coronary Syndrome: a Rare Case

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Background: Essential thrombocytosis (ET) is a rare myeloproliferative disease that increases the risk of both thrombosis and bleeding. Acute coronary syndrome as presenting symptom leading to diagnosis of ET is uncommon, even though 9.4% of ET patients will suffered from ACS.

Case Illustration: A 67-years old man presented to the ER with typical chest pain, nausea, vomiting, and diaphoresis since 2 hours ago. The patient has no classic risk factor other than his age. The lab results from 2 years ago revealed high platelet counts of $8.75x10^5/\mu l$, but was never diagnosed and treated. ECG showed poor R wave progression and LVH. The laboratory examination exhibited leukocytosis, severe thrombocytosis and elevated hs-cTn I. Echocardiography displayed LV segmental wall motion abnormality with low EF. The coronary angiography showed 80% stenosis on proximal LAD, 90% stenosis on proximal RCA with high take off ostium, and 50-60% stenosis on proximal LCX. A drug eluted stent was placed on proximal LAD. The patient was discharged on day 5 due to stable condition and resolved chest pain, with planned staging PCI, bone marrow puncture (BMP) and JAK2 mutation testing. On outpatient follow up, peripheral blood smear, BMP, and JAK2 mutation showed consistent results confirming ET diagnosis. The ET was treated with hydroxyurea 500mg bid and follow-up lab exam 3 months later shown normal leukocyte and thrombocyte counts.
Discussion: ET increased thrombotic risk that may complicate into coronary thrombosis, presenting as ACS. Diagnosis of ET can be suspected from CBC and confirmed by BMP and the presence of JAK2 mutation. Treatment of ACS in ET involved cytoreductive therapy, antithrombotic therapy, and revascularization if needed.

Conclusion:
ACS can be presenting symptoms of patient with ET, which can be suspected by thrombocytosis and confirmed by hematological and JAK2 mutation testing. Cytoreductive and antithrombotic therapy play a big role in ACS therapy for ET patients, along with revascularization if needed.

KEYWORD: *Essential thrombocytosis, Acute Coronary Syndrome*

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CASE REPORT / CASE SERIES

Management of Extensive Abdominal Aortic Aneurysm in Geriatric Female Patient: A Case Report

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Background: Abdominal Aortic Aneurysm (AAA) is abnormal focal dilation of the abdominal aorta, is a life-threatening condition that requires monitoring or treatment. Mortality because of ruptured AAA is high with a typical symptom of worsening back pain. In this report, we present a female geriatric patient incidentally diagnosed with unruptured extensive AAA.

Case illustration: A 77 years old female presented to the emergency room complaining of recurrent dyspnea and epigastric pain for 3 months. She also complained of abdominal discomfort and fullness. The patient had a history of uncontrolled hypertension, dyspnea on effort, and orthopnea. The patient heart rate was 108 bpm, blood pressure was 179/128 mmHg, and pulsatile mass was palpable in the right upper abdomen around 20 cm x7 cm. ECG showed LV hypertrophy with no sign of ischemia/infarction. Chest X-ray showed cardiomegaly, pulmonary congestion, aortic sclerosis, elongation, and dilatation. TTE showed concentric LV hypertrophy, LA dilatation, LVEF 48%, mild AR, and TAPSE 2,2 cm. Abdomen ultrasound indicated a supraumbilical AAA. Then, Abdomen CTA was suggested, and it discovered an extensive abdominal aortic aneurysm infrarenal measuring 4.3 cm in diameter and about 14 cm in length. AAA is defined as a dilation of the subdiaphragmatic aorta to a diameter greater than 3.0 cm. AAAs are found in 47% of men and 1% of women aged 50 and older. Yet, women with AAA have a higher mortality rate, and more frequently present with a ruptured AAA. Many of this death should be preventable by early detection and elective repair of aneurysms. Diagnostic tools like abdomen ultrasound can be a useful modality for the initial detection and size measurement of AAA. CT angiography can help to identify the presence of rupture, features of impending rupture, or alternative diagnoses. This patient received β-blocker, ARB, and statin, This patient was then discharged after 3 days of hospitalization. Routine follow-up and hypertension control play a critical role to prevent future complications and mortality.

Conclusion:
In conclusion, we describe a geriatric female patient with unruptured extensive AAA. This case report emphasizes the recognition, diagnostic tools, and management of AAA.

KEYWORD: *Abdominal Aortic Aneurysm, Geriatry*

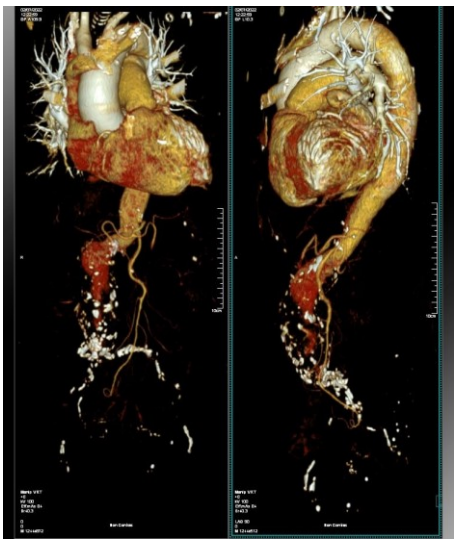

Figure 1 Patient had distended abdomen, scrotal edema, and peripheral pitting edema

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CASE REPORT / CASE SERIES

Ventricular Tachycardia on ST-Elevation Myocardial Infarct with Atrioventricular Block: A Case Report

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Background: Patients with acute inferior ST-elevation myocardial infarction (STEMI) are more likely to develop conduction system abnormalities as its complication. Ventricular tachycardia (VT) occurrence in acute myocardial infarction (AMI) amounted to 16%, which could lead to a collapse of the circulatory system and require immediate therapy. Atrioventricular (AV) block complicating acute inferior STEMI is associated with poor results and an increased mortality rate.

Case Illustration: A 53-year-old woman with a history of hypertension and heart failure presented palpitation with worsening shortness of breath. She was conscious with blood pressure was 110/90 mmHg, a respiration rate of 32 times/minute, and oxygen saturation becomes 98% on a 3 lpm nasal cannula. Rhonchi on both lungs and distended jugular veins were found. The electrocardiogram showed regular wide QRS complex tachycardia with 175 pulse/minute. Chest radiograph showed cardiomegaly. Laboratory confirmed hypokalemia and others within normal limits. Given the patient's stable hemodynamic, amiodarone intravenous bolus became started, and later on, the echocardiogram converted to sinus bradycardia with inferior STEMI and first-grade AV block. Aspirin, Clopidogrel, Fondaparinux subcutaneous, Atorvastatin, Dopamine pump, Furosemide, Spironolactone, and Kalium supplement were initiated and then the patient was transferred to a higher-level of health center for advanced cardiac care. Patient with stable hemodynamics is recommended to use a pharmacology approach to terminate VT and find the precipitating causes. The mechanism of VT in AMI patients is complex and consists of various factors; interaction of ionic imbalances with neurohumoral changes, increase in electrical resistance among cardiac myocytes, scar formation, and electrolyte imbalance. Most AV block reversibility may be achieved while reperfusion of STEMI has been completed.

Conclusion:
AMI can cause life-threatening arrhythmias. VT presents many challenges for clinicians and devastating outcomes might also occur all of sudden. Understanding the mechanism, and prompt diagnosis with appropriate clinical therapy of VT is essential for favorable outcomes in AMI patients during the acute phase and follow-up.

KEYWORD: *AMI, AV Block, STEMI, Tachyarrhythmia, Ventricular Tachycardia*

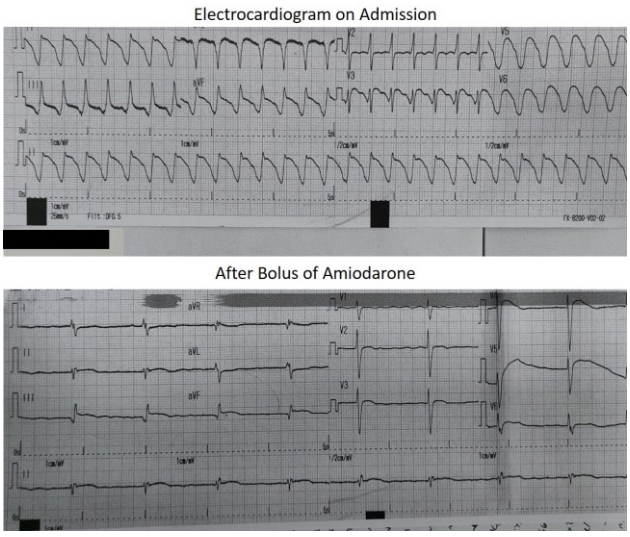

Figure 1 Patient's ECG on admission and after intravenous bolus of amiodarone

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CASE REPORT / CASE SERIES

Imatinib-Induced Congestive Heart Failure in Woman with Chronic Myeloid Leukemia: An Uncommon Case Report

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Background: Imatinib, the first tyrosine kinase inhibitor (TKI) launched, is a standard first-line therapy for chronic myeloid leukemia (CML) because it is safe and well-tolerated. Imatinib-induced cardiotoxicity, such as LV dysfunction and heart failure, is uncommon[1], with a prevalence of 0.2% per year.

Case Illustration: A 56-year-old woman with CML has been on Imatinib for the past few years as maintenance therapy. She presented exertional dyspnea, paroxysmal nocturnal dyspnea, fatigue, and leg swellings. Blood pressure was 104/85 mmHg, pulse rate 107 beats/min regular, temperature 36.0°C, respiratory rate 22 times per minute, and oxygen saturation was 97% on 3 lpm nasal cannula. Rhonchi on each lung and edema on the lower extremity were found. Tachycardia sinus rhythm on electrocardiogram. Chest radiograph showed cardiomegaly and pulmonary edema. An echocardiogram showed LVEF of 36%, LA/LV dilatation, and reduced LV systolic function. Laboratory showed WBC 69.840/µL, Hemoglobin 12.5 g/dl, Platelets 687.000/µL, Urea 97.80 mg/dl, Creatinine 1.85 mg/dl. A diagnosis of congestive heart failure was made and Imatinib was replaced by Hydroxyurea. She was given Oxygen, Furosemide, Spironolactone, and Digoxin. A few days later patient's symptoms had resolved. The mechanisms of toxic cardiomyopathy are multifactorial; include interference with the myocardial cellular bioenergetics and intracellular calcium pathways, the generation of reactive oxygen species, the induction of apoptosis, and neurohormonal stress. Imatinib induces mitochondrial dysfunction by interfering with the importation of mitochondrial proteins, negatively affecting the main mitochondrial metabolic pathways. Therefore, the impaired mitochondrial function will lead to heart myocytes and endothelial cell death which will eventually lead to cardiovascular dysfunction. Even though cardiac damage is uncommon, it is still worth attention. Heart failure patients need to be monitored carefully and treated aggressively with standard medical therapy.

Conclusion: We present the case of a female with congestive heart failure with Imatinib as a CML maintenance treatment. Discontinued or reducing the dosage of Imatinib when heart failure was discovered and simultaneously treating the cardiotoxicity is recommended. Even though imatinib-induced cardiotoxicity is uncommon, even during long-term treatment, standard cardiac monitoring of patients is suggested.

KEYWORD: *Imatinib, TKI, CML, Heart Failure, Cardiotoxicity*

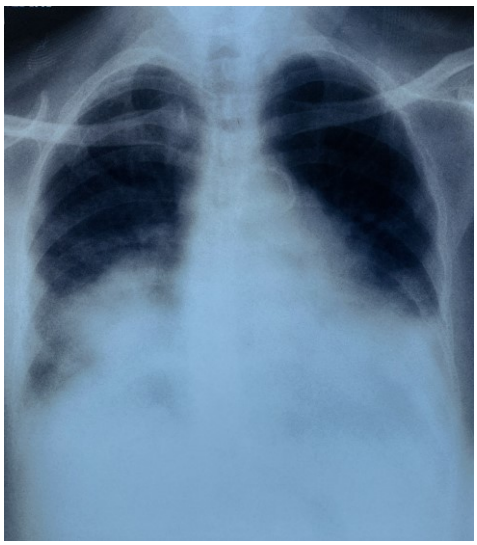

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Figure 1 Patient's thorax x-ray showing cardiomegaly and pulmonary edema

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CASE REPORT / CASE SERIES

Normal Echocardiography on Acute Coronary Syndrome Despite Having Abnormal ECG and Severe Coronary Occlusion

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[2]RSUD Zainoel Abidin

Background: Acute coronary syndrome was the leading cause of death in the world. This disease was mostly happened because of atherothrombotic events cause thromboembolism in coronary artery which lead to myocardial ischemia or infarction. Ischemia and infarction will develop regional abnormalities in contractile function. However, in small number of cases, regional wall abnormalities was not presence.

Case illustration: A 42 years old man came to emergency room with chest pain since 2 days before admission which was felt during activity for 5 minutes, like tightness in the chest. This was the first time the patient felt chest pain. Patient has history of hypertension since 10 years ago and stroke numerous amount of time. Physical examination and laboratory was within normal limit, with normal troponin levels. On his ECG there was ST elevation and pathologic Q wave on lead V1-V5. Early invasive coronary angiography found normal left main, severe calcified total occlusion at the proximal LAD and 80% stenosis on proximal until mid LCx, undeveloped distal OM and long aneurism on RCA from proximal to distal part. POBA was performed on LAD, but unable to open the lesion properly. Echocardiography result show normal LV and RV function, normokinetic on all segment at rest, grade 1 diastolic dysfunction, with LV concentric remodelling. Normal echocardiogram with normal troponin level cause doubt in the presence of coronary occlusion on the patient, even so, patient's history lead to diagnosis of acute coronary syndrome with high risk cardiovascular events. Electrocardiogram supported the probability of coronary occlusion. Therefore, early coronary angiography was performed with result LAD occlusion. Due to compensatory process, collateral has developed on his RCA and his LCx supporting oxygen needed for his heart to function properly. But this compensation failed to meet his demand during exertion, therefore chest pain happened.

Conclusion:
Even with the presence of occluded artery, echocardiogram at rest might show normal heart function, therefore, it should not be overly relied to diagnose coronary artery disease. Proper history taking and electrocardiography was still the most reliable examination to diagnose of coronary artery disease.

KEYWORD: *Acute Coronary Syndrome, CAD, Chronic Coronary Syndrome, Normal Echocardiographic Findings, Calcified Coronary Occlusion*

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CASE REPORT / CASE SERIES

Infective Endocarditis Presenting With Concomitant Systemic Lupus Erythematosus – Like Syndrome

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[1]Syiah Kuala University

Background: Infective endocarditis (IE) is an uncommon infection occurring every 3 to 7 per 100.000 person-years and increases with age, reaching a peak incidence of 14.5 episodes per 100,000 person-years in patients aged 70 to 80 years. Yet, it is also the fourth most common life-threatening infection after sepsis, pneumonia, and intraabdominal abscess, with an estimated inpatient mortality rate between 15 to 30%. Symptoms may be subtle and non-specific. IE may present with rheumatological manifestations in 25 – 44% of patients.

Case illustration: A 18-year-old woman with 1-month history of tiredness, prolonged fever, myalgias, nausea, dysphagia to solid food and unintentional weight loss. Physical examination indicated weakness and wasting syndrome. She did not have petechial rash, splinter hemorrhages, Osler nodes or Janeway lesions. Crackles was heard from right side of her lung. Laboratory findings revealed leukocytosis 33,56x10^3/mm^3 and severe normochromic-normocytes anemia (6,8 gr/dL) with cross-match incompatibility positive +1. Blood cultures were positive for Staphylococcus hominis. A Chest X-Ray showed normal heart size with right lung pneumonia and transthoracic echocardiogram (TTE) revealed vegetations in the tricuspid valve. The patients have improved clinical condition and laboratory parameters after get two PRC transfusion and administration of sensitive antibiotics, Vancomycin. However, after 7th day of definitive therapy, patient had episode of feverish condition and worsening of laboratory parameters also chest radiograph despite on sensitive antibiotics therapy. ANA-IF test show very high titer (1:320) suggesting a concomitant with autoimmune issue. The rheumatology division recommends addition pulse dose of 125mg methylprednisolone every 12 hours for 3 days. Clinically stable achieved after receiving antibiotics and steroid injections. Marked reduction of vegetation was also noticed from TTE (21mm X 28mm to 9mm X 9mm).

Conclusion :
Management of Endocarditis with autoimmune disease requires an interprofessional approach by infectious disease, rheumatologist, and pulmonologist to formulate a proper diagnosis and treatment plan. Because there is no established guideline yet, both overdiagnosis and underdiagnosis are inevitable.

KEYWORD: *Infective Endocarditis, Vegetation, Transthoracic Echocardiography*

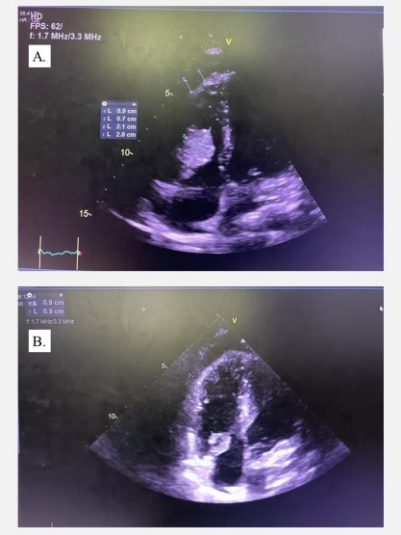

Figure 1. A. Transthoracic Echocardiography show vegetation in Tricuspid Valve 21mm x 28mm ; B. Transthoracic Echocardiography show vegetation in Tricuspid Valve 9mm x 9mm.

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CASE REPORT / CASE SERIES

Management Of Orthodromic Atrioventricular-Reentrant-Tachycardia In Pregnancy with Pre-excitation In Rural Areas

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Background: Pre-excitation syndrome is a type of supraventricular tachycardia (SVT) with a haemodynamic compromise. The incidence of SVT in the general population is 35 per 100,000 person-years and there are no reliable data on the incidence of paroxysmal SVT in pregnant women due to rarity of cases.

Case illustration : A 27-year-old woman was admitted to the emergency room with a chief complaint of fainting and palpitations since two days prior. The patient was in second pregnancy at 32 weeks of gestation. Blood pressure was decreased at the time of admission. The physical examination was within normal limits. Mild hypokalaemia was present. No abnormality was found on her echocardiogram. The electrocardiogram on admission showed narrow QRS-complex tachycardia of 150 beats per minute. We treated the patient with intravenous digoxin. Subsequently, the patient improved and the rhythm converted to sinus with delta waves and infrequent premature ventricular contractions (PVCs). Electrophysiology study was planned whenever available. Atrioventricular reentrant tachycardia (AVRT) due to pre-excitation is more likely to exacerbate during pregnancy, which is related to increased plasma catecholamine levels. AVRT might occur in either orthodromic or antidromic configuration; in this case, the PVC elicited the former. Digoxin reduces sympathetic nerve tone, renin-angiotensin activity, and circulating catecholamines. It also regulates baroreceptor function by increasing vagal tone (vagomimetic effect), which also decreases the rate of sinus node discharge, atrial conduction, and AV nodal conduction by prolonging conduction times and refractory periods of these tissues. There is no evidence of birth defects associated with digoxin use during pregnancy. The U.S. Food and Drug Administration (FDA) recommends digoxin with a classification of IC. It is the same as the recommendation for adenosine, but easily obtainable in rural areas.

Conclusion:
Digoxin is beneficial to treat the SVT in pre-excitation patients with pregnancy in the rural setting. This medication has been declared safe and approved by FDA for use in pregnancy.

KEYWORD: *AVRT, Pre-excitation, Pregnancy*

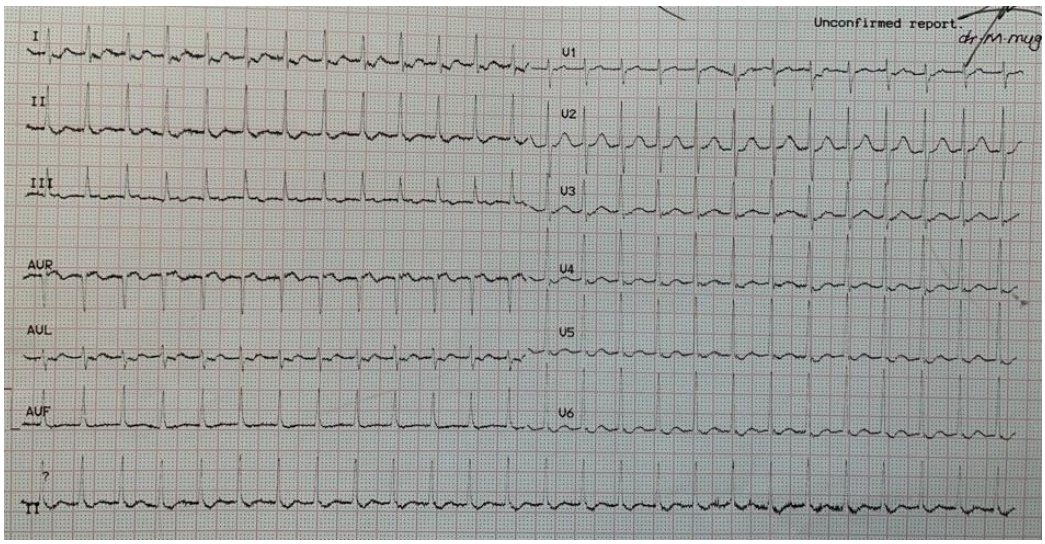

Figure 1: Electrocardiogram shows AVRT with narrow QRS complex and rate of 150 bpm

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CASE REPORT / CASE SERIES

Possible Pulmonary Embolism With Deep Vein Thrombosis in Obese Old-Woman with Routinely Traditional Massage

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Background: Pulmonary embolism (PE) is present in 60-80% of Deep Vein Thrombosis (DVT) patients, although more than half of these patients are asymptomatic. Obesity was associated with a six-fold increased risk for PE and a significant association between obesity with DVT.

Case illustration: A 63-year-old obese woman admitted with shortness of breath that felt for three days. The patient complained of pain and swelling in her left leg two weeks before admission, and the day after patient had traditional massage treatment. She had a habit of traditional massage. The patient had severe breathlessness with desaturation (Sp O2 80%). The laboratory found D dimer >4000ng/ml. The electrocardiogram on admission showed deep S at lead I and inverted T at lead III. The chest x-ray showed a Westermark sign. Echocardiography revealed a decreased RV function with basal RV enlargement, McConnell's sign and 60/60 sign. Positive DVT in the left Popliteal vein from Doppler ultrasound. We can't perform CT-Angiography due to decreased kidney function. We treated the patient with UFH for five days, and the symptoms improved. Obesity is associated with inactivity; raised intra-abdominal pressure; a chronic low-grade inflammatory state; impaired fibrinolysis; high level of fibrinogen; von Willebrand factor; and factor VIII, leading to a prothrombotic condition and elevated risk of PE. Numerous studies have shown that advanced age is an independent risk factor for PE due to the increased blood coagulability and higher prevalence of other risk factors. Few case reports of DVT with massage related adverse events due to manipulation of extremities might dislodge a blood clot, leading to PE.

Conclusion:
We conclude elderly obese patients with deep vein thrombosis has higher risk of pulmonary embolism, exacerbated by traditional massage habits.

KEYWORD: *Pulmonary Embolism, Deep Vein Thrombosis, Obesity*

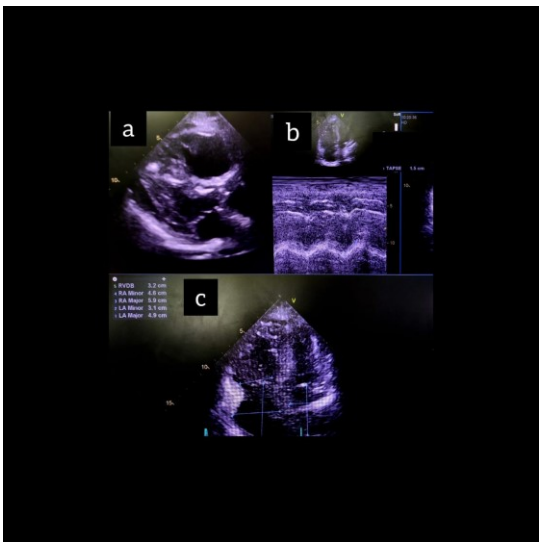

Figure 1. Echocardiography showing an enlarged right ventricle, Parasternal long axis view. B. Decreased tricuspid annular plane systolic excursion (TAPSE 1.5cm). c. Dilated RV and McConnell sign (arrow), Four chamber view

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CASE REPORT / CASE SERIES

Congenital Complete Atrioventricular Block in Neonate: A Rare Case Report

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Background: All arrhythmia types are rare conditions in neonate and children with the estimated incidence is between 1 in 15,000-20,000 births. In this report, we presented a rare case of congenital complete atrioventricular block in a tertiary hospital in Padang, Indonesia.

Case illustration: A neonate had moaning cry and bluish at birth. Prenatally, fetal echocardiography showed no structural abnormality with bradycardia. On physical examination, we found heart rate 48 bpm, SpO_2 76%, and circumoral cyanosis. Postnatally, electrocardiography showed total atrioventricular block. A permanent pacemaker was implanted in the first week of life epicardially with VVIR mode, amplitude 5 V, P wave 0.4 mV, sensitivity 2.8 mV, lower rate 120 bpm, and upper rate 150 bpm. Pacing System Analyzer (PSA) showed threshold of 2.5 V, R wave 9.8 mV, current 5.4 mA and impedance 816 ohms. The chest X-ray showed epicardial wires placed over the left ventricular apex, and the electrocardiography post implantation showed pacing rhythms.

Conclusions:
A rare condition of bradycardia was detected prenatally with fetal echocardiography. Postnatally, the patient was diagnosed as congenital complete atrioventricular block as electrocardiography showed total atrioventricular block. Serologic test of anti-Ro/SSA and/or anti-La/SSB were not performed. The patient had pacing treatment and showed a good outcome, yet a regular follow up was urged due to the risk of left ventricular dysfunction in the future.

KEYWORD: *congenital, arrhythmia, pacemaker*

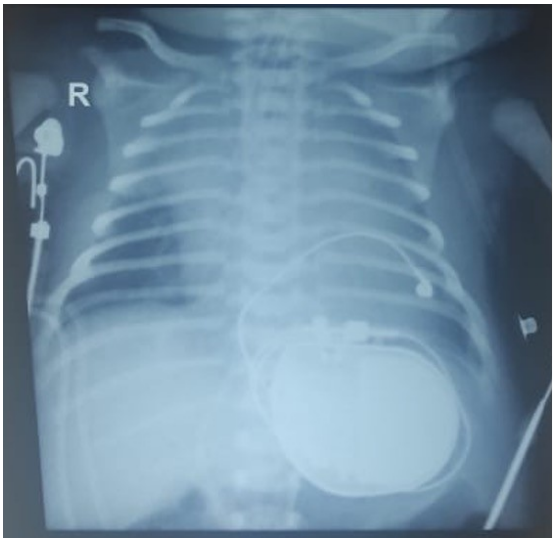

Figure 1. The chest X-ray after PPM implantation, showing epicardial wires placed over the left ventricular apex.

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CASE REPORT / CASE SERIES

A Rare Case of Left Ventricular Septal Intramyocardial Dissection in Asymptomatic Patient : The Role of Cardiovascular Imaging

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[2]Sebelas Maret University Hospital

Background: Intramyocardial dissection is a rare mechanical complication that occurs after an acute myocardial infarction or during the remodeling process. However, intramyocardial dissection can also be found incidentally or in asymptomatic patients without a history of ischemia or previous trauma. The diagnosis of intramyocardial dissection can be confirmed by cardiovascular imaging particularly transthoracic echocardiography and management is based on the hemodynamics of the patient and the progress of the dissection.

Case illustration : 84 years old man came to our clinic with complaints of weakness and decreased of appetite and drinking from the ENT department. The patient's history was hypertension, HfpEF, type-II DM and mass in the nasopharynx. Examination revealed a blood pressure of 141/81 mmHg with heart rate of 74 bpm. Physical examination revealed systolic murmur in apex and the rest were within normal limits. We performed transthoracic echocardiography, and found that there were signs of intramyocardial dissection in the left ventricular septum and mild mitral regurgitation. We found 5 out of 7 signs: (1) Formation of neo-cavity with the echo-lucent center, (2) endomyocardial mobile inner border (3) outer side of neo-cavity lined by myocardium (4) continuity between the dissected myocardium and the ventricular cavity and (5) doppler examination shows flow in the dissected myocardium. Cardiac CT examination showed high take-off LMCA originates from the ascending aorta and flap in the LV that supports intramyocardial dissection. The patient was then treated conservatively with drugs and continued until discharge.

Conclusions: Intramyocardial dissection can occur in the septal area or the free wall area or the free wall of the ventricle. Transthoracic echocardiography remains the cornerstone of the diagnosis as in some cases. The diagnosis and management of intramyocardial dissection when performed correctly can improve patient survival.

KEYWORD: *intramyocardial dissection, echocardiography*

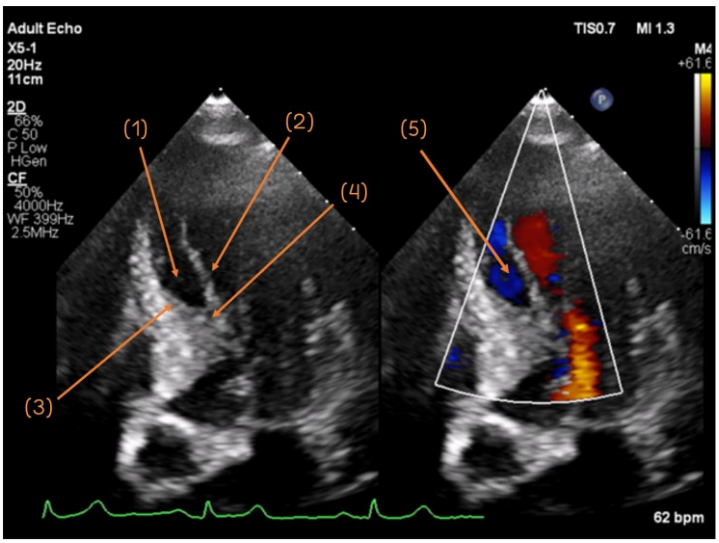

Figure 1. Signs of intramyocardial dissection from our patient, detected in transthoracic echocardiography. (1) Formation of neocavity with the echo-lucent center, (2) endomyocardial mobile inner border (3) outer side of neocavity lined by myocardium (4) continuity between the dissected myocardium and the ventricular cavity and (5) Doppler examination shows flow in the dissected myocardium

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CASE REPORT / CASE SERIES

Rate Control Therapy in Cardiogenic Shock with Severe Mitral Stenotis: An Emergency Case-Report

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Background: Mitral stenosis (MS) is characterized by obstruction mitral inflow at the level mitral valve mostly due to rheumatic or degenerative. Standart therapies for cardiogenic shock may be ineffective or even harmful in severe mitral stenosis. The increase heart rate (HR) or afterload resulting from inotropes or vasopressor can paradoxically worsen haemodynamics in severe mitral stenosis patients.

Case Illustration: A 43 years old-woman admitted to emergency room with shortness of breath, oliguria, and cold extremities that felt one hour ago. We found patient with hypotension, tachycardia, tachypnoea and altered mental status. Patient was treated with vasopressor and inotropic to improve haemodynamic. The ECG revealed atrial fibrillation rapid ventricular respons and echocardiography showed significant mitral stenosis with mitral valve area (MVA) <0.9 cm^2, dilatation of LA, RA and RV with IVS paradoxical motion. We administered initiation of intravenous digoxin 0.5 mg and after that patient had stable condition.

Conclusion:
A rapid HR will leave inadequate diastolic filling time and exacerbate hemodynamic compromise in the setting of MS. This is markedly exacerbated by loss of the atrial contribution to ventricular filling in AF which is a common cause of deterioration among patients with chronic MS. Digoxin has vagomimetic effects on the AV node by stimulating the parasympathetic nervous system. It slows electrical conduction in the atrioventricular node, therefore, decreases the heart rate. It may be alternative to β-blockers to safely achieve heart rate control in patients with AF and cardiogenic shock.

KEYWORD: *Cardiogenic shock, Mitral stenosis, Rate Control*

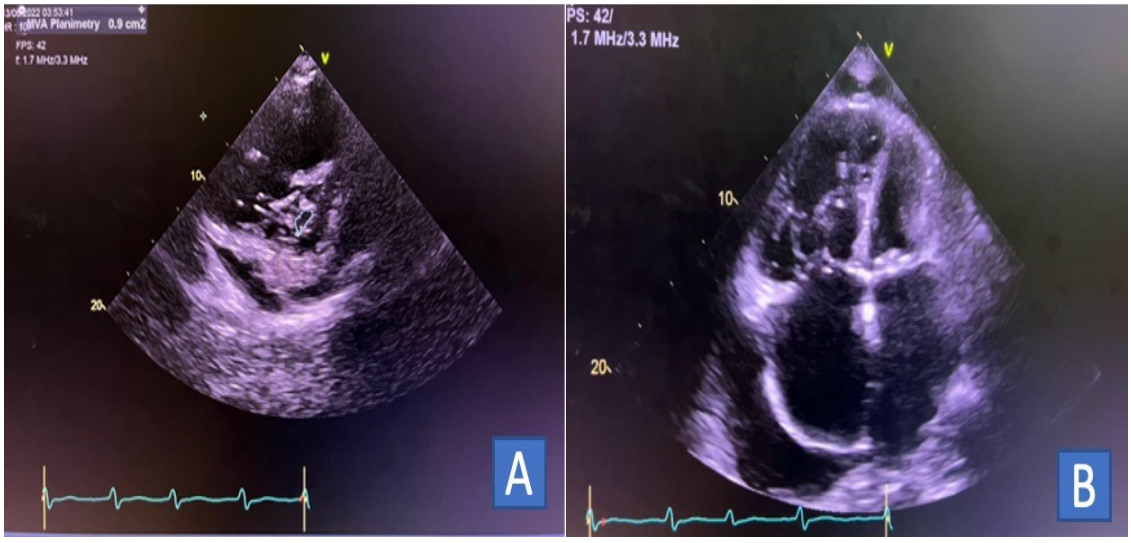

Figure 1. A. Parasternal short axis view showing mitral valve area (MVA) <0.9 cm2. B. Chamber view showing severe dilatation right sided cardiac chamber, bowing interatrial septum into the LV due to elevated right atrial pressure.

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CASE REPORT / CASE SERIES

Brain abscess in a-25 year old male with Tetralogy of Fallot : A Case Report

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[1]RSUD dr. Zainoel Abidin

Background : Tetralogy of Fallot (ToF) is the most common cyanotic congenital heart disease (CHD) accounting for 10%. Many patients with TOF still uncorrected until adult, also there have been several reports of neurological complications associated with ToF. Although is known, brain abscess is a serious complication in patients with uncorrected CHD.

Case Illustration: A-25 year old male came to emergency room with chief complain shortness of breath and getting worse since 5 hours before admission, patient also with loss of consciousness since 5 hours ago. From physical examination, patient looks ill, tachypnea (44 x/m) and tachycardia (144 x/m, regular),oxygen saturation 90% with NRM 12 l/m, and GCS : E2M1V5 (8). ECG showed, sinus tachycardia, QRS rate 129 bpm, RAD, RVH. Laboratory finding: Polycythemia (24.3 g / dl), and leukocytosis 32.400. Head CT-Scan showed cerebral abscess in left parietal. Echocardiography revealed of tetralogy of Fallot. Patient was treated with heart failure management and antibiotic for 4 days and declared died because of cardiac arrest.

Conclusion:
Tetralogy of Fallot are susceptible to serious neurological complication like brain abscess and cerebrovascular accidents (stroke) which contribute significantly to mortality and morbidity in them. In cyanotic heart disease, bacteria cannot be filtered through pulmonary vascular bed and may spread to systemic circulation. This increases the probability of direct entrance of pathologic microorganisms into the circulation of brain, also. With the fact that the brain might be hypo-perfused resulting from secondary polycythemia, allows the pathogens to seed such under-perfused regions. Brain abscess in patient with TOF to be a challenge to the medical world despite the introduction of updated diagnostic radiological procedures, newer and more effective antibiotic regimen, and better neurosurgical techniques still requires.

KEYWORD: *TOF, Brain Abscess*

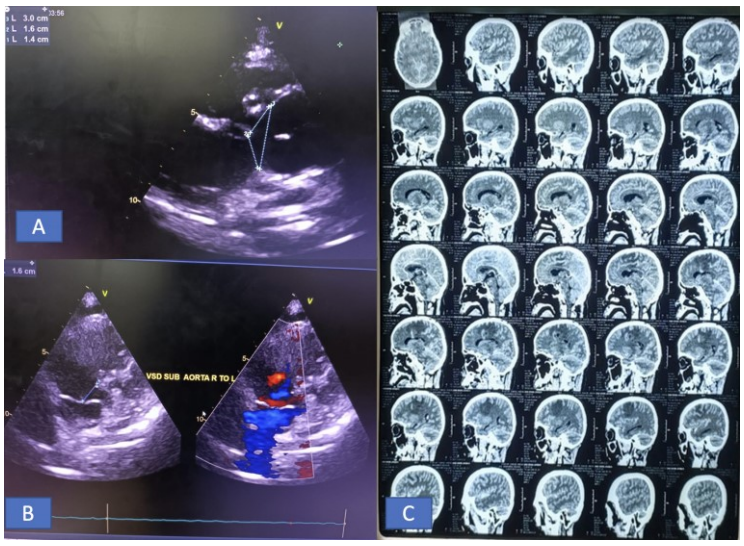

Figure 1. A. Overiding aorta B. 2 VSD Subaortic C. CT Scan Showed Brain Abscess in Left Parietal

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CASE REPORT / CASE SERIES

Transient Inferior ST-Elevation during Elective Coronary Angiography due to Thrombus in Normal Coronary

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Background: Intracoronary thrombus is the main pathology of total or partial occlusion of the coronary arteries and causes myocardial infarction. In general, plaque rupture due to process of atherosclerosis is the main cause of ST elevation myocardial infarction. However, in some cases intracoronary thrombus was found in STEMI patients with normal coronary arteries.

Case illustration: 47-year-old man with severe aortic regurgitation, dilatation of left ventricle and in permanent pace maker who underwent elective coronary angiography complained of chest pain accompanied by an increase of ST segment in leads II, III and when right cannulation was performed. Angiography shown TIMI 1 flow and appearance of a thrombus in right coronary artery. TIMI 3 flow returned and thrombus was disappeared after administration of pharmacotherapy and coronary arteries showed normal coronary arteries after that with resolve of chest pain and decreased in ST segment elevation.

Conclusion:
Many conditions can cause myocardial infarction in normal coronary arteries. The exact cause in most patient is still unclear but the possible pathophysiological mechanisms underlying myocardial infarction with normal coronary arteries are hypercoagulable state, coronary thrombosis, imbalance oxygen demand and supply, sympathetic stimulation, coronary trauma, coronary spasm, endothelial dysfunction and catheter thrombosis. The main priority in STEMI patients is to restore coronary blood flow. Administration of medication aims to reduce the symptoms of ischemia and to prevent further thrombogenesis. Due to the complex nature of intracoronary thrombogenesis, a multi-faceted and systematic approach is required to achieve the desired thrombus dissolution.

KEYWORD: *Intracoronary thrombus, Myocardial infarction, coronary artery*

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CASE REPORT / CASE SERIES

Contrast-Induced Nephropathy following Primary PCI in Acute Inferior-lateral STEMI with Cardiogenic Shock: How to make it reversible?

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Background: Contrast-induced nephropathy (CIN) remains as the third leading cause of acute kidney injury in hospitalized patients. Multiple risk-factors patient undergoing coronary angiography has higher possibility for CIN. CIN is related with increased mortality and morbidity, prolonged lengths of stay also higher cost.

Case Illustration: 54 years old male patient came to emergency room with Acute Inferior-lateral STEMI Killip Class IV underwent primary PCI at the onset 2 hours of STEMI using 60 ml iodinated contrast. The risk factors for CIN including type II diabetes, cardiogenic shock and baseline creatinine level was 1.4 mg/dl. In 24-hours observation in ICCU, patient was anuria and hemodynamic was unstable, therefore rehydration of 1000 ml normal saline was given in twenty-four hours, administration of acetylcysteine as renal protector agent, initiated forced-diuresis, and support hemodynamics with inotropic and vasopressor, however, patient was still unstable and remained anuria. Serum creatinine level increased to 3.08 mg/dl within 24 hours. The sustained low-efficiency daily dialysis (SLEDD) was initiated, however, creatinine level remained 3.0 mg/dl after dialysis and urine output was still not optimal. We decided to do routine dialysis three-times a week for one week. As a result, after two weeks of hospitalization and five-times dialysis, urine output reached 1500 ml/day without diuretic and patient was discharged with creatinine level 1.6 mg/dl.

Conclusions:
Patient with acute coronary syndrome, cardiogenic shock and multiple risk factors has absolute higher risk of CIN. Renal replacement therapy at the right time can increase the probability of CIN to be reversible.

KEYWORD: *Contrast-Induced Nephropathy, Acute Coronary Syndrome, Worsening renal function, Cardiogenic Shock, SLEDD*

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CASE REPORT / CASE SERIES

Acute Decompensated Pulmonary Hypertension and Arrhythmias in Uncorrected Secundum Atrial Septal Defect

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Background: Pulmonary Hypertension (PH) in secundum Atrial Septal Defect (ASD) patient is associated with functional limitations, arrhythmias, heart failure and increased mortality. Arrhythmias are also important contributors to morbidity and mortality in patients with PH. We present a case of uncorrected secundum ASD patient who present with acute decompensated PH and passed away due to malignant arrhythmia.

Case Illustration: A 62-years-old female, known as secundum ASD with Mitral Valve Prolapse and PH since 11 months ago was admitted to emergency room due to progressive worsening shortness of breath for a week. She had history of repeat hospitalization due to Acute Pulmonary Embolism 7 months ago and COVID-19 infection 3 months ago. At admission, she was hypotensive with BP of 90/60 mmHg, tachypneic with respiratory rate of 24 times per minute and peripheral saturation of 85%. From physical examination we found elevated jugular venous pressure, bibasilar rales, S3 gallop, and pretibial pitting edema. Impaired renal function, electrolyte imbalance was found from laboratory data. Electrocardiography showed sinus rhythm with right ventricular hypertrophy. Transthoracic Echocardiography was performed with worsening RV function if compared with previous study. She was then treated with diuretics, targeted PH therapy with PDE-5 inhibitors and prostacyclin agonist and then admitted to intensive care. In follow up, clinical deterioration was progressively happened. She was diagnosed as having hospital acquired pneumonia in third day of hospitalization. Atrial fibrillation was provoked in fourth day of hospitalization. In eight day of hospitalization, cardiac arrest was happened after episode of non-sustained ventricular tachycardia and torsade de pointes.

Conclusion:
Acute decompensated PH is a sudden worsening of clinical signs of right heart failure with subsequent systemic circulatory insufficiency and multisystem organ failure that can be triggered by many factors such as arrhythmias, infection, hypoxia, hypercapnia, and acidosis such as in our patient.

KEYWORD: *Pulmonary Hypertension, Secundum Atrial Septal Defect, Arrhythmia in Congenital Heart Disease*

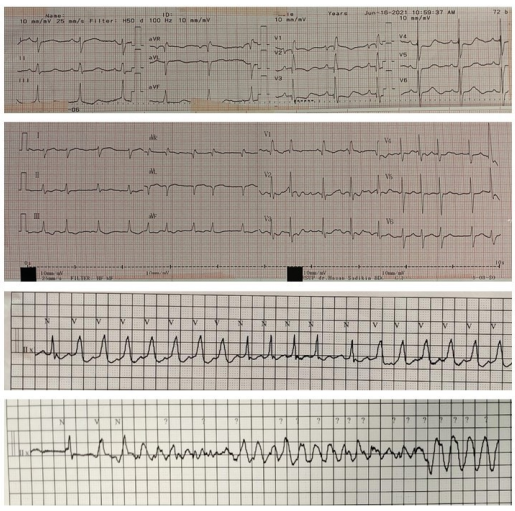

Figure 1. Patient's Electrocardiography from Sinus Rhythm, Atrial Fibrillation, Non-Sustained VT and Torsade de Pointes

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CASE REPORT / CASE SERIES

Acute MI in Patient with New Onset LBBB : Think Beyond The Common LBBB Algorithm

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Background: Patients with underlying LBBB can present acute myocardial infarction (AMI) with either STEMI or NSTEMI equivalent. Current guidelines recommend patients who present clinical suspicion of ACS with new or presumed new LBBB is considered AMI and should undergo early reperfusion therapy. Di Marco (2020) performed a retrospective cohort study and showed the diagnostic accuracy for AMI with LBBB improved with Barcelona criteria. Despite this recommendation and tools, only a minority are proven to have occluded artery, hence early reperfusion may not be appropriate for all patients with LBBB or (presumed) new LBBB unless LBBB is perceived to be acute. Therefore, diagnosing AMI with the presence of LBBB proposes a great challenge for the clinician.

Case illustration: Male, 56 years old presented with shortness of breath. Patient had a history of HFMREF, HHD, and CAD on medication. At presentation, BP was 111/72, HR was 96 bpm, respiratory rate was 22 per minute, and rhonchi at the base of the lungs. A 12-lead-ECG revealed a sinus rhythm with ST-elevation, dominant S wave in V1-V5, and M-shaped R wave in lateral leads, suggesting an acute STEMI with new onset of LBBB compared to prior ECG. Modified Sgarbossa and Barcelona criteria for diagnosing AMI in the setting of LBBB were all negative in the current ECG. Treatment included dual antiplatelet therapy and expeditious angiography. From angiography was found subtotal occlusion at mid LAD, 90% stenosis at proximal LCX, and 50% stenosis at proximal RCA. Subtotal occlusion at mid-LAD was successfully treated with 1 drug-eluting stent placement.

Conclusions: Not all patients with LBBB or presumed new LBBB are considered AMI and should undergo early reperfusion unless LBBB is perceived to be acute. ESC Guidelines (2017) also emphasized that the presence of a (presumed) new LBBB doesn't predict myocardial infarction. Although many tools have been developed to help diagnose AMI in the setting of LBBB like Modified Sgarbossa and Barcelona criteria, the best approach to determine whether emergent reperfusion is necessary for patients LBBB with potential AMI would be through serial ECG analyses, cardiac biomarker testing, and rapid echocardiography.

KEYWORD: *Left bundle-branch block, STEMI, AMI*

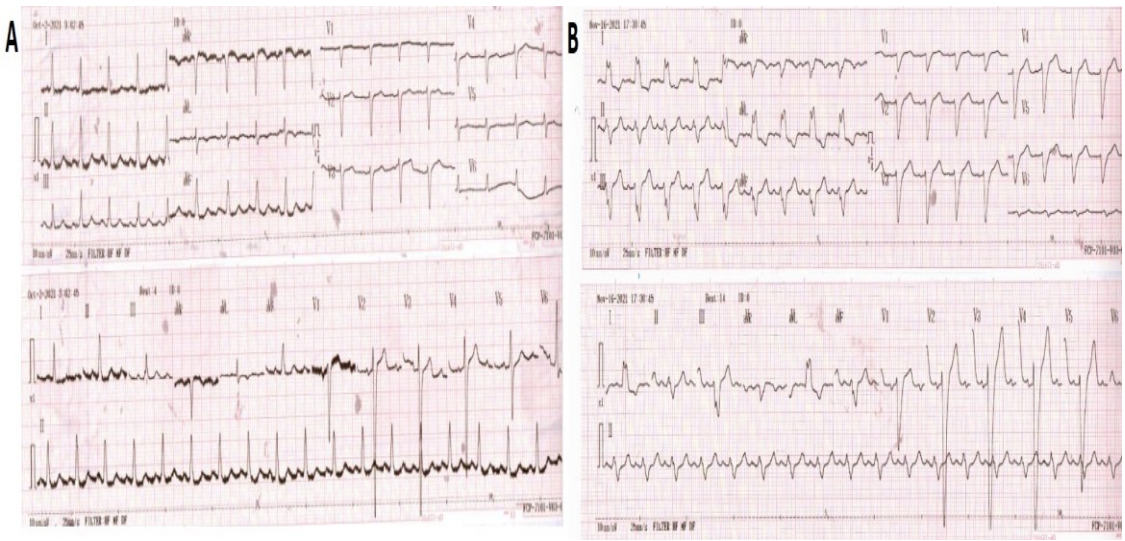

Figure 1. A) Prior ECG shows no sign of LBBB, compared to B) ECG the day patient admitted to ER shows ST-elevation with dominant S wave in V1-V5, and M-shaped R wave in lateral leads suggesting an acute MI with new onset of LBBB.

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CASE REPORT / CASE SERIES

Unstable Atrial Fibrillation in PPCM Patients: How to Manage it in Remote Cardiac Clinic

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[1]Hasna Medica Hospital

Background:
Peripartum cardiomyopathy (PPCM) is a condition of idiopathic cardiomyopathy, associated with pregnancy, manifested as heart failure caused by left ventricular systolic dysfunction, usually within the last month of pregnancy till 5 months after delivery. Adverse events include heart failure and/or ventricular tachycardia, aborted sudden death, atrial fibrillation, transitory ischaemic attack, and death.

Case Illustration:
A 25-year-old woman has had shortness of breath for 4 days, having chest pain and palpitation. The first complaint was felt 3 months after giving birth by SC. The patient is already known to have a PPCM (EF 20%) without AF history and is already under therapy for the third month with Furosemide, spironolactone, digoxin, bromocriptine, and beraprost. In ER, her BP was 70/40 with a heart rate of 130-140 bpm. The physical examination revealed dilated JVP, bibasilar rales, and swollen feet. The ECG is a figure below. We decided to perform electrical cardioversion 120 J and the rhythm was successfully converted to sinus rhythm. We administrated an amiodarone drip to maintain the rhythm with close rate monitoring. We also correct the electrolyte imbalance and give oral anticoagulation due to high thrombosis risk (CHA2DS2VAC 2 points). On the third day of hospitalization, the patient was discharged under therapy with furosemide, spironolactone,54ibrillation54, and Dorner.

Conclusion:
Atrial fibrillation can be found in patients with PPCM. Hypothetically it could be happened in this patient due to a studded increase of LA diameter due to fluid overload. Electrical cardioversion is the only treatment option if the hemodynamic is not stable. Continuing anti-arrhythmia drug with oral anticoagulation with other heart failure drugs and education to limit the fluid intake in this patient is mandatory.

KEYWORD: *Peripartum cardiomyopathy (PPCM), Atrial fibrillation*

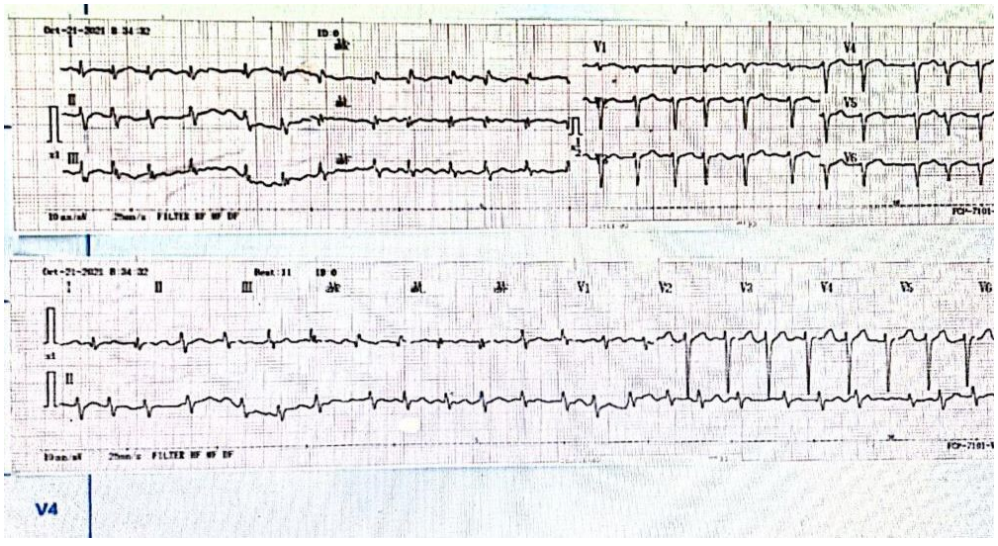

Figure 1 ECG in patient before performed cardioversion.

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CASE REPORT / CASE SERIES

Disastrous Complication of Late Presentation Inferoposterior Wall ST-Elevation Myocardial Infarction: From Ventricular Standstill Ended With Ventricular Septal Rupture

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Background: ST- segment elevation myocardial infarction (STEMI), particularly with injury to the inferior wall, is well-described as a cause of total atrioventricular block (TAVB). While MI complicating with VSR might also show atrioventricular or infra-nodal conduction abnormality in approximately 40% patients. TAVB in inferior STEMI usually resolves promptly with acute revascularization in most cases in contrast to anterior involvement of STEMI which usually suggest extensive myocardial damage. Hereby, presenting case of fatal complication in patient with late onset STEMI inferoposterior presenting with TAVB developing to ventricular standstill and also ventricular septal rupture who had undergone delayed PCI

Case illustration: A-51-years old ex-smoker man referred to Hasan Sadikin General Hospital with late onset STEMI inferoposterior with TAVB and ventricular standstill complication who previously only undergone temporary pacemaker (TPM) implantation without PCI due to financial issue. Coronary angiography was done on the 6th day and showed left dominant system and RCA was totally occluded. Coronary stenting was done with DES from mid to distal RCA with TIMI flow 3 after the procedure and TPM was then detached. Five hours after the procedure, he complained chest pain followed by tonic seizure. ECG showed paroxysmal ventricular standstill followed by VT with pulse and progression ST elevation on inferior wall. Suspicion of restenosis leading to urgent angiography evaluation was done and showed stent patent in situ. On the next day, he underwent pulmonary edema with new holosystolic murmur on lower left sternal border. Transthoracic echocardiography was performed and showed new ventricular septal rupture at base inferoseptal portion. His condition was worsened and eventually died on the next day after VSR diagnosis due to cardiogenic shock.

Conclusion:
Late presentation leading to late reperfusion of myocardial infarction may lead to disastrous complication from lethal arrythmia to mechanical complication. Complete revascularization of infarct related artery in late presenter STEMI might not fully eliminate residual ischemia risk complication as ischemic and necrotic damage was severe.

KEYWORD: *Ventricular standstill, STEMI, Ventricular septal rupture*

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CASE REPORT / CASE SERIES

Acute Coronary Syndromes: Virchow's Triad Remembrance

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Background: Acute Coronary Syndrome (ACS) refers to a group of diseases in which blood flow to the heart is decreased with symptoms of typical chest pain. ACS is a manifestation of Coronary Heart Disease (CHD) as a result of plaque disruption in coronary arteries (atherosclerosis) and the formation of a clot within a blood vessel (thrombosis). Thrombosis is the result of alterations in blood flow, vascular endothelial injury, or alterations in the constitution of the blood/hypercoagulability (Virchow's triad). By understanding this triad entity can help to optimize ACS therapy.

Case illustration: A 53-year-old male came with typical chest pain, diaphoresis and nausea for 5 hours before arriving at the hospital. He has no history of hypertension, diabetes, and cancer. He has no familial history of coronary artery disease. He was a smoker with two packs a day. The Electrocardiogram (ECG) showed ST segment elevation anterior leads that suddenly changed to Polymorphic Ventricular Tachycardia which resolved spontaneously. The laboratory results showed consistent polycythemia vera (Hemoglobin 16.6 g/dL, White Blood Cell 13.650-13.930/µL, Platelet 893.000-946.000/µL). The angiography showed culprit lesion in Left Anterior Descending (LAD) artery with 50-70% stenosis. Stenting with Drug-eluting Stent (DES) was performed. Smoking habits may cause endothelial disturbance so that flow disruption or "turbulence" occurs. The increase In hematocrit may justify the higher cardiac output and may increase the blood viscosity to levels that lead to hypercoagulability. The thrombocytosis in these patients worsened the ischemic event. Antiplatelet continuation and conservative treatment care were suggested by the hematologist. Good hydration may give some benefit.

Conclusion:
In conclusion, we reported a patient with ACS and Polycythemia vera. This case report emphasizes the etiology of ACS must be sought in all cases, because its recognition can direct the therapy and influence the prognosis of these patients. So far, the treatment may mimic the usual ACS. Since the data is lacking regarding this entity.

KEYWORD: *Acute Coronary Syndrome, Virchow Triad, Thrombosis*

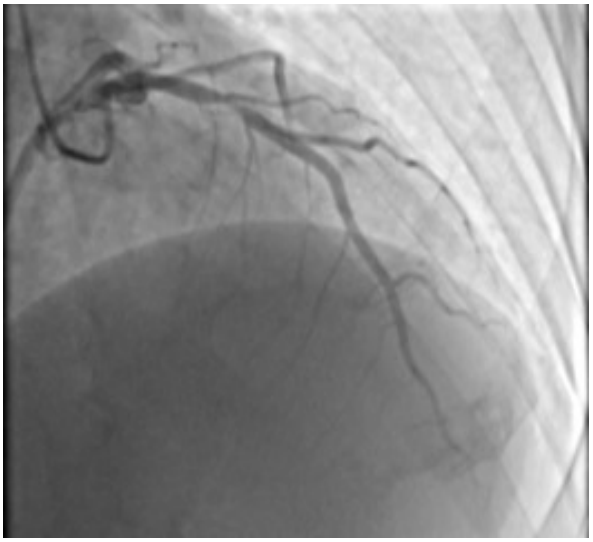

Figure 1. Culprit LAD lesion.

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CASE REPORT / CASE SERIES

Prompt Action in Acute Upper Limb Ischemia

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Background: Acute upper limb ischemia (AULI) is a rare vascular emergency in daily practice due to well collateral development compared to lower limb. The incidence of AULI is 5.2 per 100,000 person-years among woman 40-99, and the mortality and amputation rates remain high. Urgent recognition with prompt revascularization is important in limb viability.

Case Illustration: A 48-year-old woman with pleural effusion was consulted to cardiologist for sudden pain on her left forearm while underwent the pulmonary examination. She had history of hyperthyroidism and diabetes mellitus. In 2 hours of pain, she felt tingling and colder but still could move the forearm and finger. BP 113/56 mmHg, HR 104 bpm, pulse 92 bpm, RR 22 bpm, t 36.2°C, no saturation on her left hand fingers. Her ECG was atrial fibrillation with rapid ventricular response. Diminished sensory and no pulse from left brachialis artery and radialis artery. Duplex ultrasonography showed no artery flow in brachialis, radialis, and ulnary artery with thrombus inside the brachialis artery. She was assessed with AULI Rutherford Iia. We directly sent her to cath-lab for emergency revascularization. She got total occlusion with thrombus in 1/3 distal left brachial artery, then we did 4-times thrombus aspiration and got flakes of thrombus, the occlusion shift to 1/3 proximal left ulnary artery. Then we did percutaneous intra-arterial thrombolysis with alteplase. Revascularization evaluation showed improvement, she felt no pain, warm hand, detectable pulse, good saturation, and duplex ultrasonography showed triphasic artery waveform until the distal of the left hand with no thrombus in the artery.

Conclusions
Urgent recognition and rapid revascularization with percutaneous aspiration thrombectomy will result in 30% succesfull rate, furthermore, followed by percutaneous intra-arterial thrombolysis the sucesfull rate will be 90%. This case report shows the patient with threatened limb are successfully maintained her forearm with a rapid and prompt management.

KEYWORD: *Acute upper limb ischemia, PAT, PIAT*

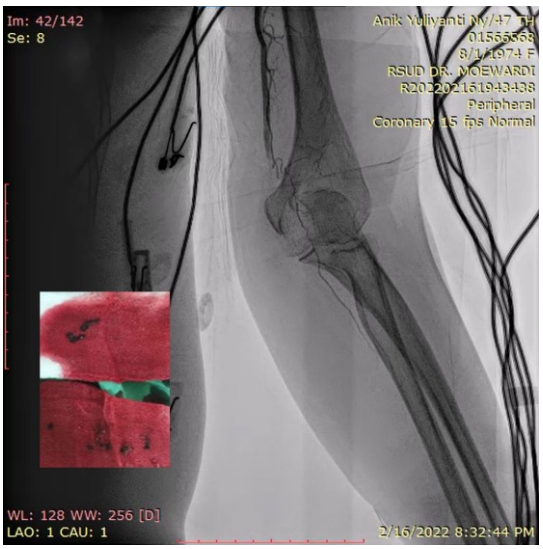

Figure 1. Total occlusion with thrombus in 1/3 distal left brachial artery and lumps of thrombus form 4 times aspiration thrombectomy

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CASE REPORT / CASE SERIES

Management of Supraventricular Tachycardia (SVT) In Pregnancy

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[1]RSUD Cileungsi

Background: SVT is the most common arrhythmia in pregnant women and usually occurs in women with structurally normal hearts. Women with a history of SVT have approximately 50% recurrence rates during pregnancy.(1) In this case, we present our experience treating SVT in pregnancy in a limited medical source and multidisciplinary way.

Case Illustration: A 36-year-old, 2nd-trimester pregnant woman, came to ER with palpitation 3 hours before admission. The patient has a history of recurrent arrhythmia before the pregnancy but has never been referred to a cardiologist. The patient had a heart rate of 222 beats per minute, a respiration rate of 30 breaths per minute (97% on a non-rebreathing mask for oxygen saturation), and blood pressure of 108/73 mmHg. ECG at admission showed a slight widening but regular alternating QRS of 218 bpm suggestive of an Atrioventricular Re-entry Tachycardia (AVRT). The precise mechanism of increased arrhythmia burden during pregnancy is unclear. Potential contributing factors include the increase in preload, causing myocardial irritability, increased heart rate which affects the refractory period; fluid and electrolyte shifts; and changes in catecholamine levels. (2) She refused to undergo synchronized cardioversion. So, We decided to give her intravenous diltiazem after the failed vagal maneuver. Intravenous adenosine and beta-1-selective blockers were recommended in the acute setting of SVT in pregnancy.(3) But due to our limitation, intravenous diltiazem was given. We observed the mother and fetus with Ob/Gyn simultaneously. The rhythm was fully converted after one day. The ECG revealed a short PR interval with a QRS duration of 124ms and suggestive right posteroseptal origin Wolff–Parkinson–White syndrome (WPW). The patient and fetus were safely discharged from our hospital and referred to a tertiary hospital for catheter ablation.

Conclusion
Pregnancy may precipitate a pre-existing arrhythmia. A multidisciplinary approach must be taken by considering maternal cardiac, obstetric and fetal wellness. The most harmless therapeutic option must be chosen carefully for the sake of the mother and fetus.

KEYWORD*: Supraventricular Tachycardia, Pregnancy, Wolff-Parkinson-White Syndrome*

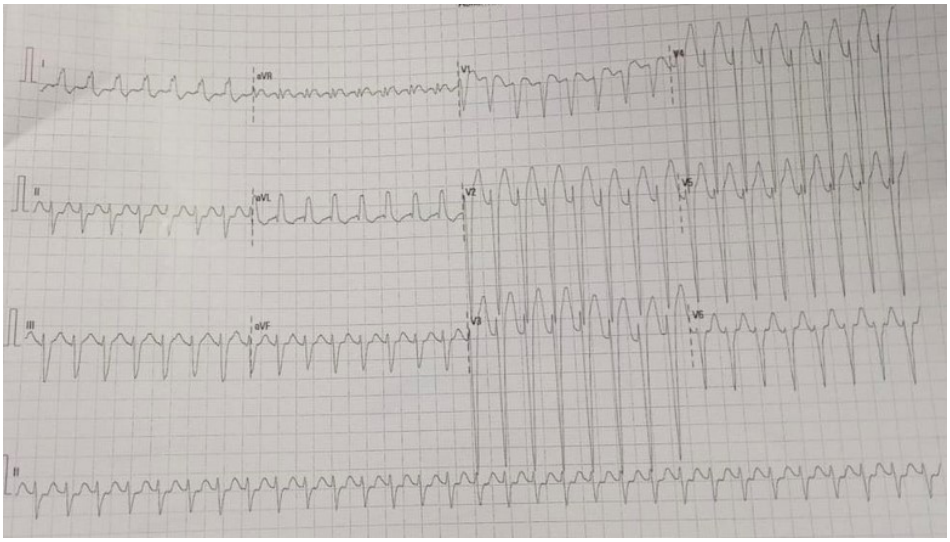

Figure 1. ECG at admission showed a slight widening but regular alternating QRS suggestive of an Atrioventricular Re-entry Tachycardia (AVRT)

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CASE REPORT / CASE SERIES

Recurrent Angina on CAD3VD Non-Revascularization with Chronic Kidney Disease Stage V Post Severe COVID-19 Infection: Is It Long COVID-19 Syndrome?

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[1]RSPAU Dr. Suhardi Hardjolukito

Background: Chronic Kidney Disease (CKD) was independently associated with increased risk for cardiovascular events within 60 days of testing positive for COVID-19. Long COVID-19 refers to a long-term multi-system disability syndrome seen in COVID-19 survivors causes structural and functional damage. The pathologic mechanisms underlying multiple organ failure, severe hypoxia, and mortality include thrombosis as a major contribution. Thrombosis may result in myocardial infarction (MI) in the absence of significant atherosclerotic disease of the coronary arteries.

Case illustration: A man, 54 years old, presented to the ER with angina worsened 3 hours before admission. He had angina symptoms every day since July 2021 after infected by COVID-19 and administered in ICU with ventilator for 2 weeks, relieved by ISDN and resting, aggravating by extreme emotional changes. He has chronic kidney disease (CKD) stage V, hypertension, HHD, SNNT, vaccinated by Pfizer in February and March 2022. Abnormal physical examination was murmur 4/6 pansistolic on every valve. The ECG showed LVH, ST-segmen depressed at V6, and tall T wave. Blood test showed Hb 7.1g/dL, potassium 5.85mmol/L and rapid antigen SARS-COV2 negative. Coroangiography result CAD3VD Medina 0-1-1 non revascularzation due to underlying condition. The patient was diagnosed with stable angina pectoris CCS 2 on CAD3VD non-revascularization, renal anemia, CKD stage V, HHD, hyperkalemia, SNNT. Immune dysregulation in long COVID-19 is defined by the stimulation of endothelial cells, platelets, and other inflammatory cells, the stimulation of procoagulant factor overexpression, and the destruction of vascular endothelium's protective function, leading to abnormal coagulation. There is a feedback loop whereby thrombosis causing inflammation and the ensuing blood clots may potentially cause further inflammation. An immediate linkage between coagulation and inflammation is facilitated by thrombin. Persistent systemic vascular inflammation and dysfunction caused by thrombosis are key factors driving various complications.

Conclusion
In conclusion, we described patient with CAD3VD non revascularization caused by Long COVID-19 Syndrome and aggravated with CKD Stage V as underlying disease. This case report to emphasize the broad spectrum of Long COVID-19 Syndrome. Understanding the condition can assist to stop the progression of the disease and its consequences more effectively.

KEYWORD: *long COVID-19 syndrome, coronary artery disease, chronic kidney disease, thrombosis, angina*

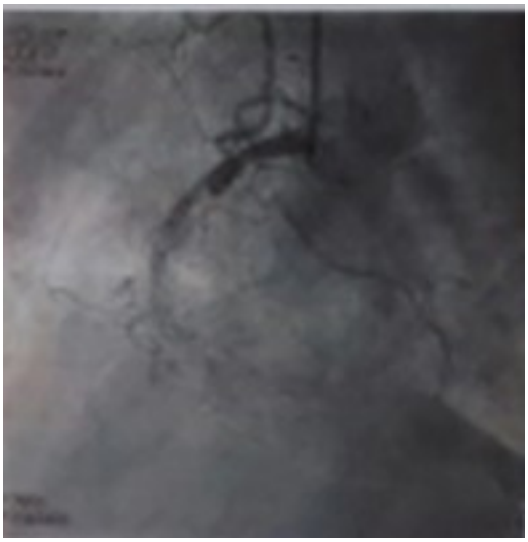

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Figure 1. Coroangiography image showing CAD3VD non revascularization.

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CASE REPORT / CASE SERIES

Swift Management In Unstable Pulmonary Embolism Patient With COVID-19: Did COVID Fool You?

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Background: Increased thrombotic events among COVID-19 patients that occur in up to one-third of patients are associated with higher severity and increased mortality, and are predominantly a pulmonary embolism (PE). Therefore, acute PE should be one of the main differential diagnosis among COVID-19 patient with unstable haemodynamic. Early treatment of such condition with systemic thrombolysis remained the first line of option especially in COVID-19 patients which hinder further invasive intervention.

Case Illustration: A 66-year-old male COVID-19 suspected was initially presented with shortness of breath and desaturation with normal physical examination, which turn out to be COVID-19 positive. In the isolation ward, he had cardiac arrest and bedside echocardiography showed a fresh thrombus developed in the right atria with sign of acute right ventricular dysfunction based on bedside echocardiography examination. The diagnosis of acute PE with unstable haemodynamic was established and systemic thrombolysis immediately initiated. The patient was recovering well with improved symptoms and eventually safely discharged.

Conclusion
Our case demonstrated how early recognition and prompt treatment of acute PE especially in COVID-19 patients with unstable haemodynamic is a life-saving intervention. Identifying the subtle clue of acute PE in emergency situation remains the main challenge.

KEYWORD: *haemodynamic unstability, pulmonary embolism, coronavirus disease 2019*

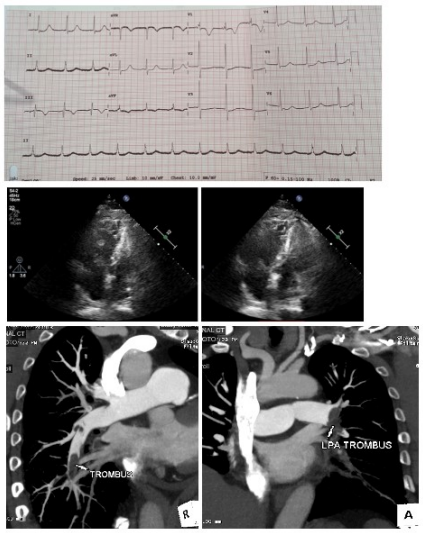

Figure 1. ECG after return to spontaneous circulation (ROSC) showed new right ventricular strain pattern in lead V1 (upper). Bedside echocardiography examination also revealed dilated RV with RV to LV basal ratio >1 and mobile thrombus clearly visible in right atrial (lower left). Mc Connel sign was positive. TAPSE was reduced to 12 mm with distended IVC. MSCT pulmonary angiography after systemic fibrinolytic administration showed evidence of thrombus in both right and left pulmonary artery.

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CASE REPORT / CASE SERIES

An Extremely Rare Case: Successful Percutaneous Coronary Intervention in Single Coronary Artery, The Real Fighting Chance

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Background: Single coronary arteries (SCA) constitute a rare coronary anomaly with the prevalence rate 0.024-0.066% of the population. SCA usually asymptomatic, but it may become symptomatic and cause myocardial ischemia and infarction. The coexistence of SCA with acute myocardial infarction is even rarer. PCI in this anomaly is performed infrequently.

Case Illustration: A 52-year-old man presenting with chest pain and acute myocardial infarction. ECG showed ST elevation in lead V1-V6. Echocardiogram showed hypokinetic of the anterior and inferior wall with an ejection fraction 35%. Coronary angiography performed using the traditional Judkin's method angiography of LCA revealed the LCx was a dominant vessel which coursed within the left atrioventricular groove, crossed the crux of the heart and continued in the right atrioventricular groove as the RCA. The right coronary ostium were futile and aortography displayed the absence of the right coronary ostium. Angiography also revealed a single coronary trunk arising from the LCA giving rise to RCA (L-I group). The LAD was occluded 95% at the proximal portion, LCx was occluded 90% at the distal portion, and there was critical stenosis in proximal RCA arising from distal LCx. The lesions were crossed with a balanced middle weight soft guide wire and stented with a drug eluting stents with subsequent TIMI 3 flow distally. The patient was discharged 3 days later with no adverse complications. A few pertinent points while performing PCI in a SCA are (1) delineation the anatomy of anomalous arteries before planning interventions to identify other mechanisms of ischemia and choose the appropriate treatment, (2) the risks associated with PCI of a SCA is similar to PCI of unprotected left main, (3) the guiding catheter should correspond to the sinus of origin rather than the artery to be addressed and is usually the same configuration as that used during diagnostic angiography.

Conclusions:
This case was a rare instance of a patient with SCA and STEMI undergoing PCI. PCI in SCA has its unique risks but with improving technology and expertise is likely to be performed more frequently and successfully in the future.

KEYWORD*: Single Coronary Artery, Percutaneous Coronary Intervention*

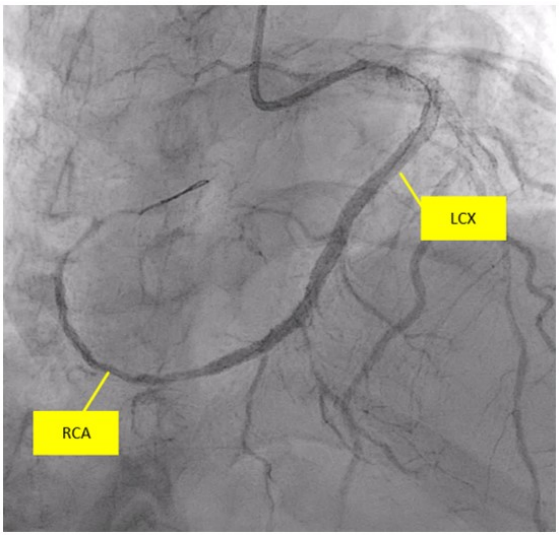

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Figure 1. Post intervention angiography revealed single coronary artery (L-I group), LCx from LCA giving rise to RCA (Cranial 30º).

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CASE REPORT / CASE SERIES

Unusual Case Report; An Acute Limb Ischemic in Unilateral Upper and Lower Extremities

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Background: Acute Limb Ischemia (ALI) is a condition which there is a sudden decrease in blood flow due to acute occlusion of peripheral artery. The incidence of ALI is 9 -16 cases per 100.000 persons per year for the lower extremity and around 1-3 cases per 100.000 persons per year for the upper extremity. But, only a few reported cases showed ALI in both extremities and the etiologies still vary.

Case illustration: A 76 years old man came to the emergency with pain in his right hand and right leg. He also felt cold and numbness that gradually spreading from tip of his fingers. The patient was an ex-smoker with diabetes and have history of arrhythmia with atrial 64ibrillation one year prior to admission and have cardiac resynchronization therapy pacemaker (CRT-P) implantation. During physical examination, He had signs of ischaemia with poikilothermic, numbness and decreasing of pulsation in upper and lower right extremities. Sensation was reduced but no motoric disorders. Routine hematological and biochemical workup showed a normal parameter, but high D-dimer (1247 ng/ml). The patient then undergo Doppler ultrasound on upper extremites with no arterial flow and total occlusion seen at ulnaris artery dextra with thrombus (2.57cm) and decreased arterial flow from right femoralis artery.The patient then given anticoagulant therapy and after two days undergo computed tomography angiography (CT-Angiography) and result showed total occlusion of distal popliteal artery dextra with collateral artery from tibialis artery. From CT-Angiography in upper extremites showed mild stenosis in radialis and ulnaris artery. Anticoagulant was continued for five days and discharged after resolution sign and symptoms of ALI.

Conclusions:
An upper and lower limb ischemic was still a rare case and the underlying mechanism is still not clear and depends on the individual and diseases. An early diagnosis and management strategy is important and depends on type of occlusion, lacation of occlusion, type of blood vessel, Rutherford classification, duration of ischemia, comorbidities.

KEYWORD: *Acute Limb Ischemia*

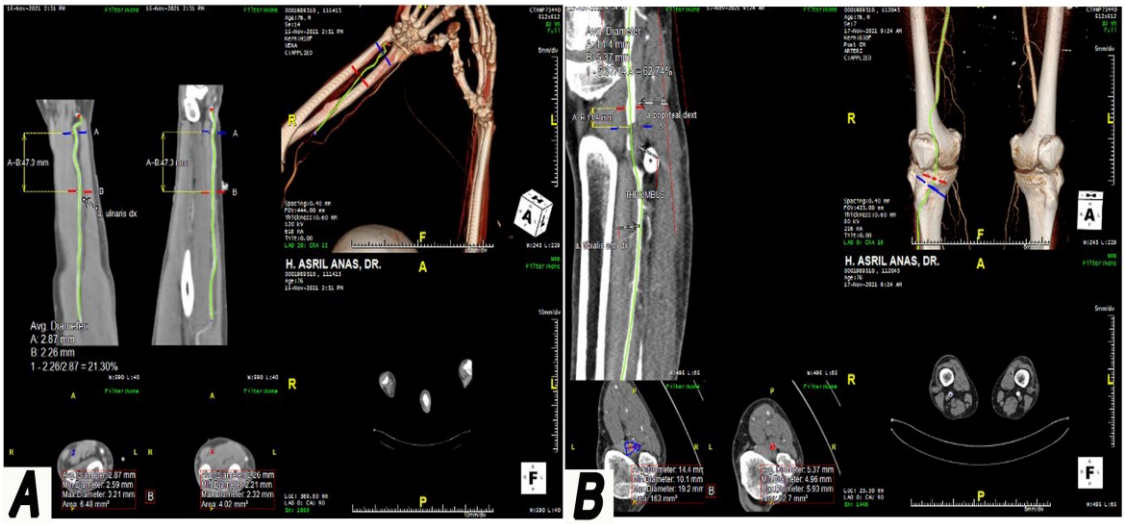

Figure 1. CT Angiography of leg.

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CASE REPORT / CASE SERIES

Digoxin Intoxication In Adult Woman: The Challenge of Using Digoxin In Rural Area

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Background: Digoxin has long been the drug of choice in systolic heart failure and, or atrial fibrillation patiens (AF). However, digoxin has controversy because of the very narrow therapeutic and toxicity dose. Elderly and impaired renal function are the most risk factors that have been associated with digoxin intoxication. But in this case, we found an adult woman with typical symptoms, signs, and electrocardiography (ECG) of digoxin intoxication.

Case illustration: 45 years old woman came to our hospital with chief complaint of heartburn and nausea. She also complained of atypical chest pain and shortness of breath. She has a history of Congestive Heart Failure (CHF) and AF. She routinely consumes digoxin 0.25mg/day. Her pulse was 69 bpm irregularly, blood pressure was 114/77 mmHg, and diastolic murmur in apex was heard. Patient's ECG showed AF, rate 115 bpm, normoaxis, and *scooped ST depression.* On laboratory examination, troponin I was normal and serum creatinine was 0.7mg/dl. Chest X-ray examination showed cardiomegaly. On echocardiography, we found CHF with Ejection Fraction (EF) 58% and mitral stenosis. Due to limitations in our hospital, we can't measure patient's serum digoxin concentration (SDC), but based on the typical signs, symptoms, and ECG we can diagnose this case as digoxin intoxication. This case shows that digoxin intoxication can occur not only in elders with abnormal serum creatinine. In general, the acceptable digoxin therapeutic dose is 0.5-2ng/ml whereas in the elderly is <1ng/ml. Digoxin intoxication can also be affected by electrolyte imbalances such as hypokalemia and hypercalcemia. The patient is also known to be consumed furosemide 40mg/day, where the incidence of digoxin intoxication is commonly found in patients taking furosemide because of the hypokalemic side effect. Clearance of Digoxin in women is 3.5% lower than in men indicating that gender is also a risk factor for intoxication.

Conclusions:
Clinicians must determine the appropriate dose of digoxin according to the patient's background condition. Currently, digoxin is indicated only in CHF with low EF and, or AF patients. Analysis of symptoms, signs, and ECG can be a diagnostic modality for digoxin intoxication especially in rural areas that can't measure SDC.

KEYWORD: *Digoxin intoxication, Congestive Heart Failure, Atrial Fibrillation.*

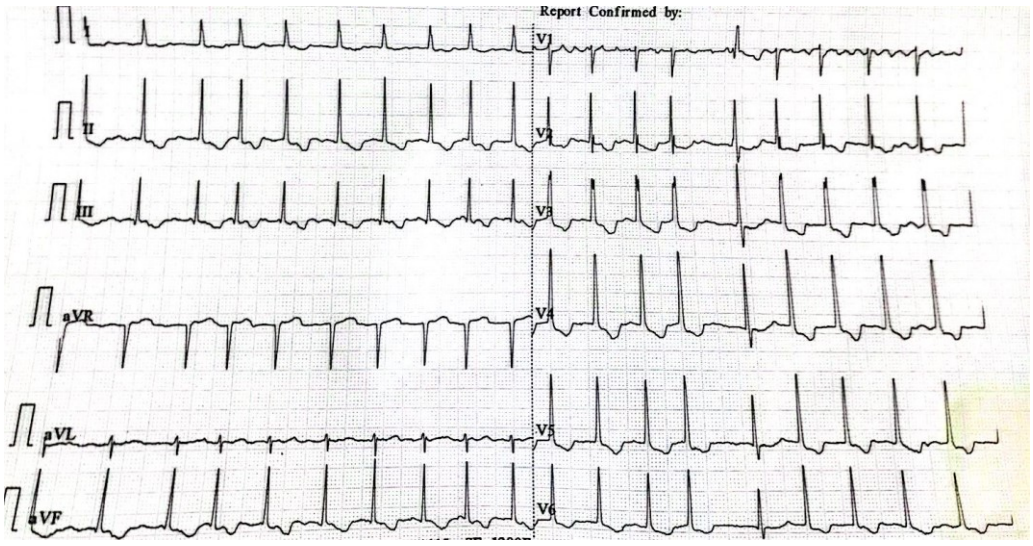

Figure 1. Patient's ECG, AF, HR 115 bpm, normoaxis, and scooped ST depression

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CASE REPORT / CASE SERIES

ST-Segment Elevation in A 20-Year-Old Man, Is It STEMI?

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Background: ST-segment elevation on the ECG is typical in ST-elevation myocardial infarction (STEMI). Apart from symptoms and ECG, acute coronary syndromes (ACSs) can be diagnosed with risk factors and detection of specific serum markers. However, other conditions may have ECG similar features. One of those is acute pericarditis. It's usually challenging to distinguish acute pericarditis from STEMI due to similar ECG characteristics. Here, we present a case of ST-segment elevation EGC in a young man with acute pericarditis.

Case illustration: A 20-year-old man came to our emergency department with chief complaint of sharp chest pain such as pleuritic pain. He was a smoker. The heart rate was 90 bpm, blood pressure was 150/100mmHg. The patient's temperature was 37.8 Celsius. The auscultation revealed a pleuritic friction rub. The laboratory showed an increase in leukocytes that indicates the possibility of infection. The ECG showed diffuse concave-upward ST-segment elevation with PR-segment depression in several leads. PR-segment depression in several leads is reflecting abnormal atrial repolarization related to atrial epicardial inflammation which are contrast to the ECG of acute STEMI, in which PR depression is not expected. On echocardiography showed septal bouncing and the visible thickening of the pericard with calcification which indicate an abnormality in the patient's pericard. With no regional wall motion abnormality and good ejection fraction, myocardial infarction can be ruled out. The patient had a normal level in troponin serum that means the infection didn't involving the myocard. It takes another risk factors other than hypertension and smoking to become ACSs so we can ruled out the diagnosis of STEMI in this patient.

Conclusions:
In conclusion, we described patient with chest pain and ST-segment elevation on ECG in a young man with acute pericarditis. However, the etiology of this case is still unknown. This case report emphasizes a diffuse ST-segment elevation in ECG with a chest pain are not always STEMI. The ECG is very useful in the diagnosis of acute pericarditis with clinical manifestations like pleuritic pain. The characteristic manifestations of acute pericarditis on ECG most commonly are diffuse ST-segment elevation and PR-segment depression in several lead.

KEYWORD: *Acute Pericarditis, ST-segment elevation*

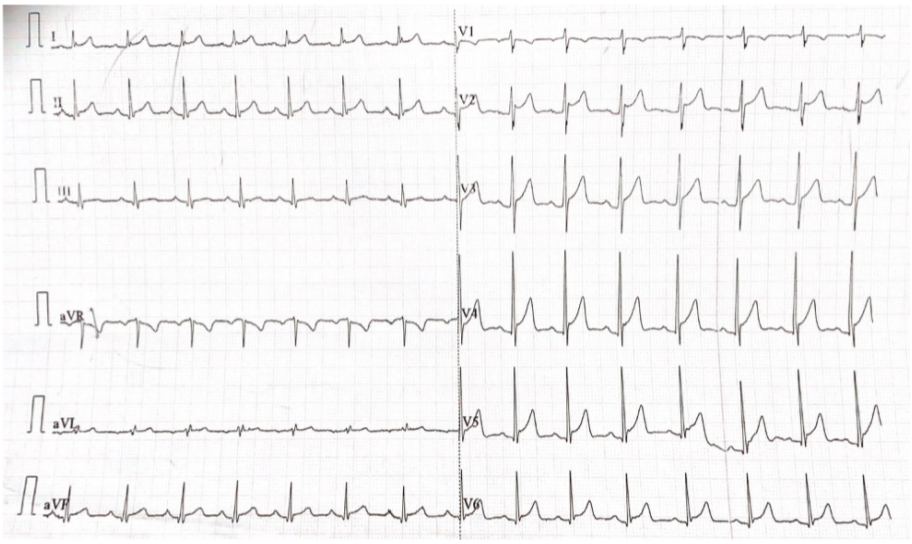

Figure 1. Patient's ECG a diffuse ST- segment elevation and PR-segment depression in several lead

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CASE REPORT / CASE SERIES

Balloon Pulmonary Valvuloplasty in Critical Pulmonary Stenosis: Not a Simple Balloon Dilatation

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Background: Percutaneous balloon pulmonary valvuloplasty (BPV) is considered to be the treatment of choice in a patient with isolated pulmonary valvar stenosis. It is considered a safe procedure with few complications.

Case illustration: A 15-years-old girl was admitted with a chief complaint of dyspnoea since 2 days before admission. Initial blood pressure was 121/76 mmHg, heart rate was 121 bpm, respiratory rate was 28x/minutes, and oxygen saturation was 70%, Echocardiography revealed severe pulmonary valvar stenosis with RV-PA gradient was 190 mmHg, moderate tricuspid regurgitation with a decrease of right ventricular contractility (TAPSE was 1,5 cm). There were no associated shunt lesions. COVID19 antigen was positive then the patient was hospitalized for 7 days in ICU red zone before undergoing a balloon pulmonary valvuloplasty. Right ventricular systolic pressure was 140 mmHg with end-diastolic pressure of 18 mmHg. The right ventriculogram confirmed the presence of isolated pulmonary valvar stenosis. We decided to use 18 mm balloon for BPV. Post-procedure the RV-PA gradient was a decrease from 124 mmHg to 69 mmHg, PA pressure was an increase from 16/11(13) mmHg to 55/27 (39) mmHg, oxygen saturation was increased from 54,2% to 96%. At CVCU, the patient had a cardiac arrest and cardiopulmonary resuscitation was performed, 1 hour after cardiopulmonary resuscitation, patient returned to spontaneous circulation. ECG showed junctional rhythm and a temporary pacemaker was performed. IVIG was given due to multisystem inflammatory syndrome in children (MIS-C) as a complication of COVID19. Patient was discharged after 29 days of hospitalization.

Conclusions: We report a case of 15 years old girl with isolated pulmonary valvar stenosis. BPV was done with satisfactory results even though fatal complication happened in this patient.

KEYWORD: *Balloon Pulmonary Valvuloplasty, Pulmonary Stenosis, COVID19*

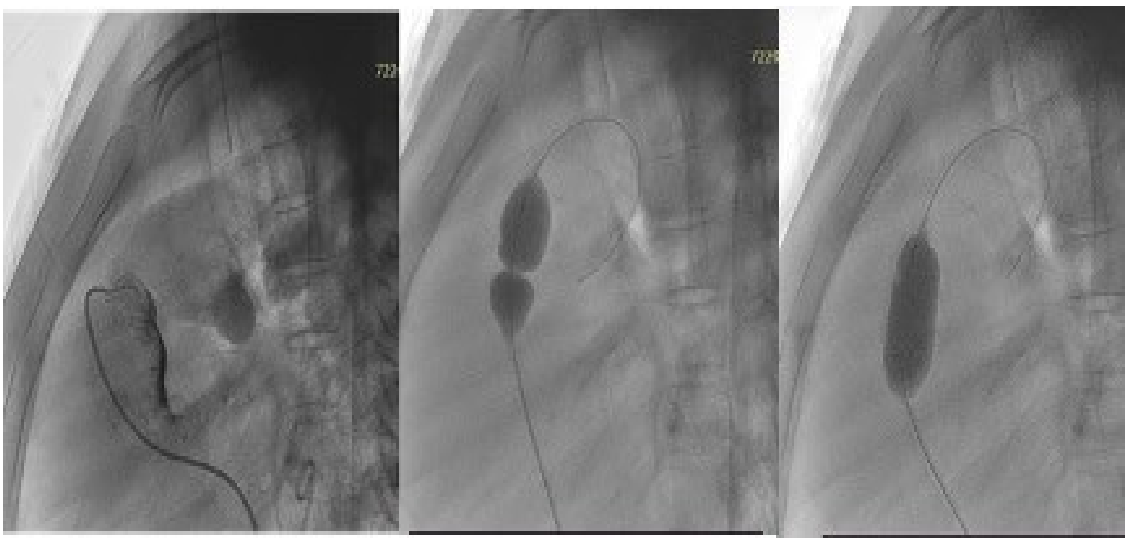

Figure 1. Balloon pulmonary valvuloplasty in critical pulmonary stenosis

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CASE REPORT / CASE SERIES

Coronary CT Angiography Evaluation as Preparation for Revascularization of Chronic Total Occlusion

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Background: Fifteen to 25 percents of patients who underwent coronary angiography had chronic total occlusive lesions (CTO) result. Information from Coronary Computed Tomography Angiography is necessary to make better preparation before PCI procedure. In this case we present a CCTA evaluation approach in a patient planned for PCI of a CTO lesion.

Case illustration: A 54-year-old man came with presentation Chronic coronary syndrome grade III. His blood pressure was 128/71 mmHg and his heart rate was 74 bpm with sinus rhythm, RAD and RBBB as result of ECG. Echocardiogram was in normal limits. Physical examination was within normal limits. The patient underwent coronary angiography six months ago and the results were three vessel disease with multiple PCI plans and CTO recanalization in LAD. Then the patient was prepared before the procedure (CCTA), with results were normal LM, calcified plaque CTO in LAD, calcified plaque in LCx and spotty calcification without significant stenosis in RCA. Then the CT Rector Score was calculated and got a total score of three (Multiple Occlusion, Severe Calcification and Bending ≥ 45º) with the conclusion very difficult to PCI procedure.

Conclusions:
CCTA modality is one of the reliable modalities for preparing complex PCI procedures. Our case showed that complex PCI approach on CTO lesions based on CCTA results. This uncertainty about the outcome of the CTO as the obstacle would be confronted feasibly by CCTA.

KEYWORD: *CCTA, Chronic Total Occlusion, Complex PCI Procedure*

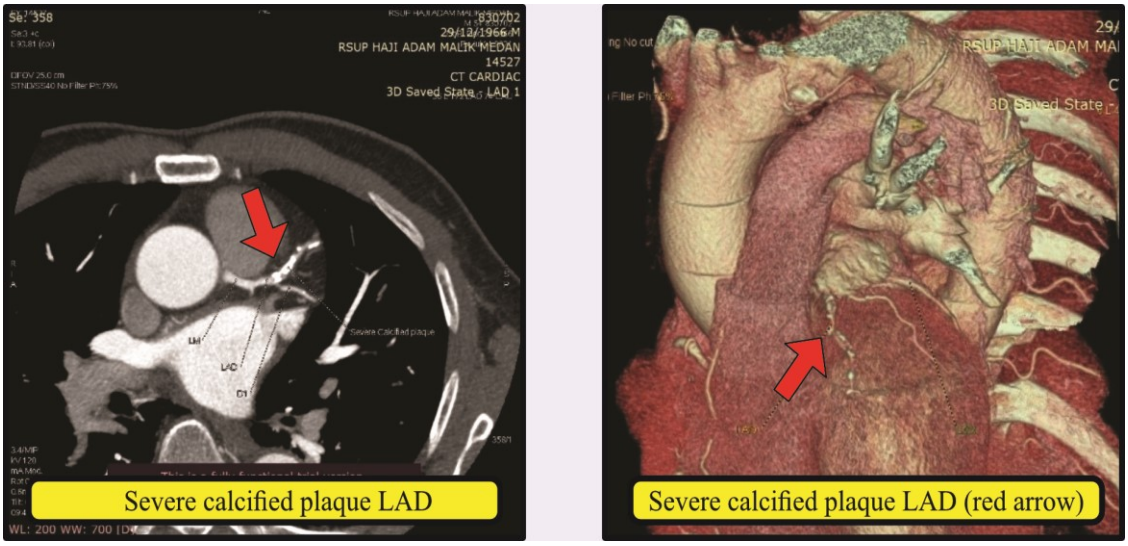

Figure 1. Computed tomography results with Multiple Occlusion, Severe Calcification and bending ≥ 45º (red arrow)

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CASE REPORT / CASE SERIES

Continuous Dopamine Infusion For Severe Atrioventricular Block In Rural Settings: A Case Report

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Background: Transcutaneous pacing (TCP) and permanent pacemaker (PPM) is a first choice of treatment in severe atrioventricular block, but it is not generally available especially in developing countries because such countries cannot afford quality treatment.

Case illustration: A 69-year-old man with history of COVID-19, acute kidney injury, and acute respiratory distress syndrome, showed in emergency room with bradycardia of 50 bpm. He has been complaining multiple episodes of dizziness for 9 months. The first electrocardiography (ECG) showed sinus bradycardia with right bundle branch block, but within 1 hour his heart rate decreased to 35 bpm the ECG showed significant atrioventricular (AV) block 3:1 indicating high-grade AV block with occasional ventricular extra systole (VES). The next 24 hour the ECG revealed complete heart block with junctional escape rhythm. The patient had showed improvement and stability in symptoms, heart rate, blood pressure, and urine output over continuous infusion of dopamine for 7 days. On 8th day, we referred to a tertiary referral capable PPM hospital and the procedure was done successfully. At doses of 5 to 20 mcg/kg/min dopamine will enhance chronotropy and inotropy predominate, enhancing atrioventricular nodal and His-Purkinje conduction, leading to increased cardiac output. Dopamine will stimulates β1 receptor, increasing intracellular cAMP concentration which leads to increase of heart rate, cardiac contractility, AV node conduction, and automaticity of subsidiary pacemakers in complete AV Blocks. In a small randomized controlled trial (RCT) study, there was no significant difference of survival to discharge or 30 days between dopamine and TCP.

Conclusion: Dopamine is a reliable temporary treatment for patient with severe atrioventricular block if pacing is not readily available in rural settings.

KEYWORD: *Dopamine, severe atrioventricular block, rural settings.*

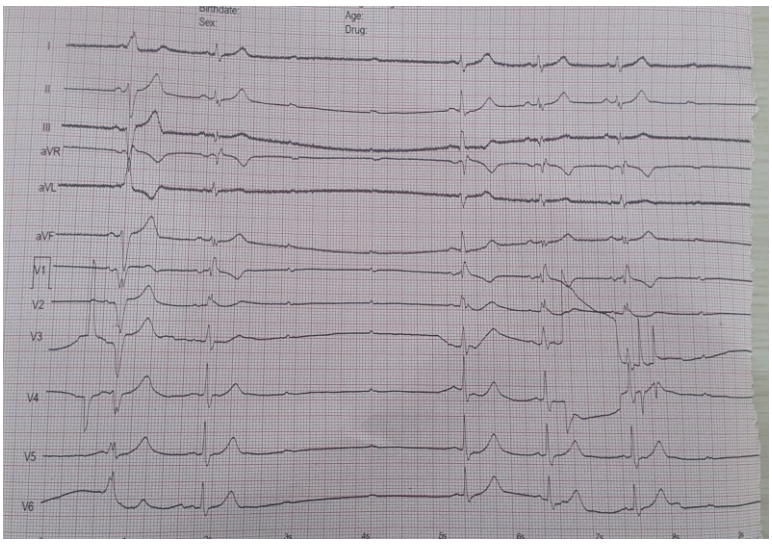

Figure 1. An ECG obtained at the emergency room, showing a 3:1 high-grade atrioventricular block

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CASE REPORT / CASE SERIES

Fever Induced Brugada Syndrome : A Case Report

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Background: Brugada syndrome is an abnormal pattern on ECG which is correlated with arrhythmic situations and eventually precede to sudden cardiac death (SCD). Brugada syndrome is characterized by coved type ST-segment elevation pattern (Type 1) in the right precordial leads. The pattern can be augmented at certain situations, and the most common and simple is fever. The purpose of this case report is to make more awareness of the triggers such as fever to the Patient in emergency department who have brugada pattern on ECG.

Case Illustration: A 59-year-old man came to the emergency department with respiratory distress for the past 24 hours. The patient reported palpitation, cold sweating with the absence of chest pain and had cough about 1 month with fever condition. Laboratory finding revealed elevated white blood cell and electrolytes imbalance. The results of chest X ray was active tuberculosis infection. His initial ECG was concerning for an rSR' pattern in V1 and V2, with coved ST segment elevation > 2 mm in V1, followed by an inverted T wave, consistent with a type 1 Brugada pattern. The Patient was started on broad-spectrum antibiotics, anti tuberculosis drugs, acetaminophen and sodium correction for electrolytes imbalance. Two days later, once his fever resolved, a repeat ECG was obtained and the Brugada pattern had resolved.

Conclusion:
We present a case of fever induced Brugada syndrome. Patient should be surveilled closely during febris condition, be started on antipyretic therapy immediately and treat the cause of fever.

KEYWORD: *Brugada syndrome, Fever, Arrhythmic event*

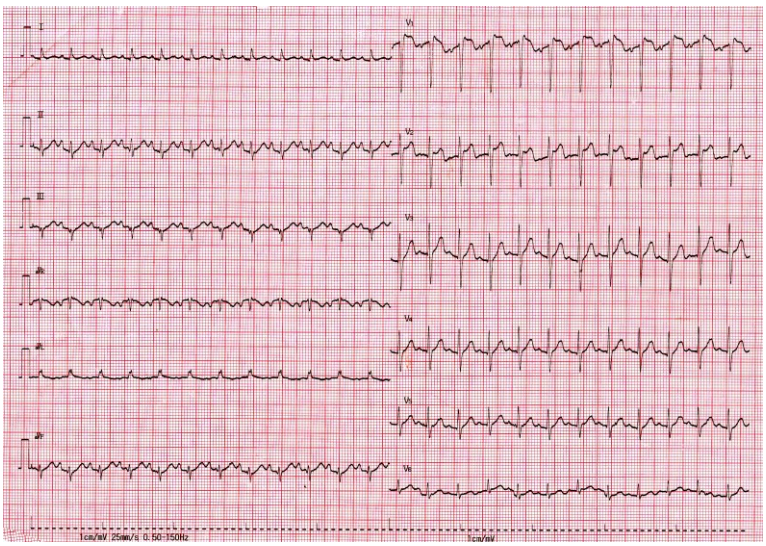

Figure 1 : ECG before fever resolved

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CASE REPORT / CASE SERIES

Acute Kidney Injury After Cardiac Surgery : Do We Need Renal Replacement Therapy?

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Background: Acute kidney injury (AKI) after cardiac surgery is associated with short-term and long-term adverse outcomes. AKI defined as the rapid deterioration of kidney function, approximately 30% of total AKI cases occur after cardiac surgical procedures. This case report represent our management to improve favorable outcomes of AKI after Mitral Valve Replacement (MVR) with Coronary Artery Bypass Graft (CABG).

Case Illustration: A 61 years old man got admission into cardiac intensive care unit after MVR and CABG. He had history of Severe Mitral Regurgitation (MR) and Coronary Artery Disease while renal function preoperative was normal (Cr :1.2 mg/dL, eGFR : 69 ml/min/1.73m^2). The vital sign showed BP 122/44, HR 109 bpm, RR 14 x/m, SpO2 100% on VM. On day 3 post operative diuresis reduced progressively within 24 hours (0.7, 0.5 and 0.4 cc/kg/hr, respectively). Laboratory findings showed worsening renal function with Ureum and creatinins level 43, 86, 163 mg/dL and 1.9, 3.8, 4.7 mg/dL respectively. Non-invasive hemodynamic parameters showed SV 27 ml, CO 2.8 L/min, IVC 23/22, SVR 1762 dynes/sec/cm^{-5}. After fluid optimalization, intravenous furosemide up to 40 mg/h for 24 hours was given, and still no improvement in urine output. Then the patient proceeded to CRRT with mode CVVHDF for 4 days. Diuresis was improved 0.6, 0.9, 1.3, 1.4, 2.0 cc/kg/hr. Laboratory examination after CRRT showed improvement of renal function with ureum 40 mg/dL, creatinine 0.9 mg/dL, eGFR 97 ml/min/1.73m^2. The clinical condition was improved and the patient transferred to ward.

Conclusions:
Post operative AKI was associated with a higher 1-year all-cause mortality after cardiac surgery. AKI could prolonged hospitalization and increase hospital mortality and costs. CRRT plays an important role to restore renal function in patients after cardiac surgery who developed AKI and improve clinical outcome.

KEYWORD*: Acute Kidney Injury, Cardiac Surgery, Valve Heart Disease, Coronary Artery Bypass Graft, Coronary Artery Disease, CRRT*

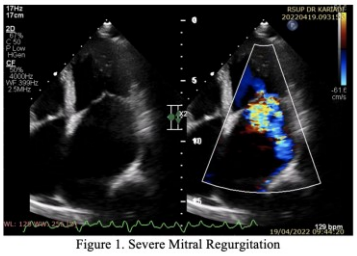
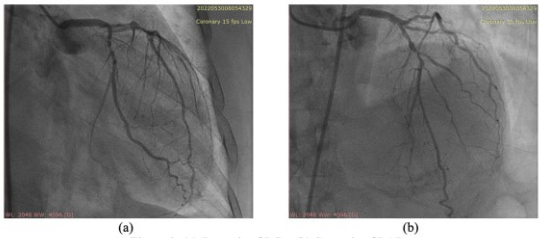


Figure 1. Severe Mitral Regurgitation



(a) (b)

Figure 2. (a) Stenosis of LCx, (b) Stenosis of LAD

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CASE REPORT / CASE SERIES

Postoperative Myocardial Infarction Following Gastric Perforation Laparotomy

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[2]RSUD Dr. Wahidin Sudiro Husodo Kota Mojokerto

Background: Non-cardiac surgery poses serious circulatory stress and may trigger cardiovascular events such as myocardial infarction, particularly in patients at high risk. However, ischaemic electrocardiographic signs may be subtle and angina is often masked by strong analgesics, which leads to under-recognition of myocardial injury. The 30-day mortality associated with moderate to high-risk non-cardiac surgery in recent large cohorts and population-based studies exceeds 2% and surpasses 5% in patients at high cardiac risk. The 2014 ESC/ESA guidelines recommend considering routine monitoring of troponin in the first days after major non-cardiac surgery to detect PMI in high-risk patients.

Case Illustrations: A 71-year-old female was brought to the emergency department (ED) with a chief complaint of abdominal pain, she also complained of nausea but no vomiting, obstipation, and distended abdominal. The patient was consulted to the surgeon, diagnosed with gastric perforation, and immediately underwent emergency laparotomy exploration. On day 1 post laparotomy, the ECG showed ST-segment elevation in the precordial lead (2 mm in V2-V4 and 1 mm in V5), troponin serum was positive, and the serial measurements of vital signs showed hypotension and tachycardia. Additional pharmacotherapies were given on the following days and showed improvement of ECG (dynamically Inverted to normal), but the patient showed a decline in condition due to shock. After 4 days of hospitalization in the intensive care unit, the patient died.

Conclusions: Postoperative myocardial infarction (PMI) is a rare case and quite 'tricky' to rule out. Although there is no standardized diagnostic and treatment protocol, we believe that routine troponin monitoring and gathering more knowledge about the underlying pathophysiological mechanisms of PMI are indeed beneficial for patients. Because once it is diagnosed, we can simply treat patients better when we know what we are treating.

KEYWORD: *Postoperative Myocardial Infarction, Gastric Perforation*

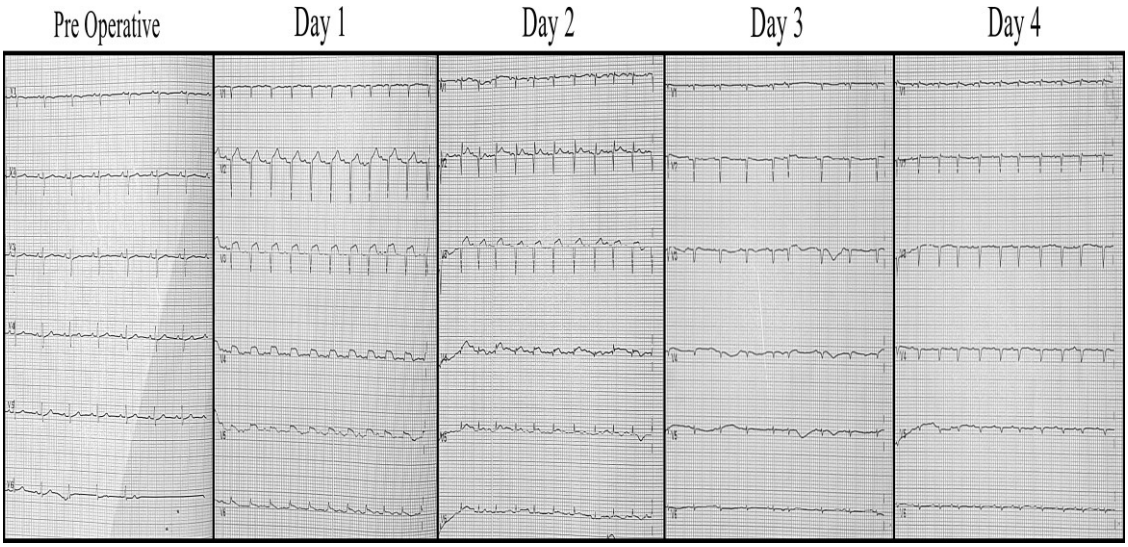

Figure 1. Serial ECG evaluation (V1-V6); ECG day 1 post laparotomy showed ST-segment elevation in precordial lead (2 mm in V2-V4 and 1 mm in V5); ECG day 2 until day 4 showed dynamical improvement back to normal

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CASE REPORT / CASE SERIES

Sudden Cardiac Death in Young Female with History of Severe Preeclampsia: A Case Report in Emergency Room in a Rural Hospital

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[1]Dompu Public Hospital

Background: Sudden cardiac death (SCD) is an unexpected death caused by cardiovascular event in a person with or without a history of heart disease within one hour since the change of clinical state outside of the hospital. More than 40% of SCD cases are found in women, there was only a few cases that happened at age <45 years old. Due to the few cases of SCD in young women, we would like to present a case of SCD in a young woman.

Case Illustration: a 35-year-old female came to the emergency room of Dompu Public Hospital with a chief complaint of epigastric pain along with heavy breathing and stabbing chest pain, nausea, and weakness since 6 hours ago.History of severe preeclampsia. Patient was admitted to ER with a decrease of consciousness, BP 140/70mmHg, HR 114/minute, RR 30x/minute, SpO2 75% room air, and 95% with a Non-rebreathing mask 10 LPM. The Electrocardiography (Figure 1) showed tachycardia with ventricular extrasystole (VS)unifocal and anterolateral STEMI. Physical examination was within normal range. Patient received NaCl 0,9% 500ml/24hours, omeprazole 40mg IV, Paracetamol 1 gram IV, Aspirin 320 mg and Clopidogrel 300 mg. Other laboratories and covid test were normal. In about 15 minutes patient had rapid breathing, comatose, and pulseless. The family refused to perform resuscitation. The typical symptoms of myocardial ischemia in females may be different from the male which are stabbing chest pain, abdominal pain, shortness of breathing, and weakness. Hyperacute T-wave and tachycardia may indicate an early onset of STEMI which is also the most common cause of sudden cardiac death in a woman. Ventricular extrasystole may develop after the ischemia and increase the risk of SCD. Preeclampsia also increased the risk of cardiovascular event.These findings substantiate the myocardial ischemia and ventricular extrasystole as the causes of SCD. The incidence is rarely I in younger women especially <45 years old.

Conclusions:
STEMI and ventricular extrasystole were described as the cause of sudden cardiac death. Early recognization of myocardial ischemia in young woman with chest or abdominal pain and history of severe preeclampsia should be done appropriately.

KEYWORD*: young woman, sudden cardiac death, myocardial ischemia, ventricular extrasystole, preeclampsia*

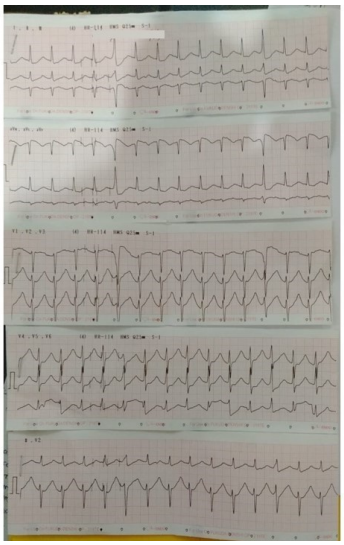

Figure 1. 12-lead ECG showing VES unifocal and hyperacute T-Wave in lead V2-V5

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CASE REPORT / CASE SERIES

Tombstone ST-Elevation Myocardial Infarction After Fibrinolytic

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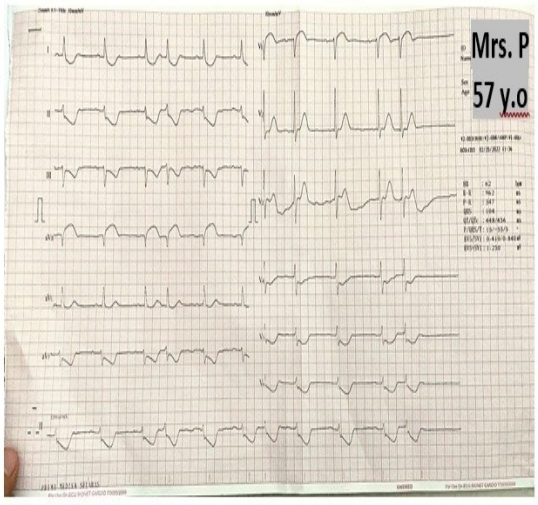
[1]PKU Muhammadiyah Gombong Hospital

Background: Tombstone was a grave sign in ECG in which the ST segment peak surpasses the R wave. It indicates extensive myocardial damage, high-grade stenosis of a culprit artery, higher risk of VT on reperfusion, greater effect on LV function, and poor prognosis. Two electrophysiological mechanisms play a role in forming a tombstone appearance: delayed transmural conduction and intramyocardial conduction block.

Case illustration: A 57-year-old woman was admitted to the emergency room PKU Gombong Hospital with a chief complaint of weakness and typical angina chest pain two hours before admission. The patient was conscious and hypotensive (BP 70/49). Electrocardiography (ECG) showed ST-segment elevation in aVR, V1, and ST-segment depression in I, II, III, aVF, and V4-V6 referred to as STEMI Posterior. Aspirin 320 mg, clopidogrel 300 mg, atorvastatin 40 mg, and norepinephrine drip started at 0.1 mcg/kg/min were administered. Streptokinase was given at 1.5 million units due to incapable of a cath lab. After half an hour of treatment, the ECG showed ST-segment elevation in aVR, tombstone ST-segment elevation v2-v6, and ST-segment depression in II, III, aVF with hemodynamic improvement. The family refused to be transferred for PCI to Sardjito Hospital and decided to manage conservatively in the Intensive Care Unit (ICU). Unfortunately, she became suffered a cardiac arrest after six hours of observation and passed away after CPR.

Conclusion:
This case illustrates the poor outcome of TOMB-STEMI**.** Further studies are required to reveal the mechanism of tombstoning ST-segment elevation. There is a correlation between optimization of medical or invasive treatment for TOMB-STEMI to the complications and their effect on long-term prognosis. Considering the myocardial infarction is more than a mere ECG pattern with a specific morphological appearance, evaluating it as a different entity seems to be appropriate.

KEYWORD: *Tombstone, STEMI, Fibrinolytic*



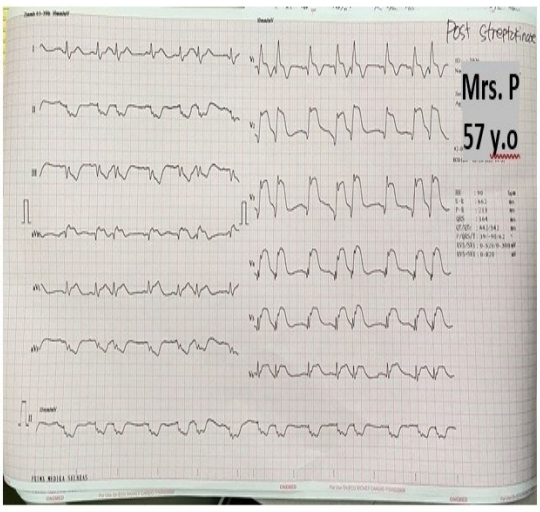


Figure 1. The ECG showed ST-segment elevation in aVR, V1; ST-segment depression in I, II, III, aVF, V4-V6.
Figure 2. The ECG showed ST-segment elevation in aVR, tombstone sign in v2-v6 and ST-segment depression in II, III, aVF (half an hour after treatment)

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CASE REPORT / CASE SERIES

Fatal Complication of Eisenmenger Syndrome in a 21 year of age Pregnant Women

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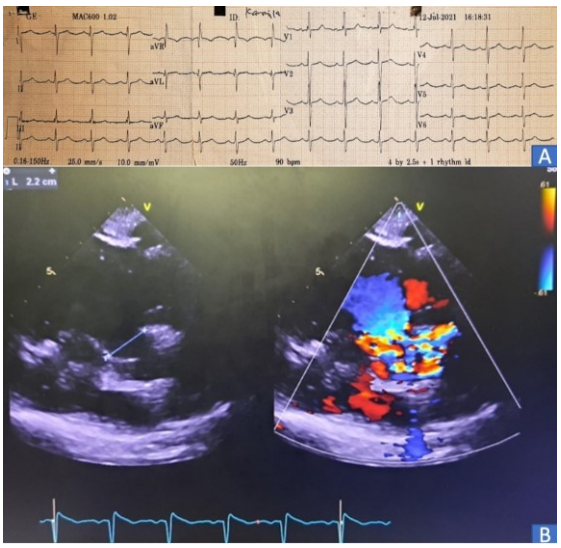
Background: Eisenmenger syndrome is the result of severely elevated pulmonary vascular resistance with reversed (pulmonary to systemic) or bidirectional shunting at the aortopulmonary, ventricular, or atrial level. Pregnancy increases oxygen consumption, decreases functional residual capacity, and reduces systemic vascular resistance, consequently exacerbating right to left shunting in patients with Eisenmenger syndrome. Decreased pulmonary perfusion resulting from right to left shunting leads to hypoxemia and deterioration of the maternal and fetal condition.

Case Illustration: A 21-year-old G2P0A1 came to ER at 23-24-week gestational age with chief complaint of abdominal pain for 2 days and associated with vaginal blood leaking. The results of the last obstetric ultrasound examination showed that there was no fetal heartbeat. She also had history of fingers and toes like drumsticks and black in color and breathlessness on exertion for past two years. She was a known case of heart disease on medication (Furosemide and Spironolactone) for the last two years. On examination revealed edema, clubbing and cyanosis on the hand and feet fingers. Her vitals were stable with HR 107 beats/minute, BP 123/89 mmHg and RR 18/minute. Eye, ear, nose, mouth and neck examination revealed no abnormality except for increased jugular venous pressure. On cardiovascular examination revealed grade 3/6 pansystolic murmur at 5th ICS linea mid-clavicula sinistra. Respiratory system examination revealed bilateral vesicular breath sounds in all lung fields. Hemoglobin 11.7 g/dl and hematocrit 38%. ECG showed right ventricular hypertrophy and right axis deviation. Echocardiography reported perimembranous bidirectional shunt ventricular septal defect. At the time of monitoring preparation for vaginal termination of pregnancy, the patient complained of chest pain and followed by decrease in SpO2 by up to 34%. And patient was sent to ICU. Termination of pregnancy was then successful. Unfortunately, patient experienced ventricular fibrillation 4 days later and passed away after resuscitation did not respond.

Conclusion:
Pregnancy should be discouraged in women with Eisenmenger's syndrome, it can cause any adverse maternal or fetal outcome including perinatal and maternal mortality. The greatest risk lies in the periods of delivery and postpartum with one of cause of death could be arrhythmias.

KEYWORD: *Eisenmenger Syndrome, pregnancy, complication*



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(I) ECG showed right ventricular hypertrophy and right axis deviation. (B) Echocardiography showed perimembranous bidirectional shunt ventricular septal defect.

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CASE REPORT / CASE SERIES

Cardiac MRI Necessity for Revascularization Strategy in Patients with Chronic Coronary Syndrome: a case series

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[2]RSUD dr. Zainoel Abidin

Background: Cardiac magnetic resonance (CMR) using stress perfusion is increasingly used in daily practice for ischemia detection, and for identifying patients who might benefit from revascularization versus those who will potentially benefit the most but are also at the highest risk of complications.

Case illustrations: We present a series of cases from three patients with stable chest pain who were referred for CMR examination. CMR examination results were consistent with CAD with different ischemic burdens and prognoses. Patient A, male, 37 years old, with risk factor strong family history and diabetes, previously undergone PCI to LAD showed stress-induced ischemia at partial of LCx and PDA territory; with moderate-severe ischemia and ischemic scar with viability at a small part of LCx. Patient B, male, 54 years old, with a history of acute heart failure showed stress-inducible ischemia at most parts of LAD territory, a small part of LCx territory, partial of RCA territory with moderate-severe ischemia; and ischemic scar with viability at LAD territory and partial LCx territory. Patient C, male, 63 years old had undergone early PCI to LAD denoted stress-inducible ischemia at most part of LAD +/- LCx territory with moderate-severe ischemia and ischemic scar without viability at most of RCA territory segments with non-viable segments at RCA territory. The last two patients presented with significantly reduced left ventricular ejection fraction.

Conclusion:
For any planned revascularization decision, both anatomical and functional status using stress perfusion CMR should be considered. An ischemia threshold of 2 segments is most relevant for revascularization strategy. Patients with zero or 1 ischemic segment can be safely deferred from revascularization. In this case series, patients A and B will benefit from revascularization to save most of the viable myocardium and improve symptoms. However, the area of the myocardial scar in the RCA territory of patient C was too large, so the benefits of revascularization do not outweigh the risks. CMR is safe, delivering measurements that are accurate and highly reproducible, as well as providing valuable prognostic information. In clinical practice, decisions on treatment should balance benefits and risks of a proposed procedure.

KEYWORD: *Cardiac magnetic resonance, revascularization, stress perfusion CMR*

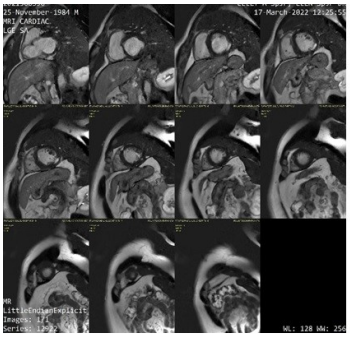

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Figure 1. Late gadolinium enhancement of patient showed ischemic scar with viability at small part of the LCx

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CASE REPORT / CASE SERIES

Chronic Heart Failure Induced Docetaxel and Doxorubicin on Invasive Ductal Carcinoma (IDC) of No Special Type (NST) Grade III Breast Cancer Dextra: A Case Report

R.I. Rismawanti[1], A. Novitasari[1], A. Ciptasari[1], L. Pribadi[1], M. G. Suwandi[1]
[1]RSPAU Dr. Suhardi Hardjolukito

Background: The combination of docetaxel and doxorubicin (AD) gives superior response rates and time to progression, but not superior overall survival, compared with the combination of doxorubicin and cyclophosphamide (AC) as first-line chemotherapy in patients with metastatic breast cancer. Both AD have cardiotoxicity effect such as myocardial dysfunction and fall into heart failure with different mechanism of toxicity. Type I chemotherapy-related myocardial dysfunction is usually secondary to oxidative stress and type II chemotherapy-related myocardial is caused by cardiomyocyte impairment.

Case illustration: 43-year-old woman referred to the cardiology clinic from oncology surgery clinic with dyspneu and history of invasive ductal carcinoma (IDC) of no special type (NST) grade III breast cancer dextra. Physical examination abnormality was tachypneu with normal laboratory examinations. The ECG showed poor R-wave progression. Echocardiography showed left ventricle thrombus, all chambers dilatation, tricuspid regurgitation, mitral regurgitation. She was diagnosed as Chronic Heart Failure NYHA III DA: all chambers dilatation, TR, MR, DE: cardiotoxicity, left ventricle thrombus, IDC of NST grade III breast cancer dextra post 6th series chemotherapy with DA. She received warfarin, furosemide, ramipril, and beta blocker and control next month.

Conclusion: This case report emphasizes to prevent serious heart damage that will aggravate the patient's condition in the future, the baseline condition must be assessed before, throughout, and after repeated chemotherapy. To assess the patient's status following chemotherapy, modest and sophisticated investigations with other specialists are considered, taking into account the risks and benefits that the patient will get.

KEYWORD: *chronic heart failure induced chemotherapy, docetaxel, doxorubicin, invasive ductal carcinoma, breast cancer*

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CASE REPORT / CASE SERIES

Incorporate Rashkind-BAS and PDA Stenting in late presenter D-TGA with intact IVS patient with an episode of Cardiac Arrest: Grasping at straws

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[1]Cardiology and Vascular Medicine Department – University of Hasanuddin

Background: Transposition of the great arteries (TGA) occurs when the conotruncal septum fails to follow its spiral course and instead forms in linear orientation; complete parallel circuits are incompatible with life and thus require PDA or VSD that allows mixing blood, Rashkind BAS, or PDA stenting are required before ASO to ensuring adequate oxygenation and prevent LV regression but combining BAS and PDA stenting are rarely reported.

Case Illustration : We reported 44-days-old girl who was referred due to progressive shortness of breath and cyanosis, peripheral saturation shown 48 percent, initial echocardiogram revealed D-TGA with intact IVS, small PDA 2-3 mm, small PFO 2-4 mm, we decided to perform balloon atrial septostomy, after sheath and catheter insertion patient experienced cardiac arrest then we resuscitate the patient while crossing mini thyshak balloon through PFO lesion, balloon was inflated in LA then pulled out the balloon to RA to tear the atrial septum and patient was returned to spontaneous circulation, post BAS evaluation blood saturation did not increase, then we performed Aortic decending angiogram and shown PDA has been closed and left a root in the aortic, we decided to perform PDA stenting but patient had repeated cardiac arrest thus we performed resuscitation while crossing a wire to MPA and Inflating 6 atm a Boston scientific emerge 2,5 x 20 mm balloon and implanting a resolute integrity DES 3,5 x 15 mm, final evaluation we performed an aortogram and shown contrast fill up the decending aorta and MPA through PDA, post PDA stenting evaluation PDA was patent and blood saturation had increased to 70% and patient was hemodynamically stable.

Conclusion:
D-TGA with intact IVS was a critical duct-dependent congenital heart disease that required a mixing site to optimize adequate oxygenation; balloon atrial septostomy (BAS) or PDA stenting is usually performed before definite surgical correction; for late presenter D-TGA with intact IVS with hemodynamically unstable, crucial attempt combining BAS and PDA stenting procedure is possible under the catastrophic event on Cath-lab to regain spontaneous circulation and clinical improvement.

KEYWORD: *D-TGA, PDA Stenting, BAS, Cardiac arrest.*

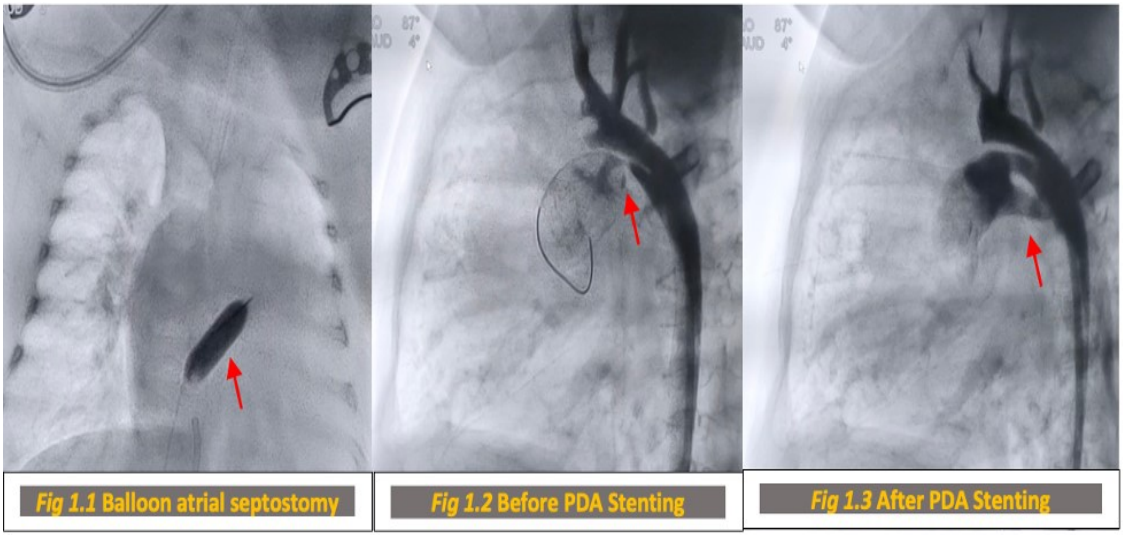

Fig 1.1 Balloon atrial septostomy

Fig 1.2 Before PDA Stenting

Fig 1.3 After PDA Stenting

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Figure 1. BAS and PDA Stenting Procedure

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CASE REPORT / CASE SERIES

Silent Hypertension in Obese T2DM Patient

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Background: T2DM, hypertension and obesity often coexist through several mechanism such as the RAA-System activation and the "angry-fat". This issue continues to increase worldwide and becoming a global pandemic. Data shows the incidence of T2DM is rapidly increases and shortly will affect 300-million people worldwide in which most of them will be hypertensive.

Case illustration: 58 years-old man, diabetic, sedentary lifestyle and obesity without any history of hypertension presented to our outpatient clinic with DOE. Physical examinations revealed BP 150/80 mmHg, HR 87 bpm and BMI 29.9. ECG showed SR, LAE with hypertensive response on a treadmill stress test. Laboratory showed proteinuria and a normal LVEF and dilated LA on echocardiography. Diagnosis of T2DM and obesity was confirmed while hypertension was suspected. ABPM was done and revealed an abnormal 24-hours BP, night-time riser BP, borderline morning surge, inappropriate 24-hours BP and a less dipping night-time HR. Irbesartan 300 mg, Lecarnidipine 10 mg and a combination of glibenclamide 2.5 mg/metformin 500 mg were prescribed. Lifestyle modification and HBPM was recommended. Insulin resistance/ hyperinsulinemia is implicated in a pathophysiology of the development of hypertension through several mechanisms such as enhanced sympathetic and RAAS activity, ANP suppression, dyslipidemia, chronic hyperglycemia, sodium retention with consequent volume expansion, progressive renal disease, hyperactivity of cardiac, LV hypertrophy and increased oxidative stress. However, RAAS activation is still the primary etiologic event of hypertension development in diabetic people. Furthermore, "angry-fat" (adipocytes which induce excess amount of circulating FFAs) in obesity is also a key factor. All the components of the RAAS are express on the adipocytes contributing to the development of T2DM, hypertension and its associated complications. Together with the prevention of the "angry-fat" accumulation, early detection and pharmacotherapy which modulated the RAAS are needed to decrease the progressions and the prevalence of T2DM and its related complications.

Conclusions: Diabetes and hypertension are closely related through several factors such as the activation of the RAAS, angry fats and other contributing factors. Therefore, early detection of hypertension in people without hypertension in T2DM patient is necessary to prevent further microvascular and macrovascular complications.

KEYWORD: *Hypertension, Diabetes, RAAS, Obesity*

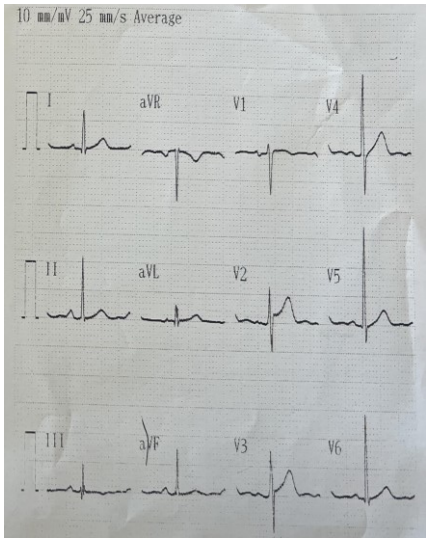

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Figure 1. Patient's ECG.

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CASE REPORT / CASE SERIES

A Rare Case Of Sustained Ventricular Tachycardia From Possible Acute Pulmonary Embolism

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Background: Pulmonary embolism (PE) is a known cause of cardiac arrest, typically through pulseless electrical arrest or asystole. Very rarely, PE linked to ventricular tachycardia (VT). Sustained VT from acute PE is rare, and best management of these arrhythmias remain unclear.

Case Illustration: A 39 years old woman without history of cardiovascular referred with shortness of breath 1 month ago after gave birth to twins and in bedridden since then. Patient experiences loss of consciousness with BP: 81/54 mmHg, HR 174 bpm. ECG showed VT and were given cardioversion with 100 joule and intubation. Laboratory finding showed calcium 7.4 mg/dL, magnesium 1,7 mg/dL, D-dimer > 4000,00 ng/mL. Echocardiography showed: EF 33%, RA and RV dilatation, TAPSE 1,6 cm, MR mild, and TR moderate. Patient was treated with IV dobutamine 3 meq/BodyWeight/min, norepinephrine 0,05 meq/BodyWeight/min, IV MgSo4 1 gr and IV Heparin sulfat 5000 IU with maintenance dose 4000 IU/hrs. ECG change to torsade des points, another defibrillation with 200 joules were given. rhythm convert to sinus rhythm with Qtc 512 msec. VT occurs again and 150 joules of cardioversion were repeated and ECG shown asystole

Conclusion: Ischemia from RV strain and irritation of valve apparatus from clot-in-transit to be the culprit in sustained VT from acute PE. PE is a noncardiac cause of cardiac arrest with an extremely unfavorable prognosis. Mortality-related to cardiac arrest by PE is high. Echocardiography is supportive in determining PE as the cause of cardiac arrest. Thrombolysis should be attempted to achieve spontaneous circulation and better outcome

KEYWORD*: sustained ventricular tachycardia, acute pulmonary embolism, cardiac arrest*

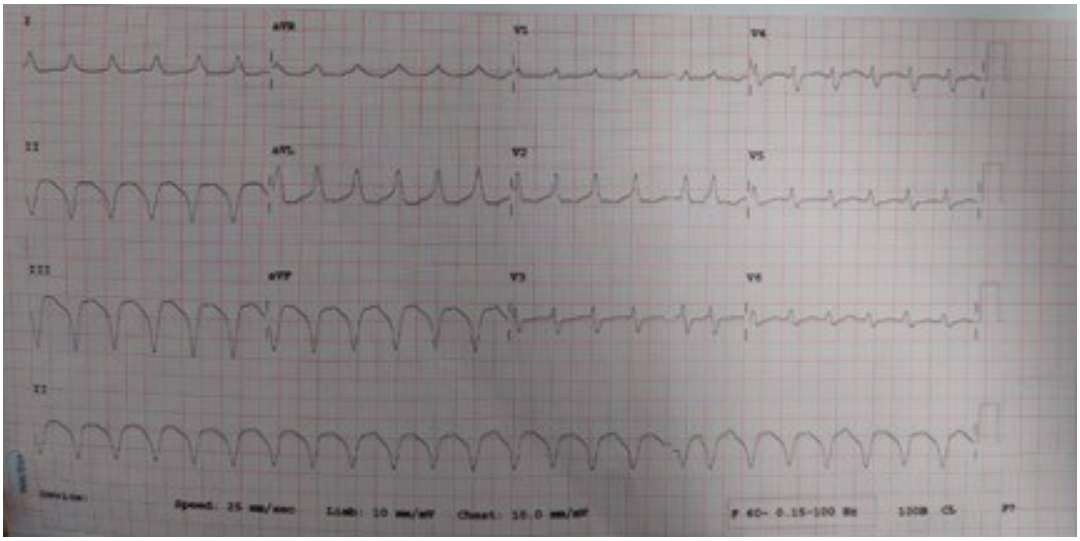

Figure 1. ECG Showed ventricular tachycardia

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CASE REPORT / CASE SERIES

An interesting Case of RBBB VT : The Classic Left Taller Rabbit Ear Sign

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[1]RSUD Srengat

Background: Accurate diagnosis of wide QRS complex tachycardia is difficult in emergent situations. Incorrect interpretation may lead to inappropriate therapy and unpredictable outcome. In this report we present an interesting case of wide QRS complex tachycardia with RBBB.

Case illustration: A 53 y.o. male came to emergency room with chief complaint shortness of breath. The shortness of breath was felt since 1 months ago and getting worse in the last 2 days. He also complained fever and palpitation. The patient had history of hypertension and wasn't routinely treated. Patient smoked 1-2 packs of cigarettes a day. Patient's heart rate was 148 bpm, blood pressure was 110/80 mmHg, Temperature 39,0 celcius, Respiratory rate 26x, Spo2 90%, 97% with nasal cannula 3 lpm. The laboratory results were within normal limit showed. In physical examination, we found cardiomegaly and rales in 1/3 basal of lungs. Chest X-rays showed cardiomegaly and suggest pulmonary edema. The tachycardia persist above 140 bpm even after patient's fever and hypoxia subsided. The ECG showed RAD, and Wide Complex Tachycardia (WCT) with RBBB. A closer look on ECG showed rsR'(Left Taller Rabbit Ear) in right precordial leads which is classical sign for VT based on RBBB-VT criteria. We also found A-V dissociation in this patient ecg. Echocardiography dilated heart,with LVH eccentric, LViDd 57 mm, La 44 mm RV 49 mm, EF 39,9%, TAPSE 16 mm and hypokinetic of the inferior ventricular wall. Patien then way treated with amiodarone IV and successfully converted to sinus rhytm. Patient was then given therapy for HF and discharge with no complaints.

Conclusions:
We described a patient with RBBB VT the classic Left Taller Rabbit Ear sign on ECG. It's important to access every Wide Complex Tachycardia (WCT) carefully to distinguish the cause of Wide Complex Tachycardia (WCT) and establish the diagnosis which is crucial for patient's treatment option and final outcome.

KEYWORD: *RBBB VT, Left Taller Rabbit ear, amiodaron*

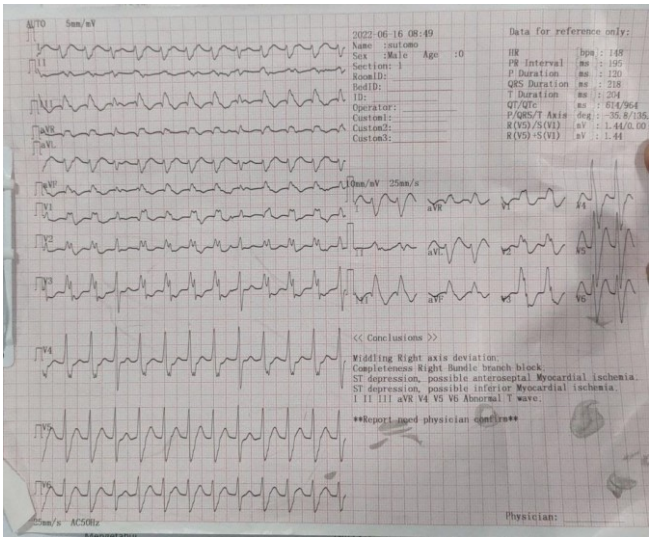

Figure 1. ECG patient with RBBB VT and Wide QRS pattern

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CASE REPORT / CASE SERIES

AF Rapid in Unrepaired ASD Patient

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Background: Atrial fibrillation (AF) are common associated with natural history of patients with Atrial Septal Defect (ASD). AF is increasing in prevalence in adults with congenital heart disease and is the most common presenting arrhythmia over the age of 50 years. The Left-to-right atrial shunting leads right atrial (RA) dilatation due to chronic diastolic volume overload in right heart. Electrical remodeling of RA occurs in tandem with structural remodeling. In this case report we present ASD patient with AF rapid ventricle response.

Case illustration: We report the case of a female 66 y.o, comes to Emergency Room (ER) with palpitation and dyspnea. In physical examination we found systolic murmur in ICS 2 parasternal sinistra. The ECG showed atrial fibrillation, with rapid ventricle response 110-150 bpm and right ventricular hypertrophy. Chest X-ray showed cardiomegaly with prominent conus pulmonalis. In echocardiography revealed ostium secundum ASD L to R shunt with the diameter 1.5 cm, and dilatation of right atrium and ventricle with severe PHT. After we did the rate control with intravenous digoxin, the symptom were relieved, and patient feel better. AF is one of the main causes of morbidity in adults with ASDs and is an outcome that reflects age related increases in atrial dilation and stretch. Approximately 10% of non-treated patients with ASDs develop atrial arrhythmias, predominantly AF, by 40 years of age. More than one-half the patient population with ASDs develops AF after 60 years of age

Conclusions:
Atrial arryhthmia can be caused by congenital heart disease, In patients with ASD Secundum, Chronic RA stretch because of ASD causes electrical remodelling and sinus node dysfunction.

KEYWORD: *Atrial septal defect, atrial fibrillarion, pulmonary artery hypertension, electrical remodelling*

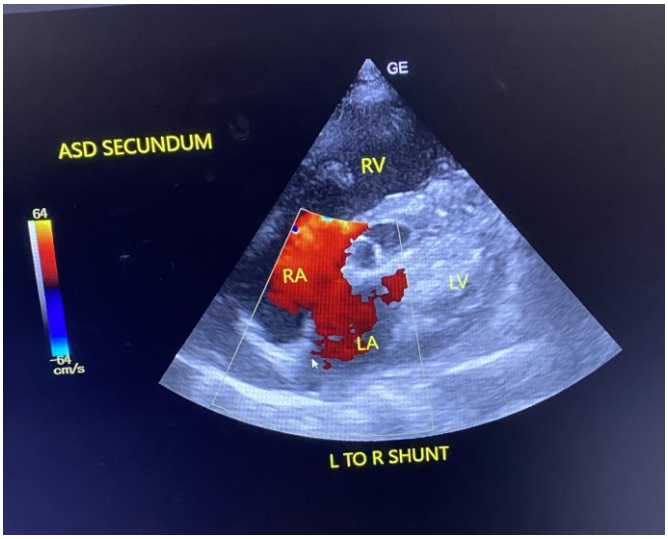

Figure 1. Transthoracal Echocardiopgraphy shows ASD Secundum with L to R Shunt

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CASE REPORT / CASE SERIES

Wellen's Syndrome: A Significance ECG Changes in Unstable Angina

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Background: Wellen's syndrome is an electrocardiogram (ECG) finding of T-wave changes defined by the presence biphasic T waves in the anterior leads (type A), or deeply inverted T waves (type B) in a patient with intermittent angina chest pain. This is indicative of critical stenosis of the left anterior descending (LAD) artery. This syndrome is associated with a greater risk of anterior myocardial infarction (MI).[1]

Case illustration: A 51 years old male was admitted to emergency following an episode of severe chest pain (score 7/10), constrictive in substernal area, in no particular dyspnea or palpitation. His chest pain presented intermittently with exertion in last 2 days and was becoming more severe one hour prior to emergency room. The patient has a medical history of uncontrolled hypertension and smoking habit. Upon arrival to emergency department, blood pressure was indicated hypertensive emergency (170/121 mmHg) with no other abnormal vital signs. Physical examination was unremarkable. ECG on admission had evidence of sinus arrhythmia, LVH and ST depression in II, III, aVF, V5, V6. Troponin T were negative. This case was described as unstable angina. In the following 8 hours, his chest pain was resolved (score 3/10) and he performed ECG. ECG changes revealed deeply T inverted, thin and symmetrical in V2, V3, V4, V5. Pathologic q wave and ST segment deviation and/or other sign of myocardial infarction were not present. This ECG pattern fulfilled the criteria of type B Wellen's syndrome.

Conclusion:
Wellen's syndrome is difficult to identify because it is occured during pain free period in patient with unstable angina. Repeating serial ECGs is important for early detection. Therefore, it is crucial for physician to recognize the characteristic of Wellen's syndrome in order to reduce mortality and morbidity of impending MI.

KEYWORD: *Myocardial Infaction, T-Inversion, Wellens syndrome*

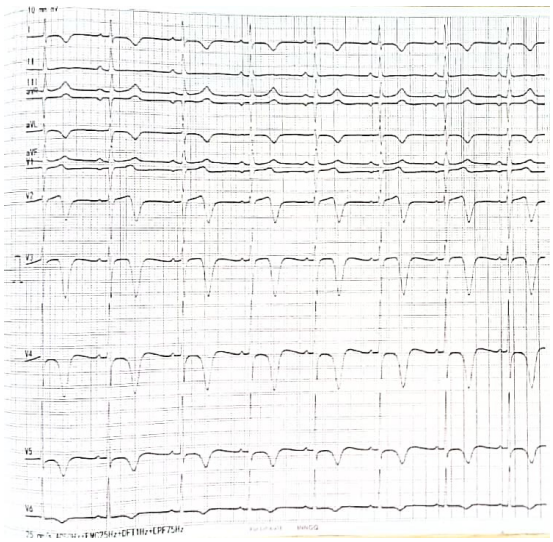

Figure 1. Patient's ECG: Type B Wellen's Syndrome

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CASE REPORT / CASE SERIES

The Risk behind Right Bundle Branch Block (RBBB): A Case Report and Literature Review

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Background: RBBB is common founded alterations of the electrocardiogram (ECG). The impact of RBBB in patients with no cardiovascular disease has been controversial. Some studies have found that RBBB increases cardiovascular morbidity and mortality when it coexists with myocardial infarct (MI) or heart failure (HF). But, some studies report no risk. Complete RBBB (CRBBB) can mask other fatal arrhythmia.

Case Illustration: A 36 years old man was known had CRBBB since 2018 from ECG result on his annual medical-checkup. Based on his last ECG result in 2020 the rhythm was sinus, heart rate 71 bpm, PR interval 120 ms, QRS duration 140 ms with CRBB pattern, and Bazzet QTc 392 ms. He never complained any symptoms related to cardiac diseases. His father dead at 45 years old due to unknown cause. The last his MCU in 2020 showed normal physical examination, normal chest x-ray, normal laboratory result and no ischemic response on Treadmill test. Echocardiogram result in 2019 was within normal limit. Based on our clinic medical record there was no health complain within last 3 months. On February 2021 he had sudden cardiac death (SCD) at his night shift work. After delivered optimal advanced cardiac live support, doctor declared that the patient death.
Based on a prior meta-analysis, population with RBBB has hazard ratio (HR) for increased cardiac death 1.43 compared with population without RBBB. Increasing QRS duration in patients with RBBB is an independent predictor of cardiac mortality. For every 10 ms increase in QRS duration, the risk of death rise by 26.6%. CRBBB can coexist with other fatal arrhythmia such a Brugada Syndrome (BS). Even more in this case the patient had family history of SCD. CRBBB can completely mask the typical ECG in BS, it probably causes the BS undiagnosed and unmanaged well to prevent SCD. BS might be demonstrated by relief of CRBBB spontaneously or drug-induced ST-segment elevation.

Conclusion
CRBBB in special population with critical or high risk job should be review carefully. CRBBB with longer QRS duration and family history of SCD could be a warning sign to direct for further examination to prevent SCD.

KEYWORD: *Right Bundle Branch Block, Sudden Cardiac Death*

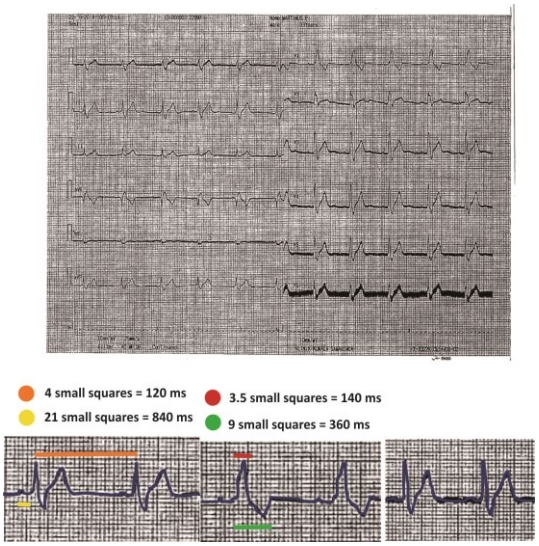

Figure 1. Complete ECG, Magnified Lead II, V1, V5 ECG Result

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CASE REPORT / CASE SERIES

Total Occlusion at LM Lead to Cardiogenic Shock with Present ECG ST Elevation in aVR lead

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Background: Approximately 5-7% of NSTEMI patients develop cardiogenic shock and/or cardiac arrest. The aim of this case is to explore a very high-risk NSTEMI case and its relationship to cardiogenic shock and cardiac arrest.

Case illustration: A 66-year-old male patient presented with chest pain typical of infarction. The patient experienced shortness of breath that was worsened by physical activity. The patient's BP was 70/45 mmHg, and heart rate was 71 bpm. The ECG showed ST elevation in aVR and aVL leads, and ST depression in I, II, III, aVF, and V1-V6 leads. Laboratory results showed leukocytosis, hypocalcemia, elevated troponin I, and fully compensated metabolic acidosis. Cardiac angiography examination showed CAD 2 VD + LM Disease. This patient was planned for an emergency angiography due to changes in his ECG that raised the suspicion of reperfusion injury or in-stent thrombosis, but ventricular fibrillation occurred, and the patient expired. The presence of ST-segment elevation in lead aVR and a finding of total occlusion in the LMCA indicated that this was a very high-risk NSTEMI. Left main artery occlusion causes persistent myocardial ischemia, leading to an increase in left ventricular preload pressure followed by a decrease in cardiac output, systemic hypotension, and systemic tissue hypoperfusion, which can lead to a cardiogenic shock and cardiac arrest.

Conclusion:
In conclusion, we described a patient with cardiogenic shock caused by a very high-risk NSTEMI. This case report emphasizes that the management of very high-risk NSTEMI patients with cardiogenic shock needs to be done quickly and appropriately.

KEYWORD: *NSTEMI, cardiogenic shock, cardiac arrest, angiography, total occlusion at LM*

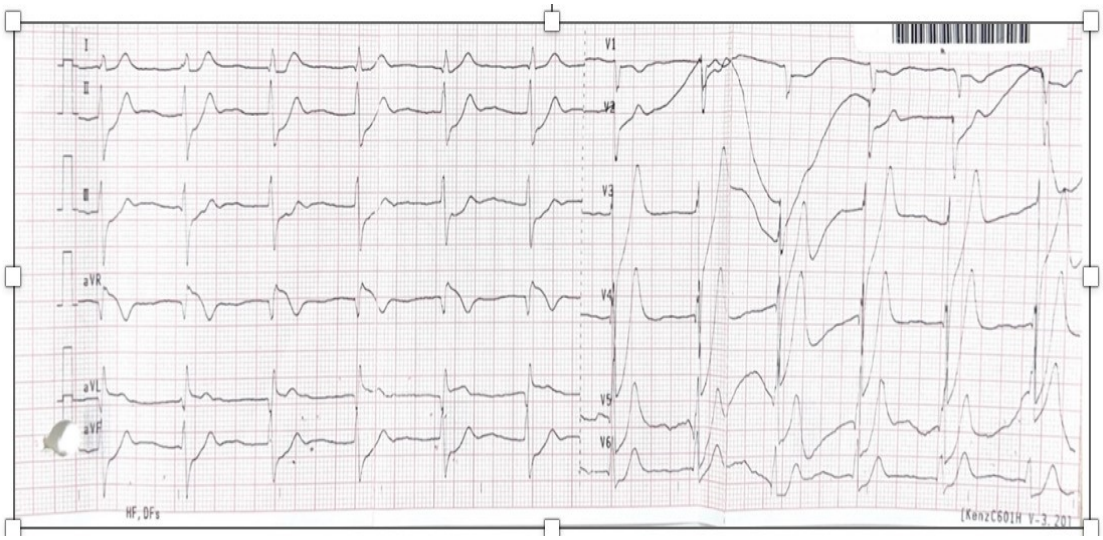

Figure 1. ECG at ER.

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CASE REPORT / CASE SERIES

Unexpected STEMI Patient with Single Coronary Ostium, Anomaly Origin of LCA Arising from Right Coronary Artery: Is It Jeopardous?

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Background: Anomalous Aortic Origin of Coronary Artery (AAOCA) are rare occurrences, with incidence during routine coronary angiography approximately 0.6%-1.3%. AAOCA presenting with STEMI are a rare clinical presentation and the management of an anomalous infarct-related coronary artery may be technically challenging. We report a case of a patient with Acute Inferior STEMI with Single Ostium Anomalous Aortic Origin of Coronary Artery.

Case illustration: 60 years old man came to ER with chief complaint severe chest pain, accompanied with cold sweating, nausea and limp while he was cycling. Patient's BP was 121/73 mmHg, HR was 64 bpm, RR 21 tpm and there were no sign of heart failure nor cardiogenic shock. The ECG showed ST elevation in II, III, aVF, and ST depresion in lead I and aVL. Laboratory results showed hs-Troponin I >40000.0 ng/L, then we assess this patient as Acute STEMI inferior 5 hours onset killip I and performed primary PCI afterward. Primary PCI was performed via right femoral artery, we had difficulties to acceess the LCA, so we decided to access the RCA first with JR 3.5/6F guiding catheter. Surprisingly, there was an anomaly in the coronary arteries and the patient just told the operator at the table that he had previous single ostium coronary artery anomaly from the CCTA and elective coronary angiography result at past. The LCA have acute take off angle, arising from ostial RCA and fortunately have retro-aortic course. Afterward, we found subtotal occlusion thrombus type as the culprit lesion at proximal RCA and we implanted 1 stent DES Firebird II 4.0 x 18 mm at 16 atm. We got the TIMI flow 3 with residual stenosis 0% without other complications during the implantation.

Conclusions:
AAOCA can be angiographically challenging and increase procedural time when encountered in emergencies such as STEMI. It is important to know the course of the arteries before any intervention in PCI of anomalous coronary arteries, particularly in emergency cases where rapid identification of the culprit's vessel is crucial. CCTA is a useful diagnostic tool to delineate coronary course and a probably malign variation to be stented.

KEYWORD: *Coronary Artery Anomalies, Single Ostium Coronary Artery, ST-segment elevation myocardial infarction, AAOCA*

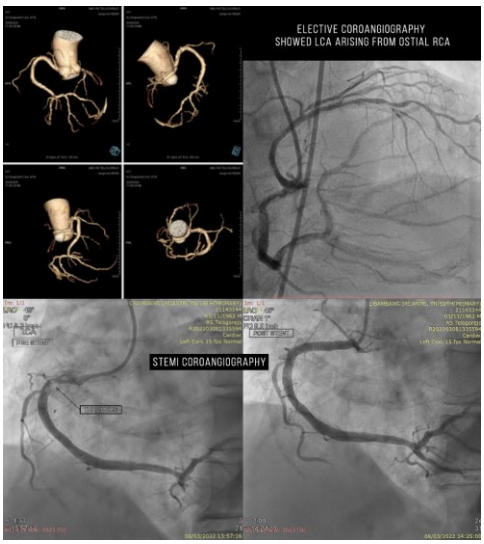

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Figure 1. Coronary CT Angiography showed single ostium, LCA arising from ostial RCA retro-aortic course (upper left); Elective Coronary Angiography before STEMI showed single ostium: LCA arising from ostial RCA (upper right); Pre-Post PCI Coronary Angiography during STEMI (bottom).

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CASE REPORT / CASE SERIES

NSTE-ACS In 75-Years Old With Negative Initial Troponine Examination Result : A Case Report at Periphery Hospital

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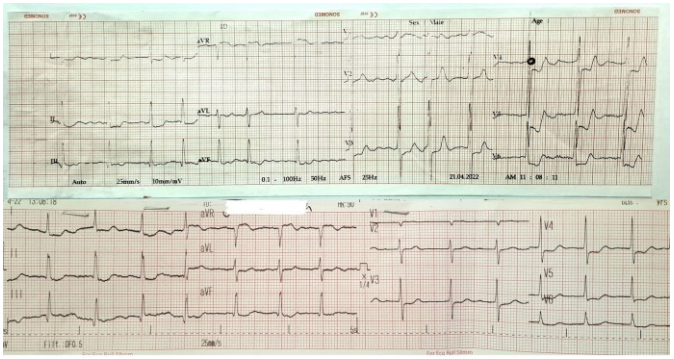
Background: Non ST-Elevation Acute Coronary Syndrome (NSTE-ACS) is subdivided on the basis of cardiac biomarkers of necrosis. Elevation of cardiac biomarkers with appropriate clinical content is termed NST-ACS otherwise patient is deemed to have Unstable Angina (UA). The fact that cardiac troponins are more sensitive and specific markers of cardiomyocyte injury than other existing biomarker make it one of criteria for "ruling in" and "ruling out" patients with MI. The 0h/3h troponin algorithm and 0h/1h high-sensitivity algorithm are recommended to diagnose MI. It is important to know when to re-examined troponin based on the curve of increasing and peak period of troponin as it may affect the diagnosis of MI.

Case Illustration: The author reports the case on behalf of 75 years old man with sudden chest pain along with diaphoresis and dyspnea. He was hypertensive with pain scale 3/10 at arrival. Initial ECG both at primary care center and hospital emergency room depicted ST depression on ECG and atrial fibrilation. 1 hour after onset troponin examination result came out negative and he was admitted as Unstable Angina patient while NSTE-ACS was ruled out. Calculated GRACE score was 115 and TIMI score was 4 at ER. 24 hours later, in order to confirm diagnosis of unstable angina, re-test for troponin was done and came out positive resulting in changes of GRACE and TIMI score to 128 and 5 respectively. The patient was later diagnosed with NSTE-ACS and given proper treatment available in type C hospital with no cardiologist available.

Conclusion:
This case emphasizes the importance of understanding proper time to perform troponin re-examination in order to optimize diagnosis and treatment especially in the setting of limited resources. Positive laboratory finding of cardiac enzyme will affect risk stratification of NSTE-ACS and later the invasive strategy choices.

KEYWORD: *NSTE-ACS, Troponin*



ECG at Primary Health Center (Top) and Hospital Emergency Room (Bottom)

Figure 1. Initial ECG Records

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CASE REPORT / CASE SERIES

Tricuspid Regurgitation in Patients With HFrEF: A Case Report

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Background: Tricuspid valve regurgitation is a type of heart valve disease in which the valve between the two right heart chambers (right ventricle and right atrium) doesn't close properly. As a result, blood leaks backward into the upper right chamber (right atrium). The lesions in tricuspid regurgitation may be categorized as primary where the intrinsic abnormalities in the tricuspid valvular apparatus are responsible or secondary (≥90% of cases) where the right ventricular dilatation causes tricuspid regurgitation.[1] The tricuspid valve was once deemed the forgotten valve that often an incidental finding on routine echocardiography. The progression from a mild to significant degree of TR is influenced by age and gender.[1,2]

Case Illustration: A 44-years-old women presented to emergency department with chief complaint shortness of breath that had worsened since two hours before entering the hospital. She also experienced weakness and exercise intolerance (NYHA fc III) since two months ago that had started to affect her daily activities as a farmer. She felt more comfortable sleeping with two or three pillows since that day. She has had history of hypertension but didn't not take medication regularly. On the examination, we found blood pressure was 141/118mmhg, heart rate was 117/minute, respiratory rate was 27/minute, found jugular venous distension, S3 gallop, pulmonary rales and peripheral edema. The ECG showed sinus tachycardia and right axis deviation. The echocardiography showed dilation of right ventricle and right atrium, left ventricle D-shaped (+),decreased contractility of left ventricle, EF 27%, normal contractility of right ventricle, TAPSE 1.6cm, RWMA(+), MR mild, TR moderate-severe, TR Vmax 3.6m/s. Conclusion from the echo are chronic HF ec coronary artery disease, TR moderate severe with high probability of pulmonary hypertension.

Conclusion: In secondary TR, the underlying mechanism is characterised by RV dilation and dysfunction, leading to leaflet tethering, tricuspid annulus dilation and leaflet malcoaptation.[1] In this case, we described the regurgitation caused by left-sided heart failure (reduce ejection fraction) which leads to increased left-sided pressures, pulmonary hypertension, increased RV afterload and remodelling of the RV.

KEYWORD: *Heart Failure, Tricuspid Regurgitation*

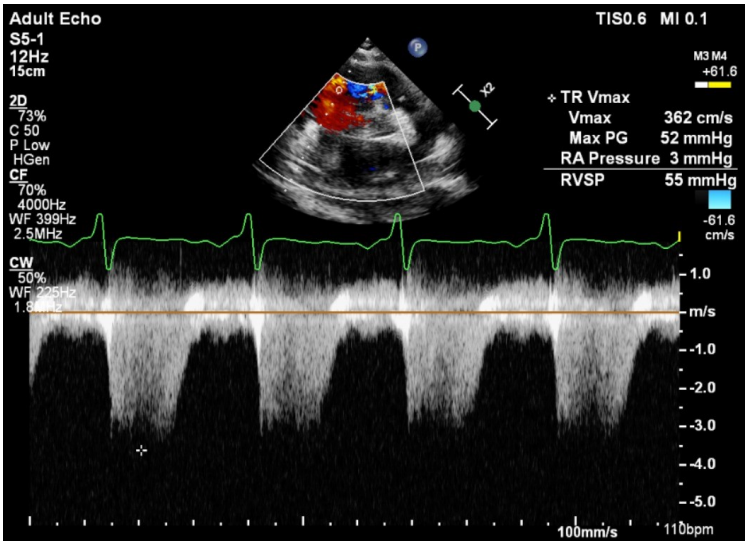

Figure 1 Patient's echo showed high probability of pulmonary hypertension

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CASE REPORT / CASE SERIES

Acute Heart Failure Caused By Pulmonary Embolism In Patients With The Acts Of Injured The Knee

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Background: One of the main reasons of severe respiratory problems are frequently encountered in emergency rooms is acute heart failure. Heart failure is highly prevalent, has a high rate of morbidity and mortality, and is difficult to diagnose and treat in patient groups with a variety of medical conditions. Understanding the causes of heart failure is essential for determining the best course of treatment for each patient and reducing need for recurrent hospitalization.

Case Illustration : 58 years old, woman with obesity, came to emergency room with chief complaint shortness of breath during exertion since one week , both a limb swollen and pain during moved. The history of patient illness has hypertension and covid 19 with mild symptoms. Patient examination found high jugular venous pressure, quick breath, SpO2 92% room air. Lung sounds on auscultation are not rhonchi. ECG found poor R anterior dan T inverted anterior. Chest X ray expertise was reduced vascular patterns in the left lung area and cardiomegaly. The laboratory reports NTproBNP value 4873pg/ml. Initial treatment for heart failure, oxygen therapy, and diuretics are provided in the emergency department. The evaluation of the patient, McConnell's sign and LVEF of 65 percent were seen on the echocardiography report, the Doppler scan revealed a thrombus in the left popliteal artery with a D-dimer >4 ug/ml result, and the patient was given Low Molecular Weight Heparin (LMWH) for heparinization. And had used LMWH for six days, the patient had clinical improvement and saw a decrease in D-dimer levels. The patient was given oral anticoagulant medication, had a SpO2 99% room air, and was able to leave the hospital without experiencing any breathing difficulties.

Conclusions:
One of the causes of heart failure is pulmonary embolism, especially in obese people with a history of DVT in the legs and prolonged bed rest of more than three days. The symptoms are generally similar with those of heart and lung illness. Reperfusion therapy with proper anticoagulation can improve clinical outcomes and reduced patient morbidity and mortality.

KEYWORD: *Acute heart failure, Pulmonary embolism, Heparinization.*

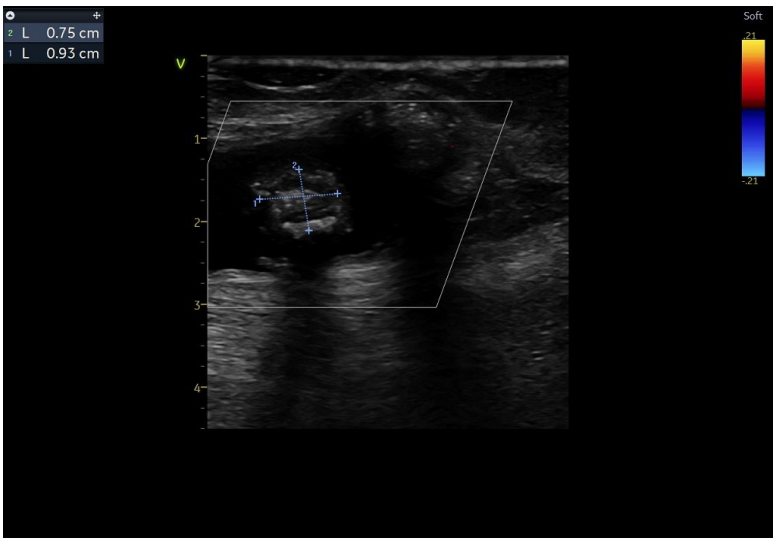

Figure 1. Doppler of Left popliteal artery

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CASE REPORT / CASE SERIES

Inferior STEMI and Total Atrioventricular Block in a Patient with Renal Dysfunction : A Case Report

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Background: Total atrioventricular block (TAVB) is associated with poor clinical outcomes in ST-elevation myocardial infarction (STEMI). Several studies found that inferior acute myocardial infarction (AMI) is more prone to developing AV block. The worsening of renal function frequently complicates myocardial infarction.

Case Illustration: A-55-years man was sent from another hospital to the emergency room due to failed fibrinolytic. The patient experienced epigastric pain, diaphoresis, and dizziness about 12 hours ago. The patient had a history of diabetes but had never taken any medication. An electrocardiogram (ECG) showed TAVB and inferior STEMI. Laboratory results indicated patient had diabetes (blood glucose = 281 mg/dl), renal dysfunction (ureum = 237 mg/dl, creatinine : 5,6 mg/dl) and high cardiac marker (troponin T >10000 pg/ml). We decided to insert a temporary pacemaker (TPM) first due to hemodynamic instability and internist consideration regarding kidney problem. When the patient preparation and sheat insertion for TPM was done, the patient got a cardiac arrest with ventricular fibrillation on the monitor. The patient had been successfully resuscitated, but the rhythm became sinus tachycardia (rate:140 bpm). We insisted on performing urgent angiography with amiodarone back up after 10 minutes of waiting the rhythm did not return to TAVB. Angiography showed partial occlusion thrombus in proximal right coronary artery (RCA), diffuse stenosis in proximal to middle RCA, and total occlusion in distal RCA. Besides, there were diffuse stenosis in the left anterior descending (LAD) and left circumflex. Then we performed percutaneous coronary intervention (PCI) on RCA with a drug-eluting stent proximally and ballooning in the distal. After the procedure, the patient was compos mentis and had stable hemodynamic with inotrope support. Two hours post PCI, the patient got deteriorating hemodynamics. Unfortunately, the patient passed away 4 hours later after maximal cardiac supportive therapy in intensive care.

Conclusions: In conclusion, we described inferior STEMI patient with TAVB and renal dysfunction who underwent a change in management due to a sudden cardiac arrest. This case report explains how we must immediately decide the appropriate intervention to save the patient

KEYWORD*: ST-Elevation Myocardial Infarction, Total Atrioventricular Block, Percutaneus Coronary Intervention, Temporary Pacemaker, Renal Failure*

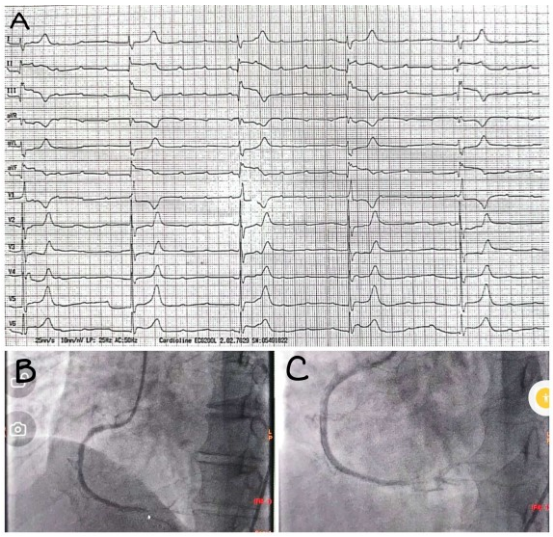

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Figure 1. Electrocardiogram showed Inferior STEMI and TAVB with ventricular escape rhythm, Figure B. Total occlusion of the distal RCA and diffuse narrowing up to 85% of proximal RCA is shown, Figure C. Angiography after stent insertion on proximal - middle RCA

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CASE REPORT / CASE SERIES

The High Risk of Non-ST-Segment Elevation Myocardial Infarction Accompanied with Atrial Fibrillation with Rapid Ventricular Response in Acute Spontaneous Epidural Hematoma: Challenging Case

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Background: Spontaneous Epidural Hematoma (EDH) associated with non-ST-segment elevation myocardial infarction (NSTEMI) is a rare and challenging case. The prognosis is good; however, special attention is required for its management to solve the ischemia and prevent further intracranial hemorrhage.

Case Illustration: A 63-year-old woman complained chest pain one day previously, followed by palpitation and dyspnea 12 hours before admission. She had history of hypertension. Two weeks previously, patient experienced severe headache associated with vomiting, no history of head trauma. Non-contrast CT scan from neurologist showed EDH in left fronto-temporo-parietal lobe with volume about 7mL. Electrocardiogram showed Atrial Fibrillation Rapid Ventricular Response (AF-RVR) and T-wave inversion in anterior leads. Elevated Troponin-I found from laboratorial test with prolonged of partial thromboplastin time (PTT). Glasgow coma scale (GCS) score was 15/15, pupils were bilaterally reactive. Blood pressure was 130/90 mmHg, heart rate was 126 bpm irregularly irregular, respiration rate was 30 breaths/minute, pulse oximetry 93-94% with room air with rhonchi in basal of bilateral lung. Echocardiogram showed LVH, mild hypokinetic in anterior and anteroseptal segment in basal-mid level. The patient diagnosed with NSTEMI, AF-RVR with acute spontaneous EDH. After a discussion with neurologist due to bleeding risk, myocardial ischemia and EDH condition, this patient was treated further with oral anticoagulant (OAC) and single antiplatelet. Patient improved and was discharged. The bleeding risk and aggravation of EDH monitored during outpatient care. Spontaneous EDH at any time is one of major criteria for high bleeding risk in NSTEMI. Currently, there is no established guideline on treating NSTEMI with EDH. OAC is used to prevent secondary bleeding while this treatment solves the occlusion until percutaneous coronary intervention can be done. Anticoagulant treatment instead of dual antiplatelet is recommendation class I in NSTEMI with AF before intervention, mainly at a high risk of bleeding. The initial reduction of ischemic was associated with an increased incidence of bleeding that has become the new challenge NSTEMI therapy.

Conclusion: Bleeding implies the worse outcomes and the new challenge of NSTEMI treatment in AF patients. Periodic monitoring in this case is necessary to prevent ischemic events and bleeding in the future.

KEYWORD: *NSTEMI, Atrial Fibrillation, Epidural Hematoma, Anticoagulant Treatment*

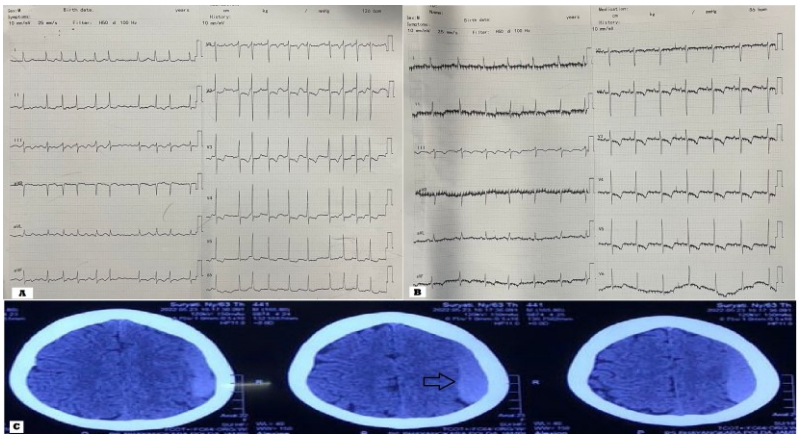

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Figure 1. (A) Electrocardiogram showed atrial fibrillation rapid ventricular response and T-wave inversion in V1-V3; (B) ECG convert to sinus rhythm after treatment; (C) non-contrast cranial CT scan showed the slightly isodense consistency in temporoparietal lobe (black arrow) suggests a subacute onset of EDH.

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CASE REPORT / CASE SERIES

Cancer Treatment-Induced Hypokalemia Leads to Ventricular Tachycardia: A Case Report

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Background: Cardiovascular effects can be the most serious adverse events resulting from chemotherapy. Nevertheless, monitoring after chemotherapy treatment is rarely done. In this case report, we present a patient with ventricular tachycardia with a history of chemotherapy.

Case illustration: A 58-year-old woman was admitted to our emergency room with a chief complaint of fainting. She also had experienced nausea, and vomiting. She had a history of chemotherapy due to parotid cancer. She began to feel nauseous, vomiting, and fainting a week after receiving her fourth course of chemotherapy. The initial patient's heart rate was 85 bpm, blood pressure was 125/76 mmHg, ECG showed sinus rhythm, and no abnormalities were found on physical examination. The patient also had no history of abnormalities in prior ECG. Baseline echo showed concentric LVH with EF 76%, normal valves, good RV contractility, and grade I diastolic dysfunction. The laboratory results showed hypokalemia, with the level of K was 2.0 mEq/L. Immediate potassium correction was given. During observation, the patient had several episodes of fainting. The ECG showed a rhythm of ventricular tachycardia, which converted to sinus tachycardia after being treated with cardioversion and antiarrhythmic agents. Rapid potassium correction was then given via central venous catheter. She was stable after cardioversion and the administration of Amiodaron. The mechanisms associated with arrhythmias in the setting of cancer therapy are diverse and include direct cellular effects, electrolyte abnormalities, hyperinflammatory response, and secondary to other forms of cardiac effects such as myocarditis, ischemia, and heart failure. In this case, the cause of arrhythmia might not only be caused by direct cellular effects, but also aggravated by electrolyte abnormalities due to vomiting. Hence, continuous monitoring of vital sign and electrolytes on cancer patient undergoing chemotherapy is important.

Conclusion:
Patient with late adverse effect of chemotherapy agent can be a life-threatening condition if not managed properly. Therefore, it is important for physician to recognize and sough for every possible cause of arrhythmia.

KEYWORD: *Hypokalemia, Ventricular tachycardia, Chemotherapy*

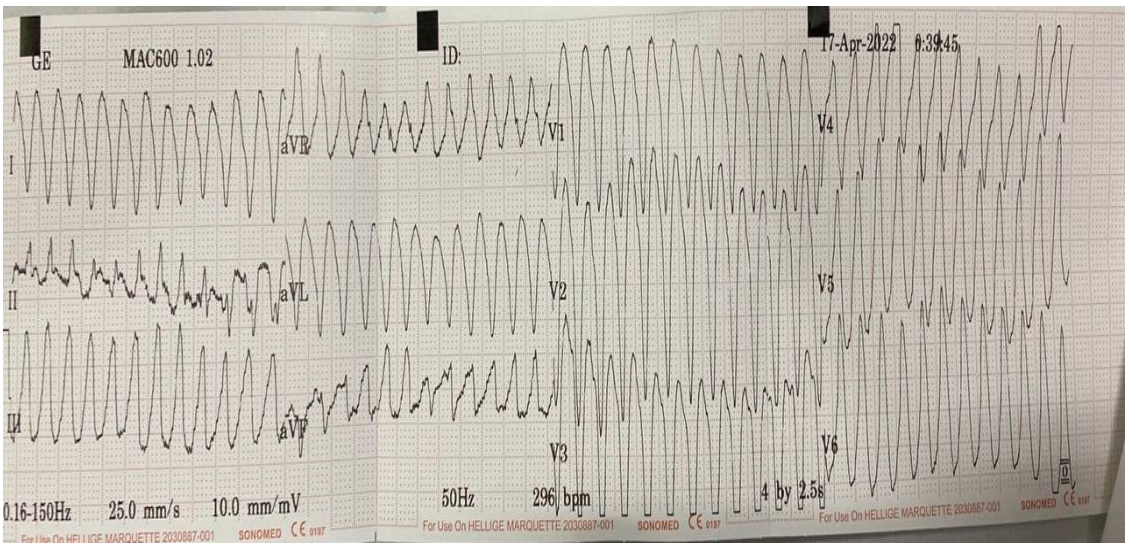

Figure 1. The patient's ECG strip showing ventricular tachycardia

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CASE REPORT / CASE SERIES

Sub Acute Graft Failure post Coronary Artery Bypass Grafting In Young Man with Premature Coronary Artery Disease; A Case report

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Background: Premature Coronary Artery Disease (PCAD) is linked to frequent ischemic recurrences and premature death, even after revascularization. Long-term graft patency is the primary aim of coronary artery bypass graft (CABG). Early graft failure is related to negative outcomes and increases the burden of repeat revascularization. We present a case of a young man with PCAD and sub-acute graft failure.

Case Illustration: A 45 years old man came to our clinic with the chief complaint of atypical chest pain. His complaint was aggravated by physical activities and relieved by rest. He was an ex-smoker. His parents suffer from coronary artery disease and have undergone revascularization. Firstly, he complained about chest pain six months ago and did a medical check-up. He underwent a treadmill test and CCTA. The test revealed a positive ischemic response and a high calcium score. After a Diagnostic Coronary Angiography (DCA) procedure, he suggested to underwent CABG. About four months after CABG he complained about typical chest pain. The patient heart rate was 70 bpm, blood pressure was 110/80 mmHg, and the other physical examination was within normal limits. CCTA performed soft plaque significantly in Saphenous Vein Graft to OM. We decided to do Percutaneous Coronary Intervention in his native artery. After a month's follow-up, he still complained about chest pain. The DCA showed a progressive lesion in the graft. We optimize medical treatment, complete revascularization by implanting 4 stents in his native arteries proximal-mid LAD also distal LCx, and educate the patient and his family on a healthy lifestyle. Strong family history of CAD could increase the possibility of ischemia recurrences in a high-risk population.

Conclusion :
In conclusion, we described a young man with PCAD and recurrences of ischemia after the CABG procedure. This case report emphasizes that PCAD patients with a strong family history should be under close observation because of its progressive lesion. The further management of early graft failure after the CABG procedure is also important considering the future prognosis

KEYWORD: *Premature Coronary Artery Disease, Graft Failure*

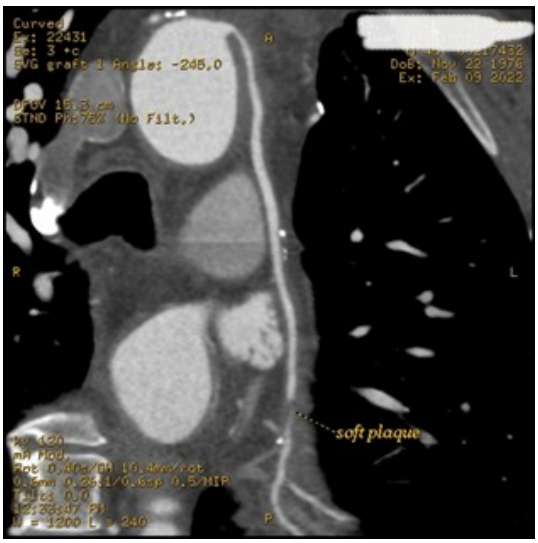

Figure 1. CCTA performed soft plaque significantly in Saphenous Vein Graft to OM 1/2

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CASE REPORT / CASE SERIES

Tailoring Leadless Pacemaker Program Setting in The Octogenarian

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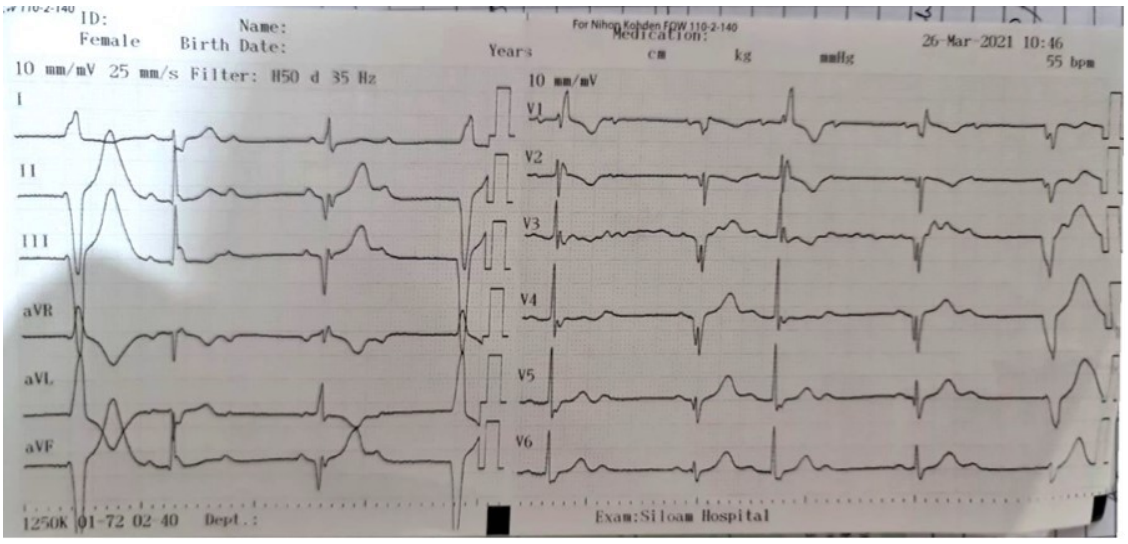
Background: Leadless cardiac pacing currently provides an established alternative to conventional transvenous pacemaker therapy for patient. The safety and efficacy of the Micra has well been demonstrated in several studies and complication rates lower than conventional pace makers. Tailoring leadless pacemaker for octogenarian is unique, because we need to know their activity daily life and baseline heart rate.

Case illustration: A 86- year-old women presented with fatigue and dizziness. Patient had history of atherosclerotic heart vessels disease, hypertension and RBBB, regular check up to doctor. On ECG examination, there was episode of transient 2nd degree AV block symptomatic.
On admission, procedure inserting Micra pacemaker was done shortly without any difficulties. After procedure was done, we did the programming with mode VVI, HR 50 bpm, threshold 0.6 V and R wave 4.7 mV. After programming, observation patient and she back to general ward and next day patient discharge from hospital.
Last month, she felt dyspnea on effort and dizziness. Her life mostly at home, and her exercise aerobics on the bed. On ECG examination, there was baseline TAVB and fusion beat 54 bpm. After observed the rhythm, the conclusion was found the fusion beat and her baseline heart rate start increasing. Therefore, reprogramming set with VVI mode and lower rate 60 bpm, and still there was fusion beat between her rhythm and pacemaker rhythm. Setting 70 bpm, fusion beat was disappear. Her baseline before 2nd degree AV block was around 90 bpm. Final set was baseline 70 bpm sensitivity 1.6, output 1.63, and prescription bisoprolol 1.25 mg once daily.

Conclusions: In this case, we find that after approximately 3 years after procedure, patient has dizziness and dyspnea on effort. We analyze the rhythm ECG was mixed beat. At first, we thought that she had sedentary life then we can set base rate around 50 bpm. We still need to investigate and observation with additional bisoprolol. On going research is needed to better assess their long-term function, safety and end of life strategies. We also need to review about tailoring leadless pacemaker in the elderian with sedentary life.

KEYWORD: *Micra, Pacemaker, Elderian, AVblock*



Figrue 1. ECG at admission

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CASE REPORT / CASE SERIES

The Coronary Slow Flow Phenomenon : Case Report

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Background: Coronary slow flow phenomenon was identified as an exclusive clinical entity, where the distal opacification of the coronary artery is delayed on angiography in the absence of significant coronary artery disease without any evident obstructive disease. Incidence of coronary slow-flow is reported to be 1-7% of all coronary angiograms, especially thise presenting with acute coronary syndrome. In TIMI-IIIA study, the incidence of CFSP was 4% among patients who presented with unstable angina and had none or insignificant epicardial coronary artery disease.

Case Illustration: A 56 year old man presented to the hospital with history of chest pain. The chest pain was described as a pressure like sensation in the center of his chest, 8/10 in severity, and doesn't radiated to his left arm. The angiogram showed Mild stenosis of the left anterior descending artery, Mild stenosis of the left circumflex artery, moderate to severe stenosis of the right coronary artery. With total calcium score is 24, which mean have a mild plaque burden and moderate cardiovascular risk. The patient was given the diagnosis of Chest discomfort ec Coronary Artery Disease. So, Coronary angiography was done and we find Large caliber vessel. Normal. Myocardial bridging <5 mm in mild part of LAD. Slow flow was noted in the LAD. And Nondominant. Stenosis 30% in ostial RCA. And the patient was given the diagnosis of coronary slow flow phenomenon and started on sixth-month follow up.

Conclusion: Coronary low-flow should be a diagnostic consideration in patients resenting with chest pain an abnormal noninvasive ischemic testing with normal or nonobstructive epicardial vessels. This is highlighted particularly well in this case presented here. But, there is a need for further extensive studies regarding pathogenesis and treatment for this unique phenomenon with the potential to upgrade the poor quality of life of patients with CFSP.

KEYWORD: *Coronary slow flow phenomenon, coronary arteries, angiography*

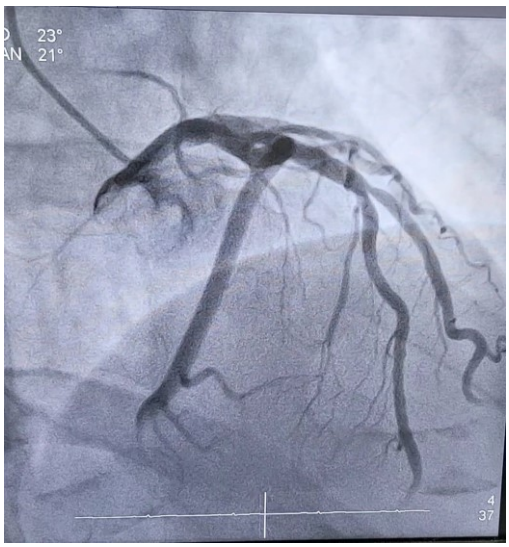

Figure 1. Coronary Angiography.

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CASE REPORT / CASE SERIES

Ventricular Standstill as a Lethal Consequence of Aortic Valve Endocarditis

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Background: Infective endocarditis can be associated with myocardial abscesses. In addition, myocardial abscesses can lead to conduction abnormalities. Ventricular standstill is a rare electrophysiological phenomenon in which the heart experiences episodes of absent ventricular activity despite normal atrial functioning. We present a case of aortic valve endocarditis with an associated interventricular septum and annular aortic abscess. The patient experienced episodes of ventricular standstill accompanied by loss of consciousness, requiring implantation of a pacemaker.

Case illustration: A 38-year-old male with a history of rheumatic heart disease was transferred to our hospital after undergoing treatment from another hospital for shortness of breath and fever. On arrival, he appeared cachectic, with a temperature of 38.9°C, Blood pressure of 116/36 mmHg with unmet MAP (63 mmHg), and an oxygen saturation level of 91%. Physical examination showed an early diastolic murmur at the right parasternal border. Laboratory tests revealed a white blood cell count of 14.840 /mm3 with 82% neutrophils. A C-reactive protein level was 12.06 mg/dL and a positive rheumatoid factor of 16 IU/mL. An electrocardiogram showed sinus rhythm with 1st degree AV block, and an echocardiogram revealed vegetation at the aortic valve, along with interventricular septum and annular aortic abscess. Repeat blood cultures from different extremities grew *Streptococcus gordonii*. After 14 days of antibiotic treatment and stabilisation, blood cultures evaluation showed a negative result. His complaints of fever and shortness of breath resolved. The next day, his ECG monitor showed episodes of P waves without accompanying QRS complexes, indicating a ventricular standstill. He lost consciousness during these episodes, and his condition rapidly deteriorated. The patient is in cardiac arrest before we get the chance to implant a temporary pacemaker.

Conclusions:
Aortic valve endocarditis is associated with conduction abnormalities due to its anatomic relation to the AV-node. Therefore, daily electrocardiograms are warranted in patients with aortic valve endocarditis. A physician should not delay the use of a pacemaker if hemodynamically unstable arrhythmias are found. Early surgical intervention is necessary.

KEYWORD: *Ventricular Standstill, Aortic Valve Endocarditis, Myocardial Abscesses*

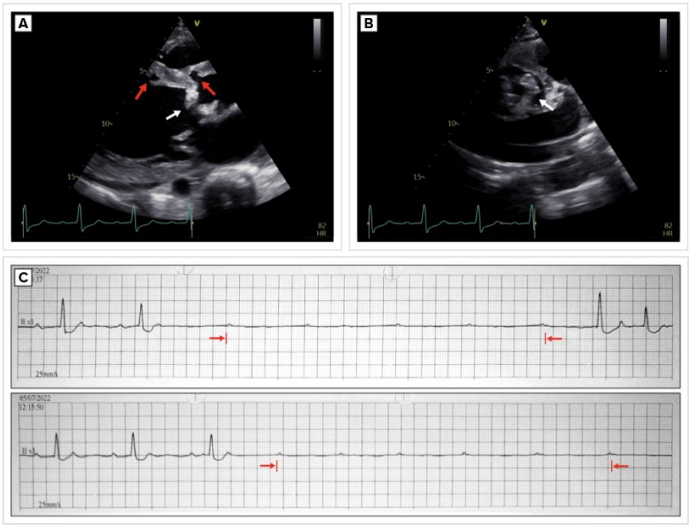

Figure 1. Parasternal long axis view on TTE revealing an aortic valve vegetation (white arrow) and interventricular septum abscess along with annular aortic abscess (red arrow) (A); Parasternal short axis view on

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TTE revealing a large vegetation on all three cusps of native aortic valve (white arrow) (B); Bedside monitor strip showing atrial activity (arrows) without ventricular response (C)

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CASE REPORT / CASE SERIES

Succesfull Trombosuction Procedure Using Conventional Thrombosuction Tool Due To Acute Limb Ischemia, Modified Technique in Rural Area

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Background: Acute limb ischemia (ALI) represents a major vascular emergency. The clinical presentation is considered to be acute if it occurs within 14 days after symptom onset. The incidence of ALI is approximately 1.5 cases out of 10,000 people per year. Complications among ALI patients are high and despite early revascularization, 30-day mortality and amputation rates are between 10 and 15%. The AngioJet rheolytic thrombectomy system as a standard tool is designed to remove thrombus with the Venturi-Bernoulli effect, with multiple high-velocity, high-pressure saline jets which are introduced through orifices in the distal tip of the catheter to create a localized low-pressure zone, resulting in a vacuum effect with the entrainment and dissociation of bulky thrombus.

Case Illustration : 52 years old male came to emergency room's Kariadi Hospital with chief complain sudden resting pain, pale, paralysis, paresthesia, and poikilothermia both of his distal lower extremity but worse symptom at distal left leg onset 5 days. General appearance is darkish and purplish at left toes spread to left dorsal pedis with edema below knee and a bit darkish and purplish at right toes, Echocardiography bedsite revealed LV dilatation, LVEF 22% with akinetic at anterior segmen from basal to apical, LV thrombus sized 21-31 mm at apex. Laboratory finding was leucosytosis, increased transaminase enzyme, hypoalbumin, increased creatinine, hyponatremia, increased CRP and D-dimer. Patient had given clopidogrel 600mg and proceed to percutaneous transluminal angioplasty (PTA). The PTA technique using JR 3.5/5F connected with wall suction at same level with patient. The guidance JR 3.5/5F connected to wall suction with shortest connection. Then fluid container must be maximum 250cc each section because if more than 250cc will decrease suction power. The Result of PTA revealed total occlusion in left artery poplitea, using conventional wall suction done thrombosuction without stenting along left poplitea artery to dorsalis pedis successfully returned the flow.

Conclusion :
Successfully thrombosuction strategy in PTA using convemtional wall suction can be used when there are no standard tools in a hospital which has laboratory catheterization. Optimal medical therapy after PTA to prevent recurrent thrombus still challenging.

KEYWORD: *Acute limb ischemia, PTA, thrombosuction*

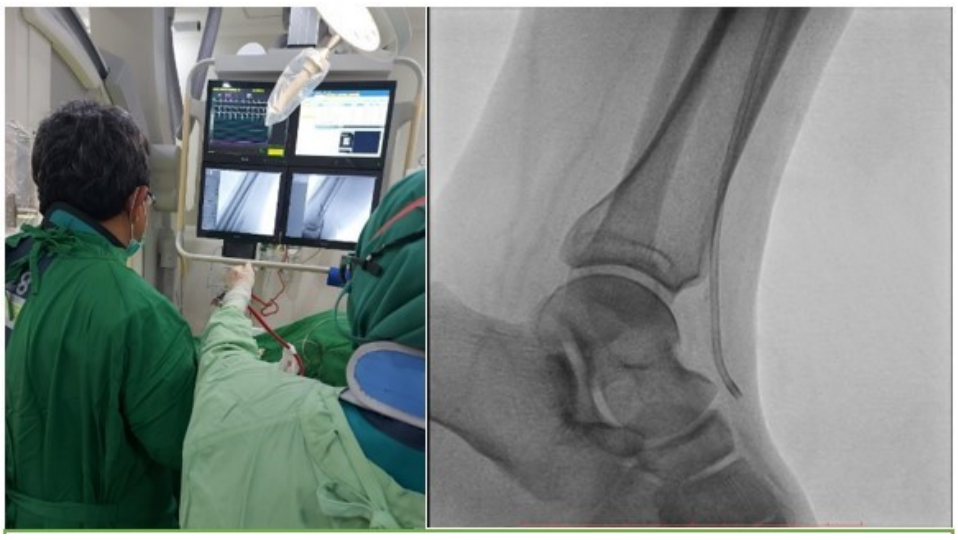

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Figure 1. Total Occlusion in left poplitea artery.
Thrombosuction using conventional wall suction successfully done along left poplitea artery to dorsalis pedis

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CASE REPORT / CASE SERIES

Enhancing Optimal Prevention of Recurrent Ventricular Tachycardia in Suboptimal Setting

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Background: Appropriate diagnosis of arrhythmia warrants meticulous treatment, but advanced modalities and ideal treatment strategies undeniably expensive also unfeasible in peripheral hospital. This report presented even in substandard settings, preventing sudden cardiac death (SCD) should be optimal.

Case illustration: A 60-year-old woman was admitted twice due to palpitation, dyspnea, and chest discomfort with extreme tachycardia (198 and 186 bpm). Both electrocardiography showed wide regular tachycardia. Despite blood pressure was 90/60 mmHg, other physical examinations were normal. Due to technical considerations, she was administered 150 mg amiodarone bolus continued by maintenance dose of 60 mg/hour for 10 hours, then 30 mg/hour, reverting to sinus rhythm, left ventricular hypertrophy (LVH), and PVCs. When discharged, she consumed furosemide 1x20 mg titrated to 40 mg, spironolactone 1x25 mg, candesartan 1x4 mg, carvedilol 1x6,25 mg, clopidogrel 1x75 mg, diltiazem 1x100 mg. At third re-admission three months later, electrocardiography showed wide irregular tachycardia (166 bpm) with normal blood pressure and physical examinations. Again, amiodarone reverted rhythm to sinus with frequent PVCs. This time, serum potassium was 3,2, thus furosemide was stopped. Echocardiography revealed mild-moderate MR, LV dilatation, LVEF of 30,5%, severe global hypokinetic, and eccentric LVH leading to diltiazem cessation. She was discharged with ISDN 2x5 mg, ramipril 1x2,5 mg, clopidogrel 1x75 mg, bisoprolol 1x5 mg, digoxin 1x0,125 mg, and spironolactone 1x25 mg. Two months after discharged, her symptoms were relieved and was PVC free. Recurrent wide complex tachycardia progressed to irregular complex raised consideration of other possibilities instead of ventricular tachycardia (VT): supraventricular tachycardia with aberrant or pre-excitation. Brugada, Vereckei, and RWPT algorithm supported diagnoses of VT with hypokalemia and frequent PVC as triggers. Beyond those, irreversible LV remodelling, fibrosis, and low ejection fraction posing her of future VT. Thus, she should be managed by advance treatment such as ICD implantation, catheter ablation, even revascularization, contrary to limited facilities and patient's refusal because of socioeconomical problems. Optimizing guideline-based heart failure treatment, especially beta-blocker as anti-remodelling and anti-arrhythmia of choice for high burden PVC was the only option to lower risk of VT.

Conclusion: Substandard conditions should not hinder SCD prevention through optimal medical therapy.

KEYWORD: *Recurrent ventricular tachycardia, sudden cardiac death, limited facility, heart failure*

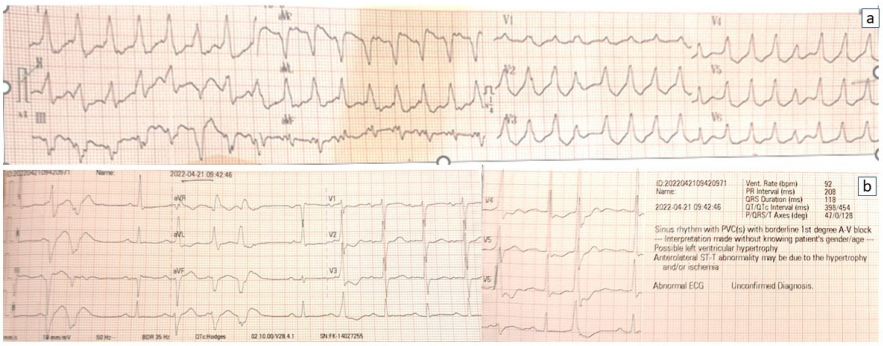

Figure 1. (a) Wide irregular tachycardia at third admission; (b) Outpatient (day 10th after admission) follow-up electrocardiography showed frequent PVCs

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Figure 1. (a) Wide irregular tachycardia at third admission; (b) Outpatient (day 10th after admission) follow-up electrocardiography showed frequent PVCs

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CASE REPORT / CASE SERIES

Premature Discontinuation of Dual Antiplatelet Therapy Post Primary Percutaneous Coronary Intervention in Stroke Hemorrhagic Patient

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Background: Dual antiplatelet therapy (DAPT) is prescribed to patients following coronary stenting. The implications of DAPT and the length of treatment in reference to the incidence of developing hemorrhagic transformation in patient with acute ischemic stroke. This poses a significant clinical dilemma because DAPT interruption exposes patients to the potential risk of cardiovascular events. Conversely, continuing DAPT may be associated with excess bleeding complications.

Case Illustration: A man, 36 years old, admitted to emergency room with weakness of left side body since the past 3 weeks. Medical history of diabetes mellitus, hypertension, and stroke infarct was collected. He had history of primary percutaneous coronary intervention with 1 drug-eluting stent in left circumflex artery due to inferoposterolateral STEMI with complete revascularization 22 days before admission. Patient was treated with DAPT. Patient is aware with aphasia. The vital sign within normal limits. Physical examination shows anisocoria, no rales at both lung, regular heart sound without murmur or gallop, and weakness of left side body. Head MRI shows acute infarct with hemorrhagic transformation and cerebral edema with subfalcine herniation. DAPT was discontinued. At day 8 hospitalization, ventricular tachycardia occurs with unstable hemodynamic. Informed consent was made and synchronized cardioversion of 100 joule was performed. After cardioversion, heart rhythm back to sinus rhythm and the patient was transferred to high care unit for further evaluation. The patient had improved general condition with stable hemodynamics. The patient was discharged on the 14th day of treatment without antiplatelet. DAPT is indicated to lower the risk of ischemic events. Current clinical guidelines recommend treatment of DAPT after drug-eluting stent implantation in STEMI with high bleeding risk for up to 6 months. The previous studies have reported an increased risk of cardiovascular events following discontinuation of antiplatelet. In this case, we consider the risk and benefit of antiplatelet associated with antithrombotic therapy and bleeding complication.

Conclusion: Antiplatelet therapy is clinically challenging in hemorrhagic stroke patient by considering the individual risk and benefit. Multidisciplinary collaboration with neurologists and neurosurgeons is needed to consider antiplatelet re-initiation.

KEYWORD: *Dual Antiplatelet Therapy, Post Primary Percutaneous Coronary Intervention, STEMI, Stroke Hemorrhagic*

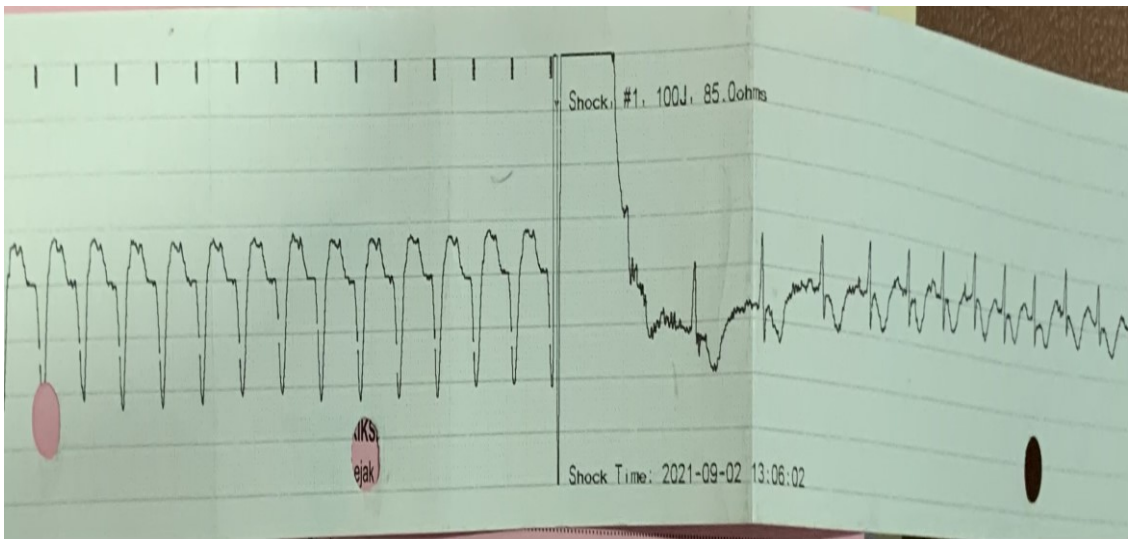

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Figure 1. Electrocardiogram showing ventricular tachycardia converted to sinus rhythm after 100 joule of synchronized cardioversion

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CASE REPORT / CASE SERIES

Percutaneous Balloon Mitral Valvuloplasty in Rheumatic Mitral Stenosis in School-Aged Children

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Background: Rheumatic mitral stenosis is one of the grave consequences of rheumatic heart disease, was generally considered to take decades to evolve. However, early onset can occurs due to progressive disease and resulting complications and disability in life. In this report, we present a school-aged children with severe rheumatic mitral stenosis who underwent percutaneous balloon mitral valvuloplasty.

Case illustration: A 12 years old children came to our hospital with chief complaint shortness of breath since 1 years before admission and increased day by day. Patient had history of sore throat and recurrent joint pain 5 years ago. Patient had a history of positive ASTO examination 1 year ago in district hospital and given benzathine penicillin 1.2 million unit monthly. Patient vital sign was normal, opening snap after S2, louder P2 and mid diastolic murmur in lower sternal border was heard. The ECG shown left atrial enlargement and right ventricle hypertrophy. The laboratory result was normal. Chest x ray showed left atrial enlargement with double density sign and cardiac waist was disappeared. Transthoracic echocardiography showed dilated left atrial and right ventricle. MVA by planimetry was 0.7 cm^2, mPAP was 44 mmHg. Transesophageal echocardiography shown severe mitral stenosis with MVA 0.46 cm^2 (3D planimetry) with wilkins score was 7. RHC shown PCWP was 22 mmHg, mean MV pressure was 24 mmHg. PBMV has performed by using inoue balloon and the results were MVA 1.5 cm^2 (3D Planimetry) with mild mitral regurgitation and mean MV pressure was 11 mmHg. The results was successful with decreased >50% transmitral gradient and MVA >1.5cm^2. Patient also given spironolactone, bisoprolol and benzathine penicillin 1.2 million unit monthly.

Conclusions:
We described patient with rheumatic mitral stenosis recurrent infection GAS can increase inflammatory response and it leads to progressive valvular damage and thickening. Randomized trials have established the safety and efficacy of PBMV as compared with surgical closed. Benzathine penicillin as secondary prophylaxis until 25 years old for prevent progression disease.

KEYWORD: *Rheumatic mitral stenosis, Rheumatic heart disease, Mitral valvuloplasty*

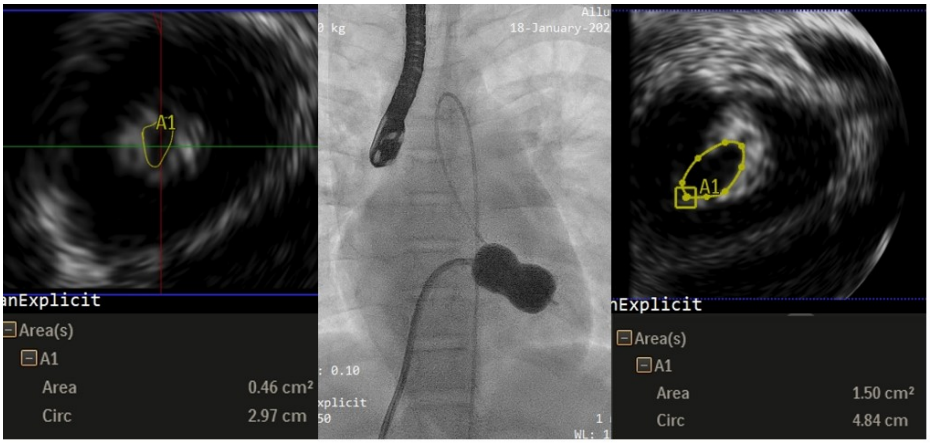

Figure 1. Mitral valve area from TEE before and after percutaneous balloon mitral valvuloplasty.

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CASE REPORT / CASE SERIES

Atypical Atrioventricular nodal reentry tachycardia (AVNRT) in patient with Brugada ECG pattern : Case Report

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[1]Siloam Hospital Lippo Village

Background : The most common regular supraventricular arrhythmia is Atrioventricular nodal reentry tachycardia. AVNRT is classified into Typical AVNRT (slow-fast AVNRT) and Atypical AVNRT (fast-slow, slow-slow AVNRT). In this report, we present a case report of AVNRT in patient with brugada ecg pattern.

Case illustration: 45 years woman came to emergency department with chief complaint palpitations, shortness of breath. No chest pain or history of syncope. Four months ago, patient was diagnosed with SVT and given medication (beta blocker, ivabradine, clopidogrel). Blood pressure 109/81 mmHg, Heart rate 103 bpm, normal physical examination. The laboratory and CT scan thorax results showed normal. Echocardiographic also showed normal LVEF of 79.7%, global normokinetics, trivial MR, mild TR. Cardiac MRI showed fibrosis at midwall myocard septal & inferior LV, patent fibrosis at apical & lateral segment LV. Normal LV RV function. Last coronary angriography show normal. Electrocardiography Sinus tachycardia, 103 bpm, normal axis, PR interval 200 ms, QRS duration 106 ms, incomplete RBBB, saddleback shaped in lead V2, no ST elevation. ECG pattern show like brugada type III. The patient underwent an electrophysiology study and found Atypical AVNRT (slow-slow) and ablation was performed on the slow pathway. Post ablation obtained tachycardia with a lower rate, narrow QRS but easy to terminate and nonsustain. AVNRT most common of supraventricular arrhythmia, prevalence a slow fast AVNRT represent approximately 90%, fast-slow AVNRT 5-10%, slow-slow AVNRT 1-5%. ECG presentation between AVNRT and brugada show aberrant conduction like right bundle branch block. This case show ecg pattern like brugada type III (saddleback shaped in lead V2, RBBB, no st elevation).

Conclusions :
This unusual type of AVNRT case has been a challenging and long journey in diagnosis, and clinicians should be more alert to other possible diagnoses of tachycardia. Further investigations such as an EP study are needed to ensure proper diagnosis and treatment

KEYWORD: *AVNRT, Arrhythmia, Brugada, Ablation, Electrocardiography*

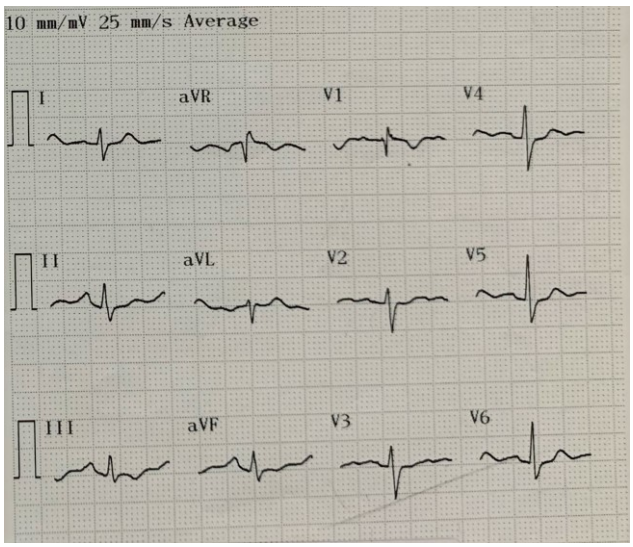

Figure 1. Electrocardiography show Sinus tachycardia, incomple RBBB, saddleback shaped V2

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CASE REPORT / CASE SERIES

ACUTE MYOCARDIAL INFARCTION IN PUERPERIUM: A RARE OCCURRENCE OF UNCERTAIN ETIOLOGY

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[1]M. Djamil Padang Hospital

Background: The incident of acute myocardial infarction (AMI) in puerperium is very rare with the coronary angiography (CAG) findings are characterized by a high incidence of normal coronary arteries. In this case, we report the AMI in puerperium patient. Our patient's history elucidates the concurrence of underlying pregnancy-associated vasospasm as likely pathophysiological mechanism in this setting, since atherosclerotic, dissection, and inflammation were excluded.

Case illustration: A 37 years old woman was consulted from Obstetric Department with chief complaint typical chest pain since 8 hours before. She was hospitalized with diagnosed 4th day post caesarean delivery 7th gestation multiparous due to preeclampsia and HELLP syndrome. She had history of hypertension and uncontrolled. Electrocardiography showed ST-segment elevations 3-4 mm in leads I and aVL. Blood test showed increased Troponin I. Patient was treated and diagnosed as high lateral STEMI. The CAG showed normal coronary arteries. Echocardiography showed global normokinetic, good LV and RV contraction, EF 62% and minimal pericardial effusion around cardiac. Clear evidence exists for endothelial cell dysfunction and concomitant imbalance between vasoconstrictive and vasodilative agents as important pathophysiological mechanisms. Therefore, vasospasm may play a crucial role in both pathophysiology and in this clinical presentation and may serve as one possible explanation for intermittent coronary hypoperfusion in the present case.

Conclusion:
Prompt diagnosis and aetiology of AMI in puerperium are mandatory, so its recognition can direct the next therapy and lactation management.

KEYWORD: *acute myocardial infarction, pregnancy, puerperium*

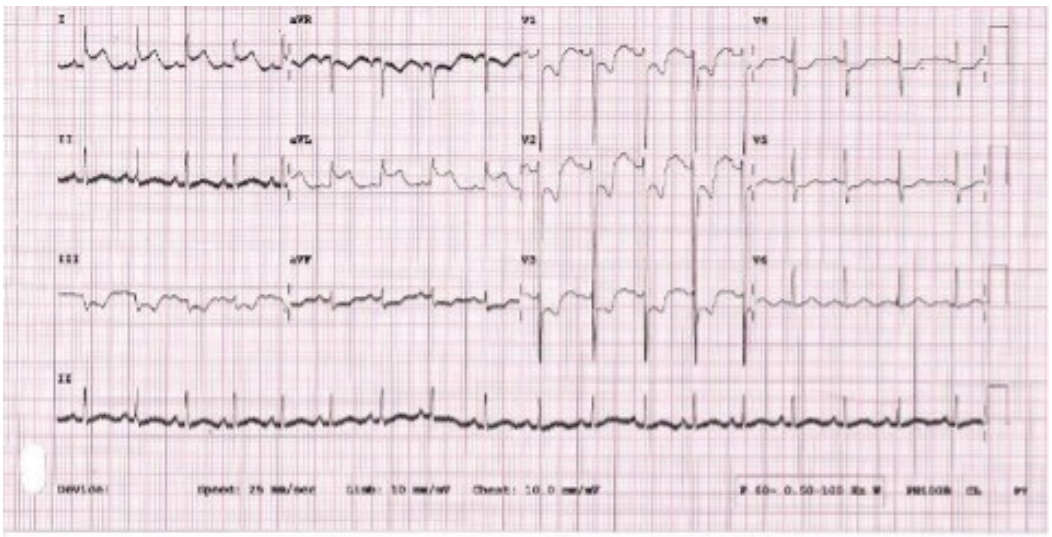

Figure 1 Electrocardiography showed ST elevation in I and aVL leads and ST depression in V1-V6, III, aVF

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CASE REPORT / CASE SERIES

Paroxysmal Supraventricular Tachycardia in Patient with Infective Endocarditis: Coincidence or Causation?

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Background: Arrhythmia is commonly found in patients with infective endocarditis (IE), and it has a strong association with higher in hospital mortality. Supraventricular tachycardia (SVT), however, is not commonly found in patients with IE. Nonetheless, the increase of inflammatory markers and sympathetic tones in patients with IE, in theory, may induce SVT occurrences. This report will discuss the association of SVT with IE, the mechanism underlying it, as well as its management.

Case Illustration: A 36-years-old male presented to the outpatient clinic with recurrent palpitations that worsened for the past two months, during which he also experienced prolonged fever. Previously, he was diagnosed with paroxysmal SVT, thus was referred for electrophysiology (EP) study. However, from further examination it was found that he has IE, and therefore admitted to inpatient care for IE management. The first SVT documented was on the second day of inpatient care, which was terminated using intravenous metoprolol. He then experienced no further SVT episodes along with subsiding fever after receiving antibiotics therapy. Evaluation after 14-days showed no change in the size of the vegetation; therefore, he was proceeded for surgery. During and after surgery, the SVT episodes resurfaced and became more frequent. Intravenous and oral antiarrhythmic drugs, such as metoprolol and diltiazem were given. He was then planned for further EP study and ablation as soon as possible. Fever and acute infection may induce arrhythmia by increasing sympathetic stimulation, thus increasing heart rate and promote ectopy. The SVT observed had short RP interval with ventriculoatrial (VA) interval of 160ms, thus was thought to involve pre-existing re-entry circuit. As the number of ectopic beats increase due to the inflammatory condition, the re-entry circuit became more active and exacerbate the SVT episodes.

Conclusion: SVT on this patient was hypothesized as re-entrant arrhythmia that was aggravated by the inflammation due to the infective endocarditis, thus increasing the occurrence of ectopic impulses that enter the re-entry circuits. Further follow up of the SVT recurrences after the inflammation subsided after surgery is needed to choose the proper chronic management of SVT.

KEYWORD: *supraventricular tachycardia, infective endocarditis, re-entrant arrhythmia*

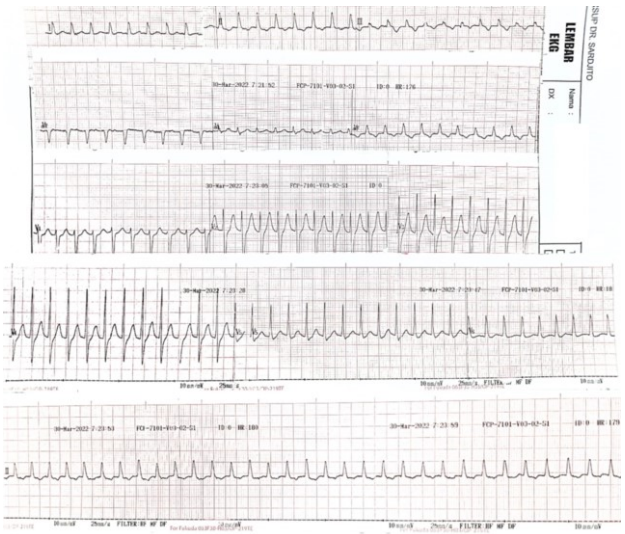

Figure 1. Patient's ECG during SVT episode

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CASE REPORT / CASE SERIES

Mitral Annular Disjunction in Atrial Septal Defect with Mitral Insufficiency : Will It Lead to Arrhythmia?

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Background: Mitral Annular Disjunction (MAD) is an abnormal atrial displacement of the mitral valve leaflet hinge point. MAD has been associated with mitral valve prolapse (MVP) and sudden cardiac death.

Case Illustration: A-28 years old male with progressive dyspneu and palpitation while doing strenuous activities since 1 year ago. He denied any syncope before. He had a general check up, diagnosed with cardiomegaly and referred to Kariadi for further examination and management. The ECG revealed sinus rhythm with Right Axis Deviation. The Echocardiography showed right atrial and ventricle dilatations, Atrial Septal Defect with MAD, moderate tricuspid insufficiency and mild mitral insufficiency.

Conclusion
Mitral annular disjunction (MAD) is a structural abnormality with separation in the mitral valve annulus and the left atrial wall. Arrythmias were frequent in patients with MAD. Some patients with MAD did not have MVP, and MVP was not associated with arrhythmic events, indicating may MAD itself as an arrhythmogenic entity. MAD was detected around a large part of the mitral annulus circumference and was interspersed with normal tissue. Though it appears to be common in myxomatous mitral valve disease and MVP which can be detected on cardiac imaging and may be important because of its association with ventricular arrhythmias and sudden cardiac death.

KEYWORD: *Mitral Annular Disjunction, Mitral Insufficiency, Arrhythmia*

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CASE REPORT / CASE SERIES

Coiling of coronary artery aneurysm in patients with severe coronary artery disease : a case report

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Background : Coronary artery aneurysm (CAA) is focal dilation of coronary arteries by 1.5 times. Its prevalence was 0.35% with etiology atherosclerosis, in left anterior descending artery (LAD) 48.6% and male 78.5%. CAA complications are rupture and ischemia. Its management performed in medication and several interventions.

Case illustration : A 67 years old female was admitted with angina pectoris. Cardiovascular risk factor was hypertension. Vital sign, physical examination, electrocardiography, laboratorium findings and echocardiography were normal limit. Coronary angiography (CAG) reveal severe stenosis in 3 coronary vessels. Saccular type aneurysm with diameter 4x8cm was found at 1/3 proximal LAD. Myocardial perfusion scan reversible ischemic in 3 segments. The first PCI in LCX and RCA followed Coiling at 1/3 proximal LAD and PCI 1/3 Proximal LAD. The result was good with no complications.

Conclusions :
Current CAA treatment recommendation are based on small case series (Class indication I; LOE: C) due to the lack of randomized trials or large scale data. PCI for CAA is more safe and effective over the surgery, because interventional approaches reduces the risk of bleeding, thrombosis and heart failure. In this case, Coiling technique with Interloc Coil 2D size 4x8cm with TIMI Flow 0 and PCI uses DES 2.75x15 mm, with deploy 12 atm 2 times, residual stenosis 0% with TIMI flow 3. Choosing the right type of stent and technique would have a low rate of long-term complications by Kawsara's Algorithm.

KEYWORD: *coronary artery aneurysm, coronary artery disease, coiling, percutaneous intervention*

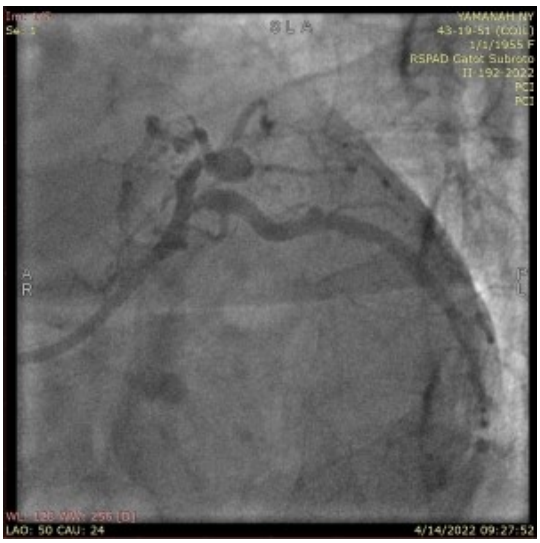

Figure 1. Saccular type aneurysm at proximal LAD

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CASE REPORT / CASE SERIES

Multislice Computed Tomography-Guided Emergency Percutaneous Coronary Intervention in Right Coronary Artery Ostial Lession with Total Atrioventricular Block

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Background: Patients with Inferior STEMI onset > 48 hours accompanied by arrhythmias and still chest pain require immediate revascularization using percutaneous coronary intervention. Despite being the gold standard, angiography can detect only half of coronary artery anomalies, including ostial lesions. Other modalities such as MSCT are able to show coronary artery anomalies from its origin to its termination.

Case Illustration: We report a 55-year-old man with inferior STEMI onset > 48 hours who still complains of chest pain and had total AV block. Primary PCI was failed because the RCA ostium not visible. The non-invasive modality of MSCT provides an overview of the location of the RCA ostium that undergoes complete occlusion of the ostium and excludes the possibility of anomaly of the RCA ostium. The patient then underwent an emergency revascularization strategy with a floating guide catheter technique by projecting the tip of the catheter straight in front of the RCA ostium. The flow after PCI in RCA was good, so that the heart rhythm disturbances improved to sinus rhythm.

Conclusion
STEMI with onset > 48 hours is still an indication for primary percutaneous coronary intervention if there are unstable hemodynamics, ongoing chest pain, or arrhythmias. Other imaging modalities, such as MSCT can complete angiography in aorto-ostial lesion or other coronary anomaly. Enforcement of diagnosis, determination of strategy and good management in STEMI can improve the patient's prognosis.

KEYWORD: *MSCT guided, emergency PCI, total AV block*

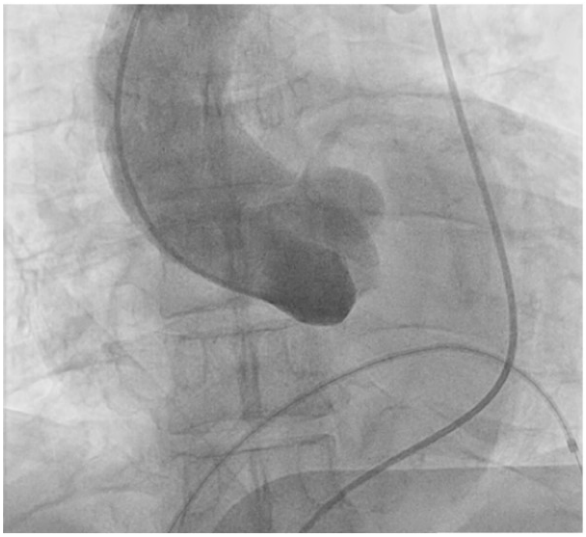

Figure 1. Patient's Emergency Revascularization Procedure.

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CASE REPORT / CASE SERIES

The Management of Left Atrial Thrombus Using Heparin Crossover and Warfarin in Patient with Mitral Stenosis

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Background : The left atrial thrombus is prominent complication of rheumatic mitral valve disease and atrial fibrillation and conduct a high risk for systemic thromboembolism. However, there is no single guideline to solve the problem. They are conventionally dissolved after a certain period of optimal anticoagulation. In the other hand, a large thrombus may persist even after an adequate anticoagulation therapy. The other expected risk is the thrombus chapped and blocked arteries in vital organ. Furthermore, there is several limitations to follow up the effect of several anticoagulation outside the national center making the management harder. Removal of thrombus with surgical has been postulated to poses the risk of systemic embolization.

Case Illustration : A case report of a female patient aged 50 years who admitted with fatigue as the main symptom. The patient has history of Mitral Stenosis with atrial fibrillation and had performed Balloon Mitral Valvuloplasty in National Heart Centre Harapan Kita. Bedside Transthoracic echocardiography (TTE) showed 2.6 x 2.3 thrombus which lied in left atrium. Unfractionated heparin (UFH) was administered 5000 unit bolus intravenously and continued by using Low Molecular Weight Heparin (LMWH), Fondaparinux Na in this case, 2.5 mg subcutaneously once a day for five days and warfarin 2 mg was initiated after first UFH administration. Evaluation of the patient by TTE showed resolution of the thrombus

Conclusion:
The management of the thrombus using UFH in the initial phase and maintained using combination of LMWH and Warfarin had successfully caused resolution of the LA thrombus and prevented the patient from surgical removal procedure. This case report indicated that Unfractionated heparin maintained by LMWH and warfarin can be treatment option in LA thrombus patient with mitral stenosis and atrial fibrillation. Furthermore, heparin crossover in patient with LA thrombus is safer and more effective.

KEYWORD: *left atrial thrombus, UFH, LMWH, warfarin, thrombus resolution*

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CASE REPORT / CASE SERIES

Electrical Storms in Old Anterior Myocardial Infarction with Bigeminy Ventricular Premature Depolarization, Suspected Scar Related Arrythmia

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[1]RS Hermina Podomoro

Background: Electrical storm (ES) is a life-threatening condition that is defined by three or more episodes of sustained ventricular tachycardia (VT), ventricular fibrillation (VF), or appropriate shocks from an implantable cardioverter defibrillator (ICD) within 24 hours. It carries poor outcome, with mortality is as high as 82% despite all available intervention therapies. This report describes a case of electrical storms in a patient with old anterior myocardial infarction suspected scar related arrythmia.

Case Illustration: A 49-year-old woman came to outpatient clinic with dyspnea on exertion, palpitations without chest pain and history of hypertension, functional class III chronic heart failure and syncope episodes in couple months, no familial history of sudden cardiac death. On physical examination she was alert and fully oriented. Her initial ECG showed sinus rhythm, Q on V1-V4, VES bigeminy, QT was 376 ms and QTc was 463 ms. Her laboratory result showed serum sodium 137 mEq/L, potassium 3.8 mEq/L and magnesium 2.20 mEq/L, troponin T was undetectable and other results were unremarkable. She was admitted to ICU received a 150 mg bolus of IV amiodarone followed by maintenance dose of 900 mg/24 hrs. Echocardiography showed dilated LV, hypertrophic LV, LVEF 39%, akinetic anterior, anteroseptal and anterolateral segments, hypokinetic inferoseptal segment, other segments were normokinetic, RV systolic function was reduced (TAPSE 1.2). Mild tricuspid regurgitation (TR Vmax 1,69), other valves were normal, E/A 1.58 E/e' 13.5. While being monitored in ICU, she developed multiple electrical storms in the form of polymorphic VTs, some of those terminated spontaneously and dozens required DC shock for termination. We administered sedation, antiarrythmic medications and maintained her electrolytes level. For most VTs that are related to prior MI, the substrate is on the subendocardial surface of the left ventricle. Ablation is an option for selected patients with polymorphic VT/VF only if an initiating PVC focus or substrate can be identified.

Conclusion:
We described patient with suspected scar-related ventricular tachycardia storm in old anterior myocardial infarction preceded with bigeminy PVC. This case report emphasized the importance of identification and early treatment of the risk factors can reduce the incidence of electrical storms.

KEYWORD: *Electrical Storms, Ventricular Tachycardia, Old Anterior Myocardial Infarction.*

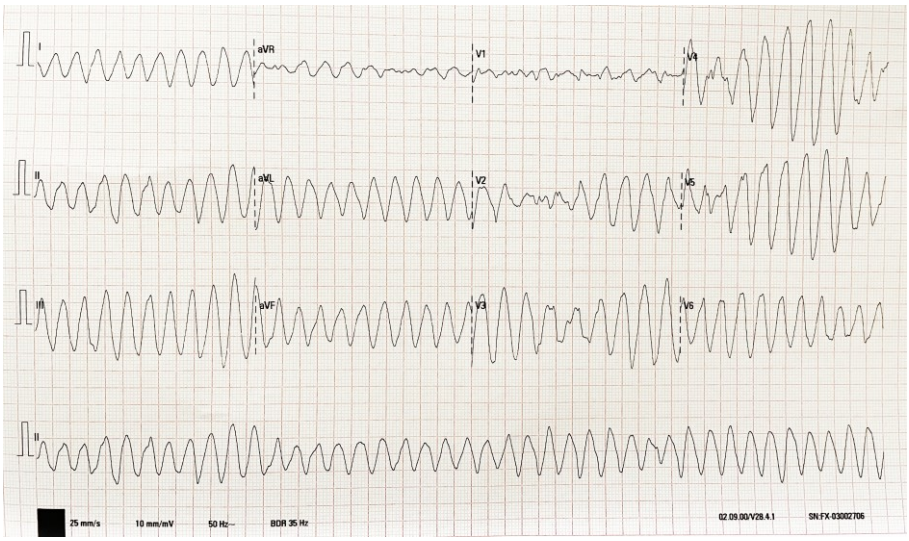

Figure 1: ECG taken on the 2nd day of hospitalization in ICU demonstrated torsade de pointes

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CASE REPORT / CASE SERIES

When Myocarditis Suspected in Heart Failure Patient with Coronary Artery Disease

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Background: Myocarditis may present entirely asymptomatically or manifest with chest pain syndrome or hallmark symptoms of heart failure (HF). Coronary Artery Disease (CAD) should be ruled out in the first instance and pre-existing cardiovascular disease or other causes that may explain the clinical condition have to be excluded. So, it's challenging to diagnose myocarditis in patients with a baseline of HF and CAD.

Case illustration: 73 years old man with a history of coronary catheterization and stent implantation in 2016 came to our hospital with worsening shortness of breath (SOB) 2 days before admission. He also complained about a decrease in appetite and general weakness. He had CAD risk factors such as hypertension, diabetes mellitus and smoking. He suffered from desaturation and got Jackson Reese at first. There was ischemia anteroseptal from electrocardiography (ECG). His chest x-ray showed infiltrate at a bilateral lung with an increase of the bronchovesicular pattern. Laboratory examination was performed with hs troponin 1476 ng/L, procalcitonin 5.28, CRP 16.54 and D-dimer 6.51. Echocardiography showed a left ventricle ejection fraction of 44% and hypokinetic at basal mid inferior and inferolateral segment. Diagnostic coroangiography was performed with the same result as before in 2016. Finally, the cardiac magnetic resonance (CMR) was performed with the result of CAD concomitant with suggestive acute myocarditis. Myocarditis may present entirely asymptomatically or manifest with chest pain syndrome ranging from mild persistent chest pain of acute myopericarditis to severe symptoms that mimic AMI. Signs of acute decompensated heart failure may include. CAD should be ruled out in the first instance and pre-existing cardiovascular disease or other causes that may explain the clinical condition have to be excluded. In the scenario of clinically suspected myocarditis non-invasive imaging techniques, for example, CMR imaging may help to triage patients.

Conclusions:
In conclusion, we described patient with HF and CAD concomitant with suggestive acute myocarditis. This case report emphasizes that myocarditis is an underdiagnosed cardiac disease resulting from a broad range clinical symptoms and causes. Criteria for the diagnosis of clinically suspected myocarditis were based on the clinical presentation should be consistent with the diagnosis and the presence of one or more abnormalities of non-invasive testing.

KEYWORD: *Myocarditis, Coronary Artery Disease, Cardiac Magnetic Resonance.*

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CASE REPORT / CASE SERIES

Multi-Catastrophic of Mobile Left Ventricle Thrombus Complications: A Rare Case-Report

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Background: Left ventricular (LV) thrombus was the most feared complication in patients with depressed LV systolic function. Thrombus protrusion and mobility have been identified as major echocardiographic risk factors for embolization. We described a man with embolization that manifests simultaneous acute limb ischemia (ALI) and acute ischemic stroke.

Case Illustration: A 52 years old man, a smoker with diabetes mellitus, presented with sudden onset of severe pain in the left lower limb, left hemiparesis, and dyspneu for 8 days. We found bilateral crackles, pansystolic murmur gr III/VI at the apex, decreased mobility and sensation with absent distal left lower-limb pulses (posterior tibial and dorsalis pedis) and mottled skin. Echocardiography revealed decreased LVEF 18% (Biplane) and mobile LV thrombus at the apex. An urgent arterial Doppler revealed thrombotic occlusion of the left femoral and popliteal arteries. Brain CT Scan showed infarct of the right corona radiata. These findings support the diagnosis of heart failure with reduced ejection fraction, acute ischemic stroke, and ALI Rutherford IIB, requiring urgent limb salvage. The patient underwent emergent percutaneous aspiration thrombectomy. Unfortunately following 2 days, clinically he had profound limb swelling and dramatic pain. There was flow improvement but it did not reach peripheral perfusion due to reperfusion injury and was programmed to do the amputation.

Conclusions:
ALI due to cardiac embolization results in a greater degree of ischemia than thrombosis. The embolus characteristically lodges in a vascular bed with no prior collateral development. The management is particularly challenging in patients with multiple complications.

KEYWORD: *Left Ventricle Thrombus, Acute Limb Ischemia, Acute Ischemic Stroke*

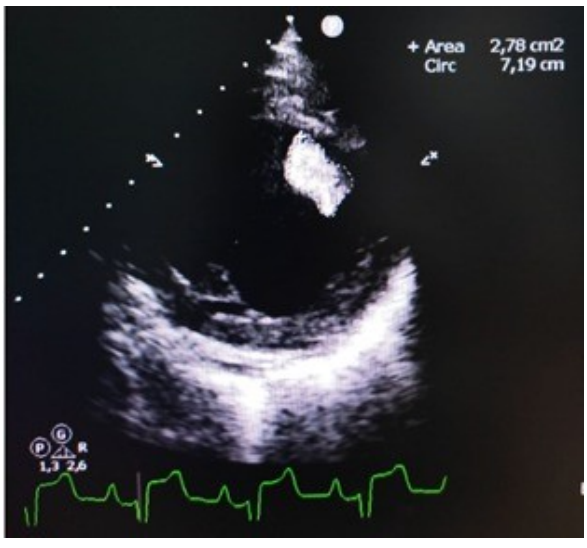

Figure 1. Echocardiography: Parasternal Short Axis View of LV Thrombus

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CASE REPORT / CASE SERIES

Successful Management of Recurrent Pre-Excited Atrial Fibrillation : A Case Report

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Background : Atrial Fibrillation (AF) is a potentially life-threatening arrhythmia and can degenerate to ventricular fibrillation. AF in the presence of an accessory pathway (AP) predisposes patients to tachyarrhythmias and sudden cardiac death.

Case Illustration : A 57 years old woman with recurrent episodic palpitations presented with hypotension to the emergency department. Her past medical history was inconsequential other than the use of β-blockers for occasional palpitations. Initial electrocardiogram revealed irregular tachycardia with varying QRS width suggesting pre-excited AF. A total of 49 cardioversions successfully terminate the tachyaarhythmias. ECG in sinus rhythm revealed sinus rhythm with delta wave. Her biochemical investigations and transthoracic echocardiogram were within normal limits. Patient then referred for catheter ablation. Successful ablation was done resulting a normal pattern ECG. Pre-excited AF manifested by irregularity, a varying QRS morphology, and a rapid ventricular rate. Electrical cardioversion is the acute treatment of choice in irregular pre-excited tachycardias associated with haemodynamic instability. Any AV nodal-modulating agents should be avoided in pre-excited AF as they may contribute to a risk of ventricular fibrillation. The treatment of choice for patients with symptomatic and recurrent pre-excited AF is catheter ablation with high success rate and low complication rate.

Conclusion :
Pre-excited AF could lead to devastating events such as cardiac arrest. ECG recognition at the first place is very important for early management. It is therefore important to achieve early restoration of sinus rhythm in these patients.

KEYWORD: *atrial fibrillation, pre-excitation syndrome, accessory pathway*

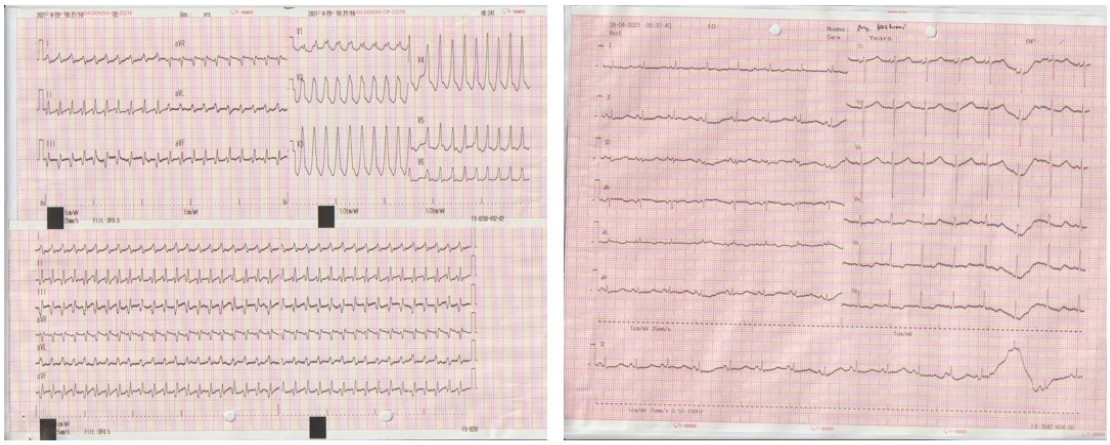

Figure 1. ECG captured when tachycarrhytmia occur showing pre-excited AF (left). ECG captured after catheter ablation showing normal sinus rhytm (right).

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CASE REPORT / CASE SERIES

Ischemic Hepatitis as A Consequence of Newly Diagnosed Heart Failure in Young Adult with Dilated Cardiomyopathy: A Case Report

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Background: Ischemic hepatitis is recognized by the acute and severe surge of serum transaminase that is commonly happened in the setting of acute cardiocirculatory failure. The aim of this paper is to present a case of ischemic hepatitis due to heart failure and dilated cardiomyopathy, which is infrequently reported in young adult.

Case illustration: A 20-year-old man was consulted to cardiologist due to shortness of breath and cardiomegaly known from the chest x-ray examination. Laboratory result revealed significant increase in serum alanine transferase (ALT) of 1565u/L, aspartate transaminase (AST) of 591u/L and prolonged coagulation (PT 44.3s, INR 4.18, aPTT 39.4s). All causes of viral hepatitis were excluded. Echocardiography showed all chamber dilatation, decrease in left ventricular systolic function (ejection fraction 26%), global hypokinetic, and mild to moderate mitral regurgitation. After three days of adequate treatment, the symptoms resolved and followed by nearly 50% decrease in ALT and AST level.

Conclusion:
Early recognition and diagnosis are vital to prevent poor outcomes. If not treated, ischemic hepatitis can be lethal and deadly. Correcting the underlying cause is the main treatment and, in this case is to improve the cardiac output and tissue oxygenation.

KEYWORD: *Ischemic Hepatitis, Acute decompensated heart failure, dilated cardiomyopathy*

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CASE REPORT / CASE SERIES

Acute Coronary Syndrome in Young Adult with Nephrotic Syndrome

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Background: Young patients represent 0.4-19% of all acute coronary syndrome (ACS) cases. Patients with nephrotic syndrome (NS) have long been assumed to be at increased risk for atherosclerosis and heart disease, including in young adults. Thrombosis and atherosclerosis are possible etiology for CAD among patients with NS.

Case Illustration: A 29-year-old man came to emergency room with chest pain radiating to left arm followed by sweating, nausea and vomiting 18 hours before admission, that he has never experienced previously, VAS Score was 9/10. Lower extremities examination showed bilateral pitting oedema. Patient was diagnosed with NS since 2009 and he did not has another cardiovascular risk factor. Electrocardiography showed ST elevation in V1-V6, I, and aVL. Patient undergone PCI. the coroangiography showed thrombus grade V in LAD with high burden thrombus. then, he was decided to defer further maneuvers and proceeded to medical treatment with intravenous antiplatelet infusion and anticoagulation.

Conclusion
A case of 29- year-old man patient with ACS and nephrotic syndrome been reported. The management of ACS in nephrotic syndrome patient is challenging. Controlling the symptoms, correcting hypoalbuminemia and dyslipidemia as well as managing the acute coronary syndrome must be done in this patient.

KEYWORD: *Acute coronary syndrome, STEMI, Nephrotic syndrome*

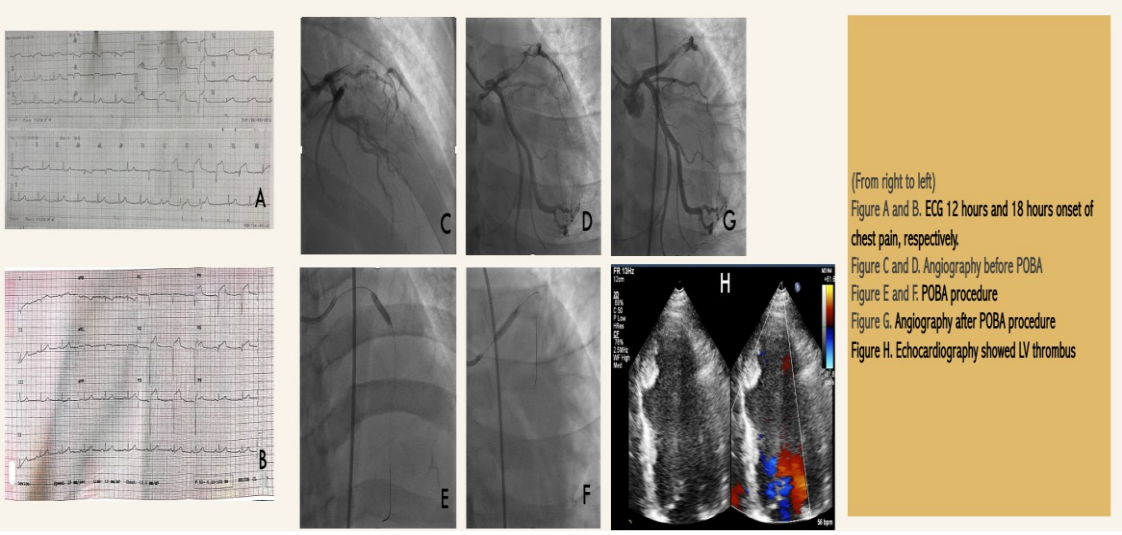

Figure 1. The Electrocardiography, Coroangiography and Echocardiography of the patient

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CASE REPORT / CASE SERIES

Cardiohepatorenal Syndrome in patient with Dilated Cardiomyopathy (DCM) and Methicillin-resistant Staphylococcus aureus (MRSA) infection due to Shock Cardiogenic: Challenging in therapy: A Case Report and Literature Review

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Background: Pathophysiology of acute heart failure is based on the relationship of substrate, triggering, and amplifying mechanisms resulting in signs and symptoms of congestion and/ or reduced cardiac output. We would like to present a patient with dilated cardiomyopathy with MRSA infection, resulting in congestive heart failure and cardiogenic shock, further compromising liver and renal function, causing cardio-hepato-renal syndrome.

Case illustration: A 49 year-old male came to our emergency department with shortness of breath worsen by supine position (Orthopnoea). On physical examination he was hypotensive, with icteric on both eyes, jugular venous distension with rales on both lungs and pitting oedema on both legs. This patient full fill both of 3 mayor and 2 minor Framingham criteria which lead to heart failure diagnose. The patient had previously been treated for 16 days in another hospital. From laboratory and radiological examination, there were abnormalities on both his renal and liver function with high level of NT Pro-BNP. Cardiomegaly was found on chest xray and hepatomegaly on abdomen ultrasound. This patient gives a unique and difficult approach in choosing the appropriate treatment. Using the pathophysiological approach we stabilized his hemodynamic with intropic agent to ensure adequate organ perfusion and to prevent hypoxic injury especially in his renal and liver. In addition to that, we treat his congestion with furosemide and reduce the RAAS and sympathetic activity by maximizing ARNI. We also managed his infection using Vancomycin and Mupirocin nasal ointment. He was able to be stabilized gradually and eventually achieved clinical and laboratory improvement in 23 days.

Conclusions: Patients with infection and multi organ dysfunction in AHF required a more careful approach in treatment selection to get the better prognosis. In this patient, use of Inotropic, ARNI, Furosemide and antibiotics (vancomycin and mupirocin nasal ointment) are the safest therapy for this condition.

KEYWORD: *Cardiohepatorenal syndrome, dilated cardiomyopathy, methicillin-resistant Staphylococcus aureus.*

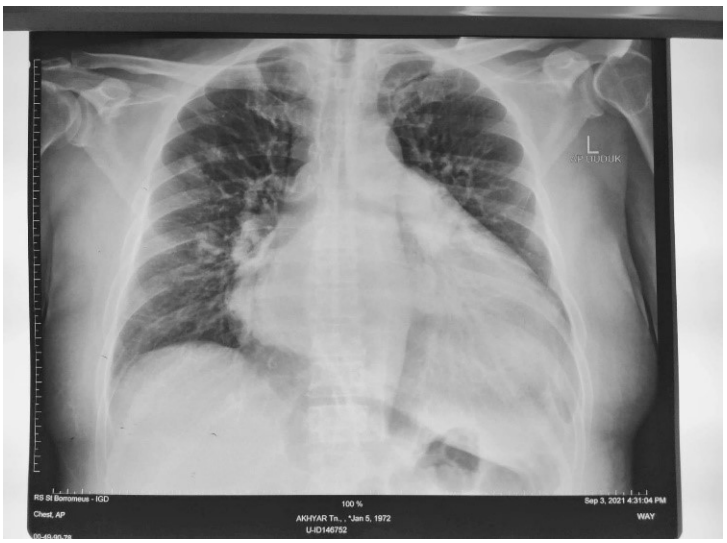

Figure 1. Chest X-Ray showed cardiomegaly with suspicion of all chamber's dilatation and bronchopneumonia.

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CASE REPORT / CASE SERIES

Chemotherapeutic agents-induced Cardiomyopathy in Patients with Breast Cancer

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Background: Cardiovascular disease in cancer patients is a major challenge for cardiologists and oncologists. The slight long-term effect on the heart has received little attention from health care providers.

Case Illustration: Female, 48 years old came with history shortness of breath in the past 1 month, dyspnea on effort, and paroxysmal nocturnal disease. She had a history of using chemotherapy agent for breast cancer since 2017 with Cyclophosphamide, Epirubicin, Fluorouracil, Doxorubicin, Tamoxifen, Zoladex, and Brexel. Her blood pressure was 97/60, heart rate 58 beat per minute, oxygen saturation 96% with room air. There was grade II of systolic murmur in apex. Patient had echocardiography every year and had reduction in ejection fraction from 48% to 16% within six years. Electrocardiogram was sinus rhythm, 58 beat per minute, normal axis, poor R wave progression, left ventricle hypertrophy, incomplete left bundle branch block, and inferior ischemia. Chest x-ray found enlargement in cardiothoracic index for 55%. Patient diagnosed with Chronic Heart Failure Functional Class II et causa Chemotherapy induced Cardiomyopathy, ejection fraction 19%, regular wall motion abnormality, mild mitral regurgitation et causa functional, on suspect coronary artery disease with inferior ischemia, post chemotherapy of mammae cancer. Patient got asetosal 80 mg per day, ramipril 5 mg per day, bisoprolol 1.25 mg per day, simvastatin 20 mg per day, spironolactone 50 mg per day, and furosemide 40 mg per day if needed. Cancer Therapy Related Cardiac Dysfunction is associated with variety of chemotherapy such as anthracyclines, human epidermal growth factor receptor 2 agents, molecular kinase inhibitors, and proteasome inhibitors. The principle is to interfere the process of mitosis and metabolism of cancer cells. However, some normal cells and tissues affected by chemotherapy, which in turn causes a variety of mild and severe adverse effects, including cardiovascular side effects. Ejection fraction reduction less than 50% followed by a persistent decrease, lack of recovery, even with optimal treatment, associated with a major risk of adverse cardiovascular events.

Conclusions:
We describe patient with cardiomyopathy induced by chemotherapy. Understanding the molecular mechanism of chemotherapy-induced cardiotoxicity is the key to effective prevention strategies and selecting an appropriate chemotherapy regimen.

KEYWORD: *Chemotherapeutic agents-induced Cardiomyopathy, Cardiomyopathy*

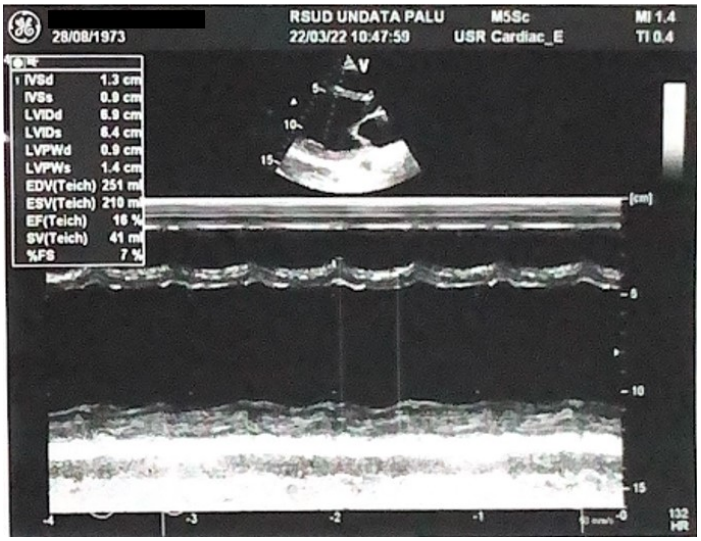

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Figure 1. Echocardiography in March 2022.

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CASE REPORT / CASE SERIES

The First Case of Nephrotic Syndrome and Acute Limb ischemia in Malang

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Background: Thrombectomy is one of the techniques used to reduce the risk of amputation in cases of acute limb ischemia; however, when performed in patients with nephrotic syndrome under acute conditions, this procedure increases the risk of thrombosis.

Case Illustration : We report the first case of nephrotic syndrome and acute limb ischemia in Malang of a 23-year-old patient with a history of nephrotic syndrome who presented to the emergency department with right foot pain. She woke from sleep and was accompanied by the pain of her feet turning purple and becoming cold to touch. Physical examination revealed capillary refill of over 10 seconds in the right and less than 2 seconds in the left foot. Then a Duplex ultrasound examination was performed and it was found There was no flow from the right dorsalis pedis artery to the right arcuate artery. The patient then underwent urgent thrombectomy and heparin 17.000iu/24 hours, but the results were no improvement, so below knee amputation was performed and repeated thrombectomy was performed. On the first postoperative day, he experienced pain in the left lower limb and the pulses of his right posterior tibial arteries and femoral artery were not palpable on the first postoperative day. Examination of the laboratory Hb was 14.4 mg/dl, leukocytes were 15,950/mm3, platelets were 104,000/mm3, albumin was 1.7 g/dl, INR was 1.06, APTT was > 180, Albumin: 1.4 g and fibrinogen was 392.0 mg/dl. However, the leg is getting worse and looks blue on the right thigh. Catheter direct thrombolysis with alteplase (1.0 mg/h via the catheter) and heparin (200 U/h via the sheath) was tried with the result that there was flow to the proximal anterior tibial artery with fibrinogen. However, the patient was also found to be in severe bleeding conditions, resulting in cardiac arrest and Return of spontaneous circulation. The patient was then intubated. The patient was then extubated for 7 days and was improving. Then the patient was amputated above the knee. During treatment, the patient was found to be in improving condition, but on the 4th day of treatment after surgery, the patient died of sepsis.

Conclusion :
In conclusion, in cases of acute limb ischemia with nephrotic syndrome, we must be careful with thrombectomy. In this case, we suspect that there is an increased risk of arterial thrombosis as a result of thrombectomy. In addition, adequate use of anticoagulants is an important factor considering the possibility of hemorrhagic shock.

KEYWORD: *Acute arterial thrombosis, nephrotic syndrome, Thrombectomy*

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CASE REPORT / CASE SERIES

Percutaneous Balloon Mitral Valvuloplasty at 32 Weeks Pregnant Woman with Severe Mitral Stenosis: A Case Report

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Background: Rheumatic mitral stenosis (MS) is common cardiovascular disease complicating pregnancy in developing countries, including Indonesia. Severe MS potentially increase maternal and fetal morbidity and mortality, since hemodynamic adaptations to pregnancy are badly tolerated. When symptoms persist despite medical therapy, the poor prognosis justifies the correction of MS during pregnancy.

Case Illustration: A 32 years old woman with 32nd week of pregnancy referred to Dr. Kariadi hospital with two years shortness of breath which worsened during this pregnancy. The echocardiography showed severe MS with mitral valve area (MVA) 0.8 cm2, mitral valve gradient (MVG) 18 mmHg, and Wilkins score 7. After intense discussion with obstetrician, percutaneous balloon mitral valvuloplasty (PBMV) procedure was taken to improve symptoms and optimize gestational week for delivery. After PBMV, MVG decreased from 18 to 12 mmHg and MVA increased from 0.8 cm2 to 1.43 cm2. The procedure was uneventful and fetus was stable as well. After procedure patient showed clinical improvement and had cesarean sections at 34th week gestation with healthy newborn.

Conclusion:
In pregnant patients with severe MS and persistent symptoms despite medical treatment, PBMV is an effective and safe treatment option.

KEYWORD: *severe mitral stenosis, percutaneous balloon mitral valvuloplasty, pregnancy*

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CASE REPORT / CASE SERIES

Benefit of Phenytoin, the old fashioned drug, for Long QT Syndrome Type 3 Patient

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Background: Long QT syndrome (LQTS) type 3, is one of inherited channelopathy presenting with QT prolongation, with high risk for ventricular arrhythmias. LQTS3 patients with cardiac arrest survivor had cass 1 recommendation of ICD implantation. Sodium channel blockers such as mexiletine and ranolazine may be considered as add-on therapy to shorten the QT interval especially when QTc > 500 ms. Unfortunately, those treatments were not covered by our national health insurance. We proposed use of phenytoin, so far known as an anticonvulsant drug, because it had antiarrhythmic property by blocking sodium channels, which was benefit to shorten QTc in LQTS3 patients.

Case illustration: A 30 y.o woman was consulted to cardiac department with VF post defibrillation. She was brought to ER because of repeated seizures. She had history epilepsy since 15 y.o with routine phenytoin therapy and never had seizures since then. However, after giving birth 2 months ago, she discontinued phenytoin and had frequent seizures usually occurring while she was sleeping or resting. ECG post defibrillation showed sinus rhythm with prolonged QTc 600ms. In CVCU, recurrent TdP were documented though physical examination, transthoracic echo, and electrolytes within normal limits and there was no history of taking drugs which could trigger QTc prolongation. Neurological examination and EEG also normal and show no evidence of epileptic activity. Patient then received MgSO4 intravenous therapy , but she still had repeated TdP. 24-hours holter monitoring revealed frequent PVCs, prolonged QTc with average 561 ms, and recurrent TdP. Unfortunately, ICD implantation and sodium channel inhibitors could not be afforded for this patient due to health insurance problem. Based on patient's medical history, we administerred phenytoin intravenously, which had class IB anti-arrhythmia property, combined with oral propranolol. Since that patient never had seizures and TdP episodes. Patient discharge with sinus rhythm and QTc 580ms and got therapy oral phenytoin 200mg t.i.d and propanolol 40mg t.i.d. Holter evaluation after 3 months outpatient therapy, showed no episode of TdP and QTc interval was shortened to 480ms. Patient also never had seizure or fainted.

Conclusions:
Phenytoin has benefit to shorten QTc in LQTS3 patient.

KEYWORD: *Long QT syndrome, Torsades de pointes, phenytoin*

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CASE REPORT / CASE SERIES

When the Storm Tears the Heart: Incessant Ventricular Tachycardia in Structural Heart Disease

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Background: Ventricular tachycardia (VT) continues to be an important challenge for the cardiologists all over the globe. VT usually occurs in a structural heart disease with low left ventricular ejection fraction (LVEF) but may also occur in patients with arrhythmic syndromes such as long QT syndrome and Brugada syndrome who have structurally normal heart. Incessant VT is defined as continuous sustained VT during several hours, which recurs promptly despite repeated intervention for termination. Given the complexity of incessant VT, initial management, risk stratification, and treatment of ventricular arrhythmias pose a significant challenge to clinicians.

Case Illustration: A 44 years old active smoker man presented to our hospital with 3 days of palpitation. He also felt shortness of breath since last 6 months, though no chest pain. Initial rhythm upon emergency department was noted to be ventricular tachycardia. His BP was 97/76 mmHg, HR 180 bpm with palpable carotid pulse, RR 24 times per minute, and SpO2 98% (room air). On physical examination, we found pansystolic murmur in apex radiated to axilla, with unremarkable other findings. Cardiopulmonary resuscitation was initiated and the patient underwent cardioversion, intubated, and transported to intensive cardiac care unit (ICCU). The patient developed hypotension requiring dobutamine and norepinephrine. Unfortunately, the patient went back into ventricular tachycardia at a rate 180 – 190 bpm spontaneously without pulse in day 1 and day 2 in ICCU. He underwent several times defibrillation and maintenance dose of amiodarone to return to normal sinus rhythm. In the next day, the patient getting better, extubated, requiring beta blocker and amiodarone for preventing the VT recurrence. Then, the patient was moved to general ward and discharged after several days in ward.\

Conclusion:
The incessant VT represents a major turning point in the natural history of patients with structural heart disease being associated with poor short- and long-term survival particularly in those with compromised LVEF that can develop hemodynamic decompensation and multi-organ failure. In general, a multidisciplinary approach including medical therapies such as anti-arrhythmic drugs, sedation, as well as interventional approaches like catheter ablation, may be required.

KEYWORD: *incessant ventricular tachycardia, structural heart disease, anti-arrhythmic drugs*

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CASE REPORT / CASE SERIES

Ecg Changes Mimicking Myocardial Infarction In Hypokalemia Patient

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Background: ST elevation in aVR and widespread ST depression classically depicted left main coronary artery stenosis, proximal left anterior descending artery stenosis, or three-vessel disease. However, there are other causes that can create similar ECG changes, including hypokalemia.

Case Illustration: A 33-year-old woman presented with epigastric discomfort, vomiting, and diarrhea. She had a history of decreased bodyweight, hand tremors, and palpitation. ECG findings showed ST elevation in the aVR and widespread ST depression in V1-V6. Laboratory results revealed hypokalemia (2.7 mEq/ L), normal Troponin I (< 0.10 ng/ mL), low TSH (< 0.1 mIU/ L), and high fT4 (134.3 nmol/ L). Chest x-ray and echocardiography showed no significant findings. The patient was then treated for hyperthyroid and hypokalemia. Nevertheless, even after her potassium levels reached the normal range, ST depression did not return to the baseline, instead became steeper. Therefore, a coronary CT angiography was then conducted.
Discussion: In hypokalemia, degradation of certain potassium channels contributes to action potential prolongation of different transmural layers.[1] This creates a difference in ventricular myocardial cells' voltage gradients resulting in ST-T changes.[1, 2] In this case, further evaluation confirmed that the ECG abnormalities were due to hypokalemia. This demonstrates the importance of considering hypokalemia as a cause of ST-T changes.

Conclusion:
It is important to explore the causes of ST-segment changes and to consider hypokalemia as the possible etiology. However, it might be difficult to differentiate the causes in certain situations.

KEYWORD: *Electrocardiography, ST-segment, hypokalemia, myocardial ischemia*

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CASE REPORT / CASE SERIES

Late Onset of Left Sided Infective Endocarditis Following Transcatheter ASD Closure

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Background: Patients with untreated CHD who have postoperative palliative shunts or other prostheses are the highest risk of infective endocarditis (IE). Atrial septal defect (ASD) is the third most common form of CHD. Early closure of significant ASD by transcatheter closure has become the standard approach for the disease to avoid irreversible changes in pulmonary vascular resistance.

Case illustration: A 59-years-old woman was urgently transferred to ER RSUP Dr. Sardjito due to prolonged fever for three months before admission. Patient had atrial flutter with rapid ventricular response until 170 beat per minutes which convert to normal rate by metoprolol injection. She had a history of secundum ASD underwent percutaneous closure using 42-mm Amplifier Septal Occluder (ASO) in June 2020 without any residual shunts. On admission, the TTE revealed a 29x12mm vegetation at the distal anterior mitral leaflet. Further information by TEE, the device was found to be in situ, however left to right residual shunt was found with mobile vegetation attached to the device in the left atrium side. Her blood culture was positive for *Streptococcus agalaciticae*. Furthermore, she suffer from a septic emboly event manifested as ALI on digiti I and II pedis dextra. After 2 weeks administration of IV antibiotics followed by oral antibiotics for one month, patient underwent open heart surgery for removal of the ASO, MV replacement and surgical repair of ASD which the device showed incomplete endothelization. The patient was in good condition after the surgery. The potential causes of late IE after transcatheter closure procedure are multifactorial. First, large size of device takes longer time for neo endothelization. Second, patch polyester in ASO may trigger deposit of fibrin and thrombocyte. Third, atrial flutter resulted in blood flow turbulence, thus increases the risk of IE.

Conclusion: Late IE happened after transcatheter closure procedure is rarely found. Physicians should be more cautious when encountering patient with prolong fever, thus able to make accurate diagnosis and start treatment as soon as possible to prevent severe complication.

KEYWORD: *infective endocarditis, atrial septal occluder, atrial septal defect, septic emboly.*

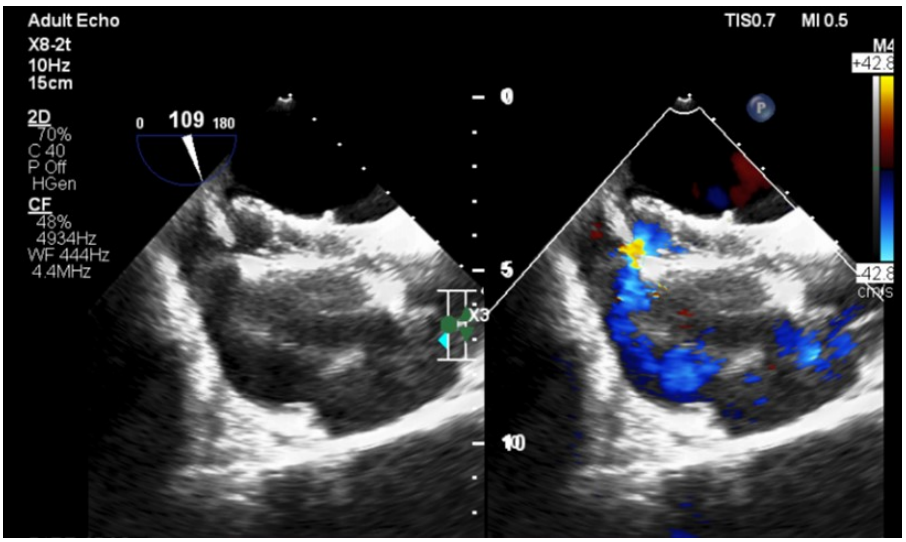

Figure 1. TEE of the patient showed mobile vegetation attached to the left atrium side of the device

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CASE REPORT / CASE SERIES

Acute Pulmonary Embolism After Total Knee Replacement: A Rare, Forgotten, and Catastrophic Complication

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[2]Cardiology and Vascular Medicine Department, RSPAL dr. Ramelan Surabaya
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Background: Pulmonary embolism (PE) after the orthopedic procedure is rare but deadly. It is important to increase awareness about prevention, recognition, and management.

Case illustration: 52-year-old inpatient male complained of a new onset of dyspnea and abdominal pain while walking. He had four days of immobilization after underwent total knee replacement (TKR). Either chest pain or history of previous cardiac disease was denied. His blood pressure was fallen to 97/64 mmHg, his pulse and respiratory rate was rose to 160 bpm and 36 bpm. He was suspected of acute heart failure (HF) and sepsis. He was referred to a cardiologist. He got dobutamine to maintain his blood pressure. Laboratory results showed leucocyte 35.580/µL, qualitative troponin was positive, D Dimer >20.000 ng/dL, pO2 (A-a) 319.7 mmHg.
On the next day, ECG showed S1Q3T3 and complete RBBB. Echocardiography also found Mc Connel's sign and 60/60 sign. Heparin was initially given after PE was suspected. Unfortunately, gastrointestinal bleeding occurred several hours later. Heparin was stopped and substituted by fondaparinux 2.5mg. On the next day, CT thorax showed ≥ 80% occlusion in both artery pulmonalis. His condition was getting worse, and he was deceased on the second day after PE was established.

Conclusion: Since PE is less common than HF and has similar symptoms, PE is potentially misdiagnosed as HF. Careful examination is needed to recognize PE. In this case, ECG and echocardiography play an important role to diagnosed PE in early stage. Considering PE is life-threatening condition, it must be recognized and treated immediately.

KEYWORD: *Pulmonary embolism, total knee replacement, arthroplasty, thromboprophylaxis*

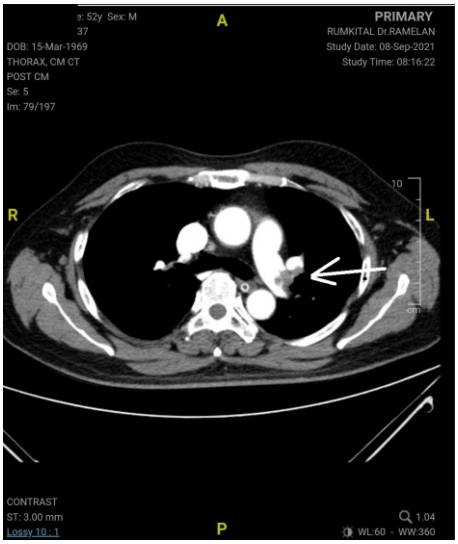

Figure 1. Chest CT Angiography.

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CASE REPORT / CASE SERIES

A Direct Proximal Optimization Technique After Kissing Balloon to Minimize Gap Between Strut and Carina Under DK-Crush Procedure in Complex Coronary Bifurcatio Lesion of Left Main Disease (Medina 1-1-1)

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Background: Complex coronary bifurcatio lesion become a challenging case in the way of coronary re-vascularization. T stenting, T and Protrude (TAP), Cullotte, and Crush stenting are the commonest technics of revascularization in bifurcatio stenting. DK-Crush was commonly use when the angulation of sitebranch was < 70^{o} and associated with lower risk of cardiac death, MACE, MI, stent thrombosis, target lesion revascularization, and target vessel revascularization compared with provisional stenting. All of bifurcatio stenting techniques potentially provoked gap behind the strut and carina which promote a thrombotic state. A direct modification of proximal optimization technique that directed balloon from left main to carina had been performed to minimize the gap behind the strut and carina to minimize thrombosis event during DK-Crush procedure.

Case Illustration: A 60-year-old man with risk factor of diabetes mellitus type II on insulin and passive smoker had history of recurrent radiated chest pain while doing daily activity. He had been diagnosed as coronary artery disease (CAD) 3VD with left main disease (Medina 1-1-1) with chronic total occlusion at proximal LAD, and critical stenosis 99% at osteal left circumflex. He priors to coronary artery bypass graft (CABG) (Sintax Score 68). He had history of 1 DES insertion at mid-distal RCA before which branch of PDA give feeding collateral to LAD. A DK-Crush procedure had been performed during percutaneous coronary intervention because he refused to coronary artery bypass graft (CABG). Side branch stent insertion was the first technique that followed by inflating balloon to open the strut. Then, the second stent was inserted inside the previous stent and kissing balloon technique had been performed to dilate both stent. A direct proximal optimization technique using bigger balloon directed from left main to carina (after kissing balloon) had been performed to minimize gap between stent and carina to minimize the risk of thrombosis.

Conclusion: A direct proximal optimization technique during DK-Crush procedure in complex bifurcatio lesion can minimize gap behind the strut and carina in order to minimize the risk of thrombosis.

KEYWORD**:** *Bifurcatio stenting, DK-Crush, proximal optimization technique.*

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CASE REPORT / CASE SERIES

A Case Report: Syncope in Severe AS with TAVB, What should we do?

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Background: Syncope is defined as a transient loss of consciousness caused by cerebral hypoperfusion and is characterized by rapid onset, rapid duration, and spontaneous recovery. Cardiac syncope is one of the underlying etiology. This is typically secondary to either a mechanical or structural cardiac defect or an arrhythmia that alters electrical conduction through the myocardium. Arrhythmias are recognized as the more common mechanism of the two. However, structural and mechanical abnormalities in the heart will often induce such arrhythmias. These processes are therefore often interrelated.

Case Illustration: A 75-year-old came to the ER, Dr. M. Djamil Hospital, fainting 6 hours before admitted to the hospital shortly after waking up. Duration ± < 1 minute. History of fainting 2-3 times in the past of 2 weeks. In physical examination the BP is 138/69, HR 30 bpm, and RR 19, S1 normal with S2 weak, midsystolic ejection murmur, crescendo-decrescendo, grade 3/6, punctum maximum at right upper sternal border of ICS II-III, high pitch. ECG shows Total AV Block with P rate 83x/min, QRS rate 32x/min, ST-T changes (-), QTc 385 msec. Echocardiography result Severe AS, Aortic Valve Area (AVA) 0.6 cm3 (planimetry), AVA 0.6 cm2 (VTI), mean AVG 41 mmHg, peak AVG 65 mmHg, mild aortic regurgitation, Ao Vmax 1.2, and calsification at all of cuspises. Patient performed Temporary pacemaker then permanent pacemaker and transferred to CVCU. Patient is planned for SAVR. In this case, the patient had AS severe with TAVB. In AS, there is obstruction of blood flow to the aorta which results in decreased organ perfusion including perfusion to the brain and causes syncope, especially during physical activity. Likewise, In Total AV block there is a decrease in perfusion caused by the heart rate being too low. Permanent pacemaker and SAVR are definitive therapy TAVB and Severe AS.

Conclusion :
Treatment for cardiac syncope is offered to prevent the patient's morbidity, physical injuries, and monetary costs of recurrent syncopal events and prevent sudden cardiac death. The management of cardiac syncope varies widely and is essentially based on managing the specific condition.

KEYWORD: *Severe AS, TAVB*

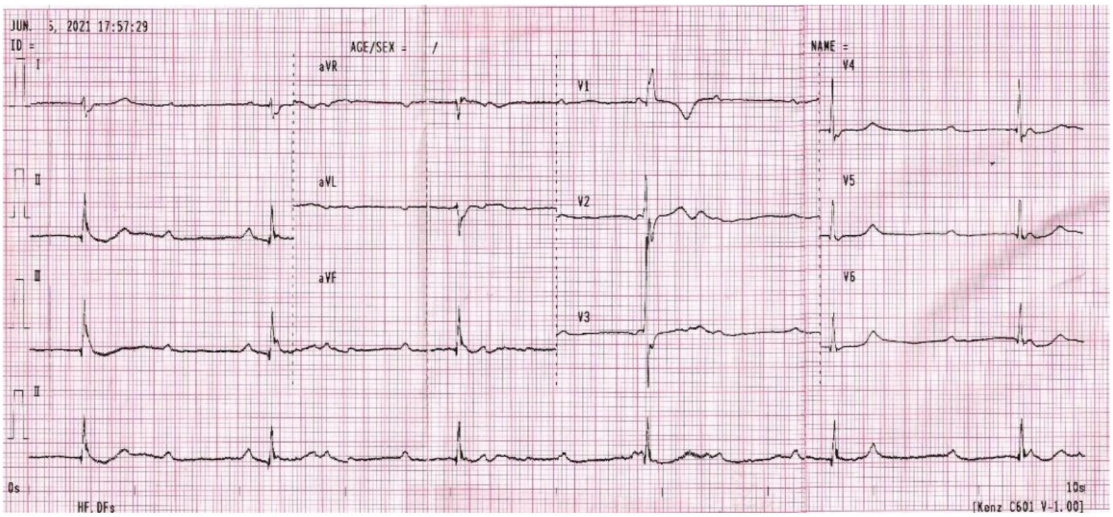

Figure 1. ECG TAVB

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CASE REPORT / CASE SERIES

BRASH Syndrome : An Overlooked Clinical Entity

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Background: BRASH syndrome is a frequently overlooked clinical entity that comprises of bradycardia, renal failure, atrioventricular nodal blockade (AVNB), shock, and hyperkalemia. Hyperkalemia and bradycardia in this syndrome is often persistent despite adequate potassium-lowering agents and chronotropic medications. In these cases, emergent dialysis and the use of a pacemaker may be considered. It is important to recognize and treat this syndrome as a clinical entity, as each of the conditions is often refractory to initial management.

Case Illustration: A 70-year-old woman was brought to the emergency department with lethargy and headache that started 3 days ago. She had a history of chronic kidney disease, hypertension, and coronary artery disease, with routine appointments to an internist and cardiologist. A week before admission, she received bisoprolol from a primary clinic because she felt palpitations. Initial electrocardiogram (ECG) showed sinus bradycardia with a ventricular rate of 35 beats per minute (bpm). Initial laboratory tests showed acute kidney injury and hyperkalemia. Several hours after admission she experienced a deteriorating shock, with an electrocardiogram showing junctional bradycardia with a ventricular rate of 31 bpm. Bisoprolol was immediately held. She was treated with potassium-lowering agents, atropine sulfates, and dopamine. Emergent dialysis was also performed. The bradycardia did not resolve despite potassium corrections and vasoactive agents have been given, so a temporary transcutaneous pacemaker was placed. The patient was discharged a week later with an ECG of sinus rhythm 65 bpm, advised to avoid AVNB drugs.

Conclusions:
BRASH syndrome consists of a vicious cycle that can result in rapidly deteriorating hemodynamic conditions. Clinicians need to consider this syndrome when giving AVNB agents to patients with a history of kidney disease. As this syndrome is often refractory to medical therapy alone, further management including pacemaker or renal replacement therapy may be necessary. Therefore, it is important to recognize BRASH syndrome as early as possible so appropriate management can be given, improving patient outcomes.

KEYWORD: *bradycardia, hyperkalemia, renal failure*

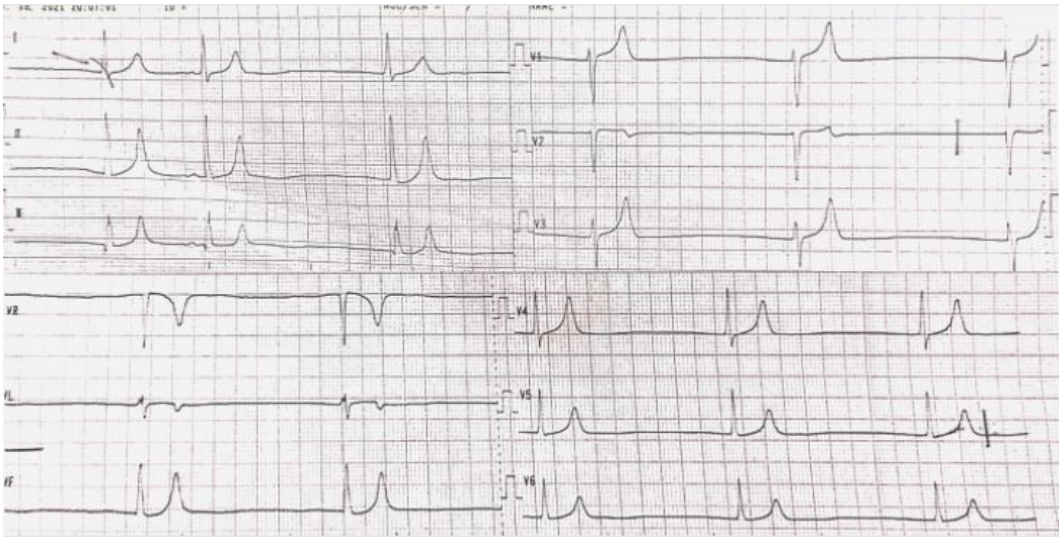

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Figure 1. ECG showing Junctional Bradycardia with ventricular rate of 31 beats per minute. Potassium levels was 8.9

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CASE REPORT / CASE SERIES

The Important Role of Echocardiography for Early Diagnosis of Asymptomatic Long-Segmental Stanford Type A / Debakey Type I Aortic Dissection: A Rare Case Report

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Background: Echocardiography plays an important role in early diagnosis and follow-up of aortic diseases. One of the aortic diseases is aorta dissection. Aorta dissection (AD) is the life-threatening condition associated with high morbidity and mortality rate. Patients usually present with sudden painful, tearing sensation or sharpness in the chest or back and acute hemodynamic instability. Early diagnosis and treatment are needed for better prognosis.

Case Illustration: We present a 47 years old male went to the out-patient department with no complaints. His medical history was hypertension and post percutaneous coronary intervention due to coronary artery disease 5 years ago. An abnormality finding in transthoracic echocardiography (TTE) showed mild aortic regurgitation, dilated proximal aorta ascending through abdominal aorta with internal flap, false lumen and true lumen sign. Multi-slice computed tomography thoracoabdominal aorta was performed to confirm the diagnosis. It showed Stanford Type A / DeBakey Type I from proximal aorta extending to brachiocephalic artery, proximal left subclavian artery through infrarenal abdominal aorta just below right renal artery branch and there is a thrombus in the abdominal aorta.

Conclusion:
Aortic Dissection is a dreadful illness. Absence of pain does not rule out the diagnosis of AD. In extremely rare cases the patient has no symptoms, it can lead to difficult and challenging to diagnose. The risk of missing diagnosis of asymptomatic AD can be reduced by complete and careful TTE examination.

KEYWORD: *Asymptomatic aortic dissection, Transthoracic Echocardiography, Stanford Classification, Debakey Classification.*

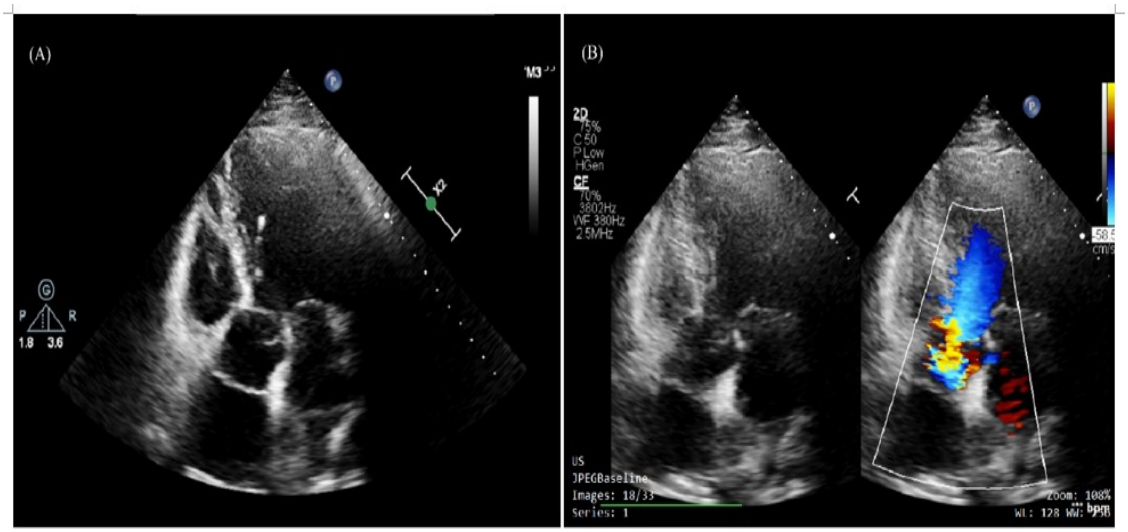

Figure 1. Transthoracic echocardiography. (A) Apical five chamber view: showing dilated aortic with intimal flap just above the aortic valve level. (B) Color Doppler imaging showing mild aortic regurgitation and identified the true lumen and false lumen.

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CASE REPORT / CASE SERIES

Large Distal Left Main Coronary Artery Aneurysm: An Extremely Rare Case Report

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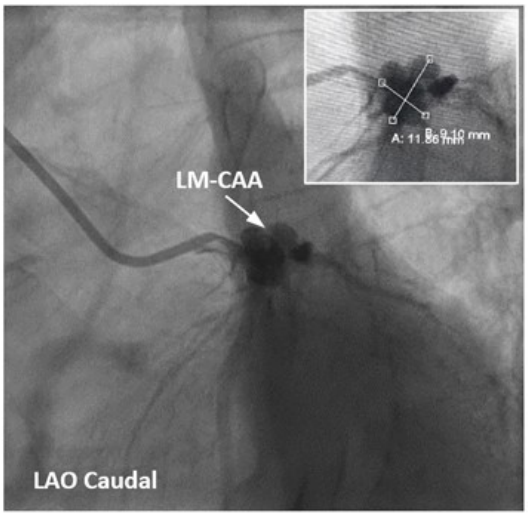
Background: The prevalence of coronary artery aneurysms (CAA) varies from 0.3 to 4.9% based on several angiographic studies. The artery most commonly affected is the right coronary artery (RCA), followed by the proximal portion of the left anterior descending artery (LAD) and the left circumflex artery (LCX). Left main CAA (LM-CAA) is extremely rare, with an incidence of 0.1% in large angiographic series.

Case Illustration: A 72-year-old man with typical intermittent chest pain for the past 2 months, duration less than 10 minutes. He had a history of hypertension, diabetes mellitus, and smoking; physical examination and laboratory findings were within normal limits; and ECG showed sinus rhythm, normal axis, and inverted T wave in the inferior leads. Transthoracic echocardiography revealed reduced left ventricular (LV) ejection fraction (LVEF 30%), segmental akinetic and hypokinetic, eccentric LV hypertrophy, and grade 1 LV diastolic dysfunction. Coronary angiography showed a large aneurysm in the distal left main coronary artery (LMCA) measuring 11.86 mm x 9.10 mm, accompanied by significant stenosis of the distal LMCA 80%, proximal LAD 80%, and subtotal occlusion of the proximal LCX. These results were supported by coronary computed tomography which revealed an aneurysm in the distal LMCA measuring 12.08 mm x 9.32 mm. Then, further management of this patient was discussed with the Cardiothoracic Surgery Department and advised to revascularization with coronary artery bypass graft (CABG) and surgical excision of the LM-CAA. However, this patient refused surgical intervention. Regarding the presence of large LM-CAA in this patient, antithrombotic therapy was given to prevent the risk of thromboembolism, and also statin and angiotensin-converting enzyme (ACE) inhibitor or angiotensin II receptor blocker (ARB) as an anti-inflammatory.

Conclusion:
We present a case of a 72-year-old man with large distal LM-CAA, coronary artery disease 2 vessel disease and left main disease, and stable angina pectoris. There is no standard or consensus on when and how best to intervene in LM-CAA because these cases are very rare. An individualized therapeutic approach to managing CAA can be based on the location, extent, morphology, complications, and etiology of CAA, as well as clinical presentation, and patient characteristics.

KEYWORD: *coronary artery, left main, aneurysm, coronary angiography, computed tomography*



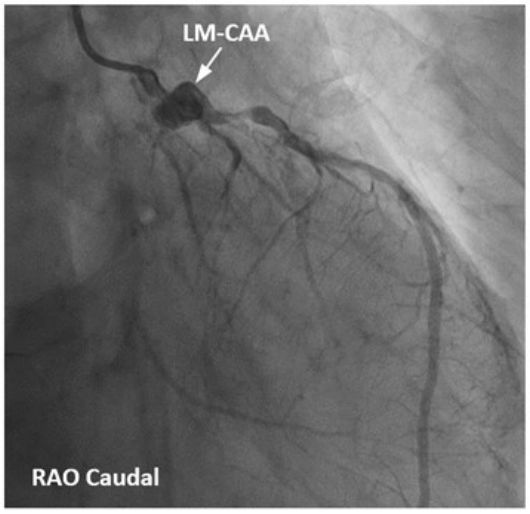


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Figure 1. Coronary angiography showed a large aneurysm in the distal left main coronary artery (shown by white arrows) measuring 11.86 mm x 9.10 mm.

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CASE REPORT / CASE SERIES

Hanging Left Ventricle Thrombus in A Young Woman with Peripartum Cardiomyopathy

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Background: Peripartum cardiomyopathy (PPCM) is an idiopathic cardiomyopathy with clinical manifestation of heart failure and LV systolic dysfunction (LVEF <45%) at the end of pregnancy or up to five months after delivery, without any other cause of heart failure. Pregnancy and PPCM associated with hypercoagulable state and can complicate to intracardiac thrombus. In this report, we present a young woman with PPCM and LV thrombus.

Case Illustration: A 32 years old woman admitted to hospital with chief complaint shortness of breath since 1.5 months after deliver her 2nd child. History of hypertension known since her second pregnancy. Transthoracic echocardiography (TTE) showed decreased left and right ventricle systolic function with thrombus in left ventricle. Ventricular thrombus is a potentially life- threatening condition in PPCM patients. The proper treatment still unclear. In this case, treatment with heparin following administration of warfarin for 3 months showed resolution of thrombus.

Conclusions:
In conclusion, we described clinical manifestation, diagnosis and management of LV thrombi in the clinical setting of PPCM. Proper diagnosis and treatment of PPCM with LV thrombus can affect this patient.

KEYWORD: *Left ventricle thrombus, peripartum cardiomyopathy*

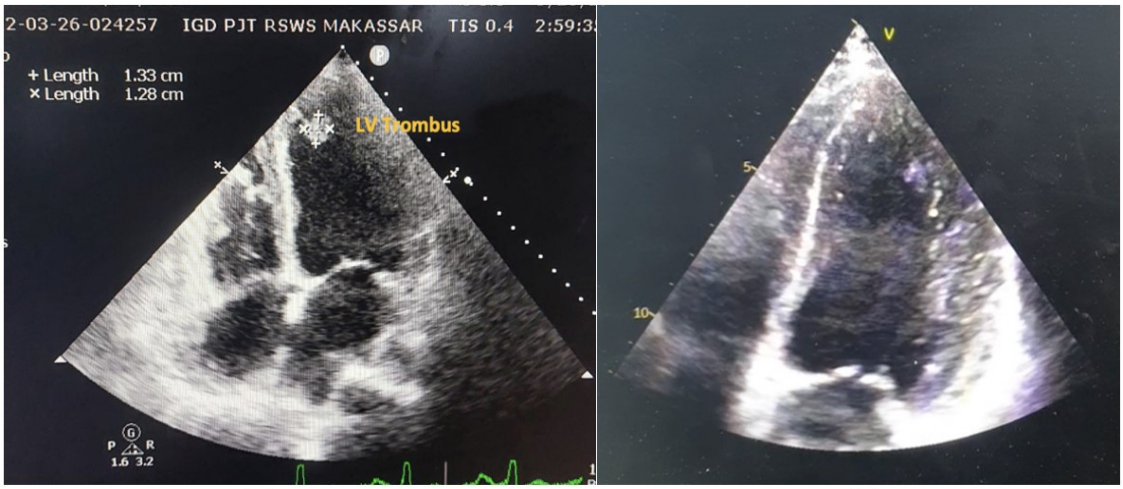

Figure 1. Transthoracic echocardiography (a) when patient 1st came, (b) after three months follow up.

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CASE REPORT / CASE SERIES

Pulmonary Hypertension In A Young Woman Associated With Hyperthyroidism

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[1]RSUD Dolopo

Background: Hyperthyroidism and thyrotoxicosis are often associated with cardiovascular system anomalies, especially left ventricular dysfunction. However, in recent years, the association hyperthyroidism with right ventricular has been reported.

Case Illustration: We described a 39-year-old woman with pulmonary hypertension and right heart failure due to thyrotoxicosis. She came with chief complaint of palpitation and shortness of breath. She had been tremor, fatigue, and hyper defecation since a few weeks before. We found there were significant leg edema, increase of jugular venous pressure, and mild ascites. Echocardiogram showed atrial fibrillation with rapid ventricular response. The results of laboratory studies revealed low serum TSH levels and high serum T3 and T4 levels. Echocardiography examination showed a dilated pulmonary artery with a PASP (Pulmonary Artery Systolic Pressure) of 35 mmHg, mild tricuspid and mitral regurgitation. The hyperthyroidism was treated and resulted in significant clinical and echocardiography improvement after 10 months of follow-up.

Conclusion:
This finding showed that there was an association between hyperthyroidism and pulmonary hypertension. Thyrotoxicosis causes an increase in pulmonary artery pressure, presumably because of the increase in cardiac output, and with treatment of hyperthyroid, an improvement in pulmonary hypertension exists.

KEYWORD: *Hyperthyroidism, Pulmonary Hypertension, Echocardiography*

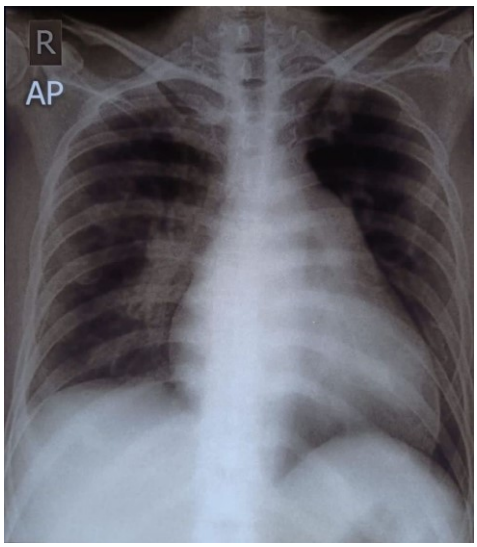

Figure 1. Chest X-Ray.

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CASE REPORT / CASE SERIES

The Unfinished Debate of Angina Pectoris Patient with Diabetes Mellitus Type 2 in Non-Cath Lab Facility Hospital: TAVB or STEMI origin? A case report and literature review

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[3]Bima Regional Hospital

Background: Total atrioventricular block is complete failure conduction between atria and ventricles. The most common causes in adults are acute myocardial infarction and degenerative. Incidence of conduction block is reported to be 25-30 % in the setting of acute myocardial infarction (AMI).

Case Illustration: A 61-year-old female was admitted to the emergency department (ED) due to typical chest pain 2 hours before admission and vomited since yesterday. In the emergency department, the patient gets convulsion for 1 minute and then becomes conscious after the seizure. The patient had a history of uncontrolled type 2 diabetes mellitus. She denied taking any medication. Vital signs included blood pressure was 130/60 mmHg, respiratory rate was 20 x/min, pulse rate was 32 x/min, and oxygen saturation was 99% with oxygen nasal cannula of 3 L/min. Physical examination within normal limits. The initial ECG revealed total av block, ST-segment elevation of lead avr, and RBBB. She was administered sulfas atropine 0.5 mg intravenous every 5 minutes three times. Then, the second ECG showed ST-segment elevation of lead avr, v1-6, and total AV block (Figure 1). Laboratory data revealed high blood glucose (320mg/dl), Hba1c 7,9, leukocytosis (14,75/mm3) and significant elevation of CK-MB 32.5 ng/ml, Troponin I >15 ng/ml. The patient was diagnosed with STEMI Anterior with RBBB, TAVB, and diabetes mellitus type 2. She was administered 160 mg of aspirin, 300 mg of clopidogrel, and then up-titration of Dopamin started with 2.5 mcg/kg/min. The Streptokinase was administered 1.5 million IU over 60 minutes. Because of instability hemodynamic, the rate of Streptokinase was decreased and added dobutamine 2,5 mcg/kg/min. Post-fibrinolytic, ECG was obtained and showed successful reperfusion and stable hemodynamics. Echocardiography result was LVH Cons, EF 72%, DD GRD I, RMWA (+), AR-MR-TR Mild.

Conclusion:
Heart rhythm abnormalities or acute coronary syndrome patients may be present with chest pain complaints. Particularly in hospitals without cath lab facilities, diagnosing the origin of chest pain is challenging. The clinical approach and electrocardiogram (ECG) are the key differentiators to facing the challenge of decreasing mortality and morbidity in chest pain patients.

KEYWORD: *Total atrioventricular block, acute myocardial infarction*

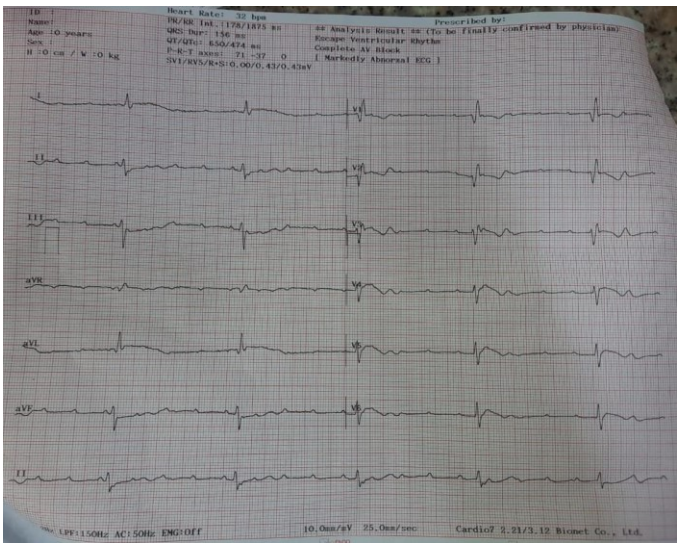

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Figure 1. (a) On admission, ECG record showed ST-segment elevation of lead V2-6 aVR and RBBB and total AV block

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CASE REPORT / CASE SERIES

DIAGNOSIS AND TREATMENT OF VENTRICULAR SEPTAL DEFECT (VSD) WITH INFECTIVE ENDOCARDITIS IN A CHILD

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[1]RSUP dr. M Djamil

Background: Ventricular septal defect (VSD) is the most common heart malformation and is estimated at about 25% of CHDs. One of the long-term risks of VSD is infective endocarditis (IE). The aim of this report is to discuss the diagnosis and management of VSD with IE in children

Case Illustration: A 12-year-old girl presented with a repeated high fever. There was a history of shortness of breath after heavy physical activity. The patient was known for suffering from perimembranous VSD (PM) since 3 years old. There was a history of repeated cough, cold, and reduced appetite. The body temperature was 38.3^{o}C. The patient's nutritional status was under-weight. On auscultation, there was a grade 3/6 pansystolic murmur on LLSB, which extended laterally, and the intensity didn't increase with inspiration. There were no gallops nor thrill. Laboratory examination showed leukocytosis. ECG results showed sinus rhythm with LAD and LVH. Chest X-ray showed CTR of 60% and plethora. Echocardiography showed VSD PM 3-5 mm, left to right shunt and vegetation in the septal leaflet of the tricuspid. The patient was given vancomycin 2x500 mg, gentamicin 1x75 mg, paracetamol 4x300 mg, and captopril 2x6,25 mg. Blood culture was positive for Streptococcus mitis and Streptococcus orafis. The patient was diagnosed with definite infective endocarditis because two major criteria of Duke's modified criteria were met. Open heart surgery, VSD surgical closure, and evacuation of vegetation were conducted. We didn't conduct catheterization of the right heart due to the presence of vegetation that raised concerns of it being detached, which may complicate as pulmonary embolism.

Conclusion:
We have described a case of a girl diagnosed with VSD PM L→R 3-5 mm shunt with IE. The shunt left-to-right made it easy for the occurrence of IE due to the existence of turbulent flow on VSD. IE is a natural course in VSD patients, thus emphasizing the urgency of early diagnosis and management when IE is detected.

KEYWORD: *VSD, endocarditis infective, vegetation*

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CASE REPORT / CASE SERIES

Redo Decision in Open Heart Surgery: A Serial Case From Cardiology Perspective

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Background: Open-heart surgery is any surgery where the chest is cut open, and surgery is performed on the muscles, valves, or arteries of the heart. Redo is technically challenging due to scarring of tissues resulting in loss of tissue planes, adhesions, multiple comorbid factors and risk of injury during re-entry.

Case illustration: Firstly, male 63 y.o with CAD 3VD + LM underwent CABG and had graft failure, patient came back to the operation room in the next 3 hours, and he passed away. Secondly, an 11 y.o girl with VSD SADC and severe AR ec RCC prolapse must reopen four days later because of significant residual VSD, and the final result was good. Thirdly, female 41 y.o with ASD Secundum, PH and severe TR had to redo the next day because of pericardial effusion with tamponade sign, unfortunately, she passed away 3 days after. Fourtly a 14 y.o boy with VSD SADC and moderate AR had to reoperate 4 hours after because of the massive production of thoracal drain. Among 4 cases. The heart team must evaluate symptoms, signs, hemodynamics, laboratory result, and supporting examinations. From cardiology perspective, Careful operative assessment of the patient, use of appropriate diagnostic tools to define the operative strategies, adoption of caution during the operation, tight monitoring at early golden hour post operation, prompt and adequate management regarding hemodynamic aberrations and diagnostic tools like ECG and echocardiography were the keys to immediately send patient to reopen. The incidence of redo cardiac surgery is increasing because of the ageing population, number of valve repairs with resultant long- term failure of repairs, degeneration of prosthetic valves, progression of the primary disease and a long CPB time was associated with higher mortality

Conclusions:
Redo cardiac surgery in a patient with previous sternotomy is challenging and carries a higher intraoperative and postoperative risk. A precision preoperative examination, tight monitoring post operation and prompt management reduces the risk by identifying adherent structures to minimize the redo possibility

Keywords: Open heart, redo, outcome, CABG

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CASE REPORT / CASE SERIES

Diagnosis and Management of Severe Mitral Stenosis in Pregnancy

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Background: Mitral valve disease, specifically mitral stenosis, is the most common valvular disease seen in pregnancy. The overall prevalence of rheumatic mitral stenosis in developed countries is estimated at 1–2%, but in developing countries it is much more prevalent and accounts for 40–50% of the cardiac disease seen in pregnancy.

Case illustration: a 30-year-old woman who presented exertional dyspnea since 1 week before admission with history of mitral stenosis since last 2 years but with low compliance medication control. Physical examination shows sign of pulmonal hypertension (loud P2) mid diastolic murmur and opening snap with low pitch heard at apex with LLD position, ECG illustrated the sinus rhythm with sign of left atrial enlargement and right ventricle hyperthrophy. Transthorax echocardiography (TTE) showed severe rheumatic mitral stenosis (WS 9) with MVA 0,9cm2, mild aorta regurgitation, severe tricuspid regurgitation, no left atrial thrombus seen. Accordingly, the patient planned to undergo a surgical procedure, but the patient denied. And then patient planed to administered aggressive therapy, furosemide intermittent 40mg twice a day, with target balance -1000cc/day, drip unfraction heparin intravenously, warfarin per oral, and symptomatic therapy. Clinical appearance getting better after 5 days of treatment, and discharge after 7 days of hospitalization.

Conclusions: Management and workup of mitral stenosis in pregnancy should begin at the time before fertilization. According to guideline, treatment of this patient should be a surgical procedure, but the patient denied. The clinical shows significant improvement with medical therapy, education about risk of pregnancy in future is crutial.

KEYWORD: *Mitral Stenosis, pregnancy, diuretic*

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CASE REPORT / CASE SERIES

Is it possible to have recurrent STEMI in patient with COVID-19 Infection ? A conflicting case in dr. Iskak Tulungagung General Hospital

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[1]RSSA/FKUB
[2]RSUD dr. Iskak Tulungagung

Background: The increased incidence of arterial thrombosis in COVID-19 myocardial infarction has been noted including STEMI. We bring the case of male with recurrent STEMI and COVID-19 infection

Case illustration: A 52 years old hypertensive man referred from FMC with diagnosis of anterior STEMI, time to treatment was >12 hours, underwent PPCI with the culprit lesion was LAD, he also had diabetes, he hospitalized for 4 days and discharged with clinically stable condition. 4 hours after being home, he had a similar episode of chest pain followed by shortness of breath and directly brought to our hospital, we evaluated from ecg examination and concluded as high lateral STEMI Killip II. He sent to cathlab again and found the culprit lesion in LCx with high burden thrombus. After the procedure he had several episode of ALO and recurrent VT, unfortunately he passed away 8 hours after the procedure. The swab RT-PCR results was up and positive. The recurrent STEMI can be occurred within 0-08 -13 years, but this patient was just 4 days. It could be happened because the longer treatment delay, uncontrolled risk factors, and mostly in Left coronary artery as the culprit lesion. But in COVID-19 case a systemic inflammatory response higher (lymphopenia, elevated D-dimers, and C-reactive protein levels) compared with COVID-19- negative patients.

Conclusions:
Clinicians should recognize that COVID-19 patients presenting with STEMI during cytokine storm may have extensive macrovascular as well as microvascular thrombosis and the risk of recurrent STEMI still can be present

KEYWORD: *recurrent STEMI, COVID-19*

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CASE REPORT / CASE SERIES

Severe Heart Failure in A Young Male with Marfan Syndrome

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Background: Marfan syndrome (MFS) is an autosomal dominant disorder of connective tissue, which is caused by mutations in the fibrillin-1 gene (FBN1). Life expectancy in patients with MFS is mainly determined by cardiovascular complications, especially due to increased risk of aortic dissection. Heart failure is an uncommon complication that can occur in MFS, however it has known as additional reported cause of death among MFS patients.

Case illustration: A 22 years-old male came to the emergency department of Cilacap General Hospital with shortness of breath and palpitation. His blood pressure, pulse and oxygen saturation were 115/40 mmHg, 110 bpm, and 89% respectively. Grade 3/4 early diastolic murmur at the aortic area as well as bilateral rales in half of pulmonary fields were heard on auscultation. He was 189 cm tall, weight 61 kg and the arm span to height ratio was 1:1.01. Other findings were arachnodactyly, positive wrist and thumb sign, and hindfoot deformity. Trans-thoracic echocardiogram showed grosslydilated aortic root (AO 84 mm), left ventricle dilatation (LVIDD 85 mm), global hypokinetic with LVEF 38%, TAPSE 16 mm and mitral valve prolapse with severe aortic valve regurgitation. Although there was no family history, the diagnosis of MFS was established based on fulfilment of revised Ghents criteria. In the patient, aortic root z score and the systemic score were 19.91 and 8 points respectively. Patient got standard treatment of heart failure and after 5 days hospitalization patient was referred to Dr. Sardjito General Hospital. In MFS patients with significant aortic valve regurgitation, LV dilatation and dysfunction may occur due to volume-overload. However, some MFS patients appear to develop systolic dysfunction independently, suggesting underlying cardiomyopathy. Left ventricular failure is a key factor for sudden cardiac death.

Conclusion:
We described a young male patient with MFS who had advanced aortic root diseases which were complicated by severe heart failure. MFS is a serious and potentially life-threatening condition. An early and accurate diagnosis is essential for people with MFS. MFS in the young adult commonly presents with advanced aortic root disease that could be complicated by LV failure.

KEYWORD: *Marfan Syndrome, Heart Failure, Aortic Root Dilatation, Mitral Valve Prolapse, Ghent criteria*

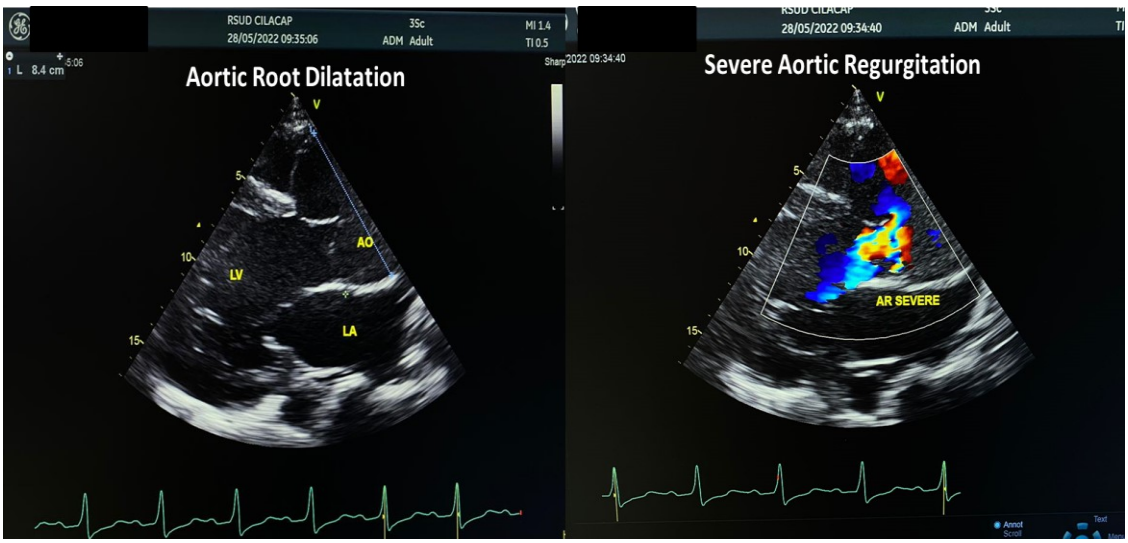

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Figure 1. Trans-thoracal echocardiogram shows aortic root dilatation with severe aortic regurgitation

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CASE REPORT / CASE SERIES

The Challenge of Detecting Aortic Aneurysm from Overt Clinical Presentation: What Should We be Aware?

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Background: Aortic aneurysm is a less common cardiovascular diseases. The patient suffering from aneurysm is usually asymptomatic until it is large enough to compress surrounding structures. Physicians especially in emergency unit should be aware of the signs and symptoms of patient suspecting from aortic aneurysm in order to prevent its life-threatening effect.

Case Illustration: A 51-year-old male patient came to the emergency room with the chief complaint of shortness of breath. His complaint has been felt for 3 weeks but worsened several hours before arrival accompanied by chest discomfort. He was a smoker and had history of uncontrolled hypertension. Upon arrival in ER, he was fully conscious with blood pressure of 198/131 mmHg, heart rate 98 bpm, and oxygen saturation 47% room air increased to 96% using NRM 15 lpm. Physical examination findings were central obesity, crackles in inferior 2/3 of the left lung, cardiomegaly, and grade 2 pitting oedema of both cruris. Laboratory results were normal except for increased CRP (15 mg/L) and respiratory acidosis from blood gas analysis. Thorax non-contrast CT-Scan was done showing saccular aneurysm of arc of aorta and proximal part of thoracal aorta compressing the left main bronchus and trachea to the right, fusiform aneurysm of ascendent aorta, distal part of thoracal aorta, and abdominal aorta, along with pneumonia of the left lung. ECG was normal sinus rhythm with anteroseptal old myocardial infarct and infrequent atrial premature contraction. The aortic aneurysm can lead to the more fatal risks: dissection and/or rupture. Hypertension accelerates the occurrence of the risks. The signs of congestive heart failure and respiratory distress in this patient were caused by the compression of his large aortic aneurysm to the neighbouring structures. The high CRP value supported the possibility of pneumonia as secondary effect of thoracal aortic aneurysm.

Conclusion:
Aortic aneurysm is frequently overlooked. Patient at risk of asymptomatic or even symptomatic aortic aneurysm should be evaluate carefully and comprehensively to exclude any other possible causes and prevent the lethal effect.

KEYWORD: *Aortic Aneurysm, Peripheral Artery Diseases*

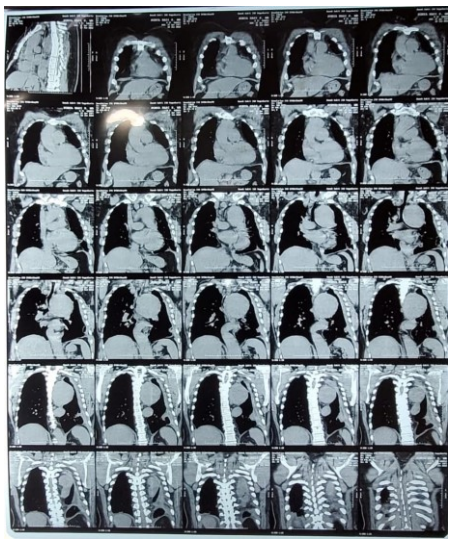

Figure 1. Thorax non-contrast CT-Scan showing aortic aneurysm

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CASE REPORT / CASE SERIES

Rupture of Sinus Valsava as a complication of Doubly Committed Subaortic Ventricular Septal Defect : What We Need to Concern?

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[2]Departement Cardiology and Vascular Medicine, Dr. Kariadi General Hospital Semarang, Indonesia

Background: Doubly committed subarterial ventricular septal defects account for 10% of ventricular septal defects. The management of aortic regurgitation and rupture of sinus valsava in the setting of ventricular septal defect has always been challenging.

Case illustration: A 22 years old man was referred to our hospital because of shortness of breath, palpitation and deterioration in exercise capacity. The complains worsen in last 6 month. Cardiac ecamination found a thrill and loud continous murmur along the left sternal border. The ECG represent sinus rythm 89 bpm with multifocal PVC. Distended jugular venous pressure, ascites and edema at lower extremity were present. Chest x-ray showed pancardiomegaly and the echocardiography were found a doubly committed subaortic ventricular septal defect with the severe aortic regurgitation and rupture of sinus valsava. The management of this patient including diuretic, ACE-i, digoxin and drainage of ascites. For further management, the patient underwent surgical correction with ventricular septal defect closure and aortic valve replacement.

Conclusions:
Ventricular septal defects can lead to aortic regurgitation and ruptur of sinus valsava because of ventury effect. Echocardiography provided a complete evaluation of such cases and prohibited missed diagnosis of other coexistent congenital heart defects. Management of such condition include therapy of heart failure and surgical correction.

KEYWORD: *aortic regurgitation, ventricular septal defect, rupture of sinus valsava*

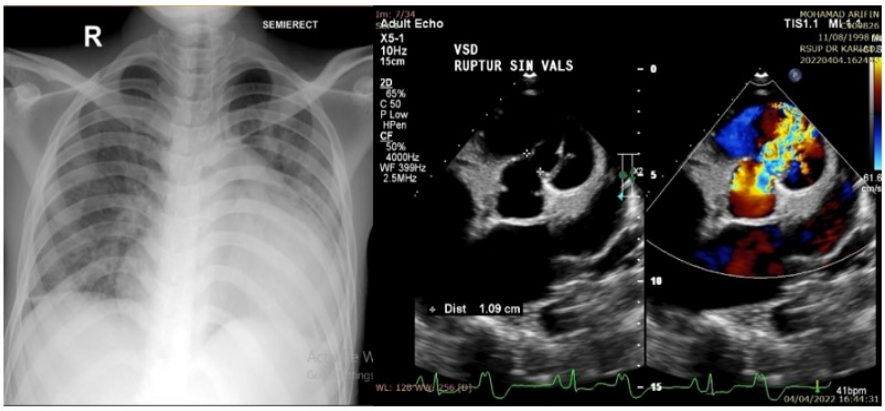

Figure 1. Left picture, showed chest x-ray. Right picture, echocardiography showed vsd with rupture of sinus valsava.

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CASE REPORT / CASE SERIES

The Importance of Exercise Stress Echocardiography in Equivocally Symptomatic Mitral Stenosis: When and How

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[1]PJNHK

Background: Clinically significant mitral stenosis (MS) is defined by mitral valve area (MVA) of ≤ 1.5 cm^2 accompanied by symptoms that can be intervened with percutaneous mitral commissurotomy (PMC) or surgery. Stress testing is indicated in patients with no symptoms or symptoms discordant with the severity of MS. Exercise echocardiography may provide objective information regarding changes in mitral gradient and pulmonary artery pressure.

Case Illustration: A 37-year-old-woman with equivocally symptomatic MS came to our hospital for further work-up due to incidental finding of MS from echocardiography evaluation. She was also planning to do a pregnancy program in the near future. Her echocardiography showed moderate MS with MVA planimetry of 1.2 cm^2, Wilkins score (WS) of eight, mild mitral regurgitation (MR), and mild tricuspid regurgitation (TR). Exercise stress echocardiography was performed with Bruce protocol to evaluate functional capacity and hemodyamic response to stress. Stress test duration was done for 6 minutes showing aerobic capacity of 6.11 METS, functional class of I-II, with significant increase of mean mitral valve gradient (mMVG) of 7 to 15 mmHg despite non-significant increase in estimated pulmonary artery pressure. Considering the result of this examination and anatomy favourability, we decided to perform PMC with successful result. MVA increased from 1.02 cm^2 to 1.52 cm^2 and mMVG decreased from 10.8 mmHg to 6.9 mmHg right after PMC. These result was consistent with MVA 3D planimetry of 1.5 cm^2 and mMVG of 4 – 5 mmHg.

Conclusion:
Stress echocardiography is necessary to decide the need to perfom intervention for asymptomatic or discordant symptom of clinically significant MS. Treadmill test echocardiography can help to assess functional class and hemodynamic response to stress by evaluating increasing transmitral gradient and/or increasing pulmonary artery pressure

KEYWORD: *Mitral stenosis, excercise stress echocardiography, percutaneous mitral commissurotomy, equivocal symptom*

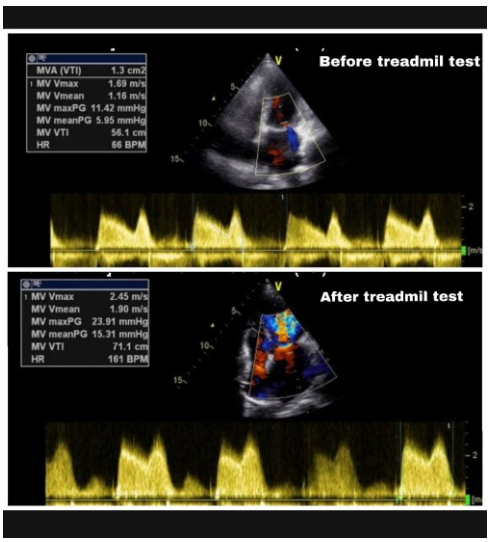

Figure 1. Doppler evaluation pre and post exercise stress echo.

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CASE REPORT / CASE SERIES

Pulmonary Arteriovenous Malformation: A Rare Case of Cyanosis

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Background: Pulmonary Arteriovenous Malformations (PAVM) was a vascular structural abnormality that was a connection between the pulmonary arteries and veins. PAVM is rare in the general population, this was conveyed from a study involving 15,000 consecutive autopsies, in which only 3 cases of PAVM were detected.

Case Illustration: A 39-year-old woman came to the ED with complaints of shortness of breath for the last 2 months, and it was getting worse in the last day. Shortness of breath accompanied by complaints of stomach getting bigger since the last 2 months. Saline contrast echocardiography was performed and found late bubbles crossing in the left ventricle, but no intracardiac shunt was found. Than the patient was performed cardiac Computed Tomography (CT) and the results were PAVM and PDA type B bidirectional shunt. The patient was then hospitalized and given ACE inhibitor therapy, MRA, and Betablocker. After evaluating the patient, there was improvement in symptoms, and planned right heart catheterization, PDA closure, and embolization. The most common cause or about 90% of PAVM was hereditary and occured in about 30-50% of patients with Hereditary Haemorrhagic Telangiectasia (HHT). Signs and symptoms of PAVM was vary, depending on the size, amount, and flow through the shunt. Complications of PAVM included haemothorax, stroke, and brain abscess. Transcatheter Embolization (TCE) was the current gold standard for PAVM therapy because it effectively reduces the risk of paradoxical embolism and other complications associated with PAVM.

Conclusions: A 39-year-old woman has been reported with PAVM and PDA type B. The patient was diagnosed according to the path of diagnosis in a suspected patient with PAVM, performed echocardiography with saline contrast and cardiac CT. After evaluating the patient, there was improvement in symptoms, and planned right heart catheterization, PDA closure, and embolization.

KEYWORD: *PAVM, HHT, arteriovenous malformation*

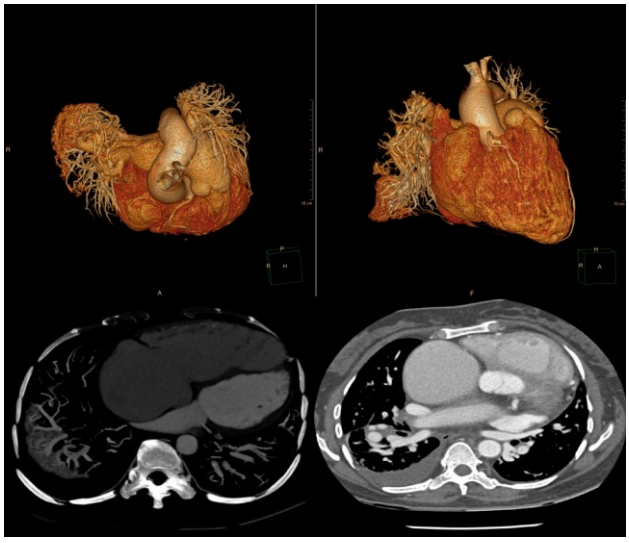

Figure 1. Cardiac CT.

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CASE REPORT / CASE SERIES

Takayasu Arteritis in Emergency Hypertension: Diagnostic Challenge

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Background: Hypertension is a major public health problem due to its high prevalence and being a major risk factor for cardiovascular diseases and other complications. It is known colloquially as the silent killer because it can be present in apparently healthy persons for several years without causing even minor symptoms. In this case, the patient came to our emergency room with only a headache as a symptom.

Case illustration: A 67 year old man complained of an intermittent headache with a 6 pain scale for a whole week. His blood pressure was 211/83 mmHg, heart rate was 65 bpm. There was no neurological deficit. He received a high dose of nicardipine and was observed but the blood pressure stayed high, then consulted to a cardiologist. Blood pressure was checked in all extremities and found that there were more than 20 mmHg differences between the right and left extremities. There was also a significant bruit in the carotid arteries. Later on, doppler echocardiography was performed and found hypertensive heart disease with mild aortic regurgitation. Patient was suspected of aortic dissection and carotid artery stenosis. CCTA was performed and found a thickening of the aortic wall with an irregular tunica intima and multiple calcifications were seen in the wall of the aortic arch to the iliac arteries. Therefore, this result leads to a large vessel vasculitis. In this case it is a Takayasu arteritis. The patient received a steroid treatment.

Conclusion: In conclusion, we described the patient with vasculitis presenting with emergency hypertension. This case report emphasizes the importance of doing a comprehensive physical examination. Making it necessary to check the blood pressure in all four extremities, particularly in cases of resistant hypertension because the main problem may be from vascular origin.

KEYWORD: *Hypertension, Vasculitis, Takayasu Arteritis*

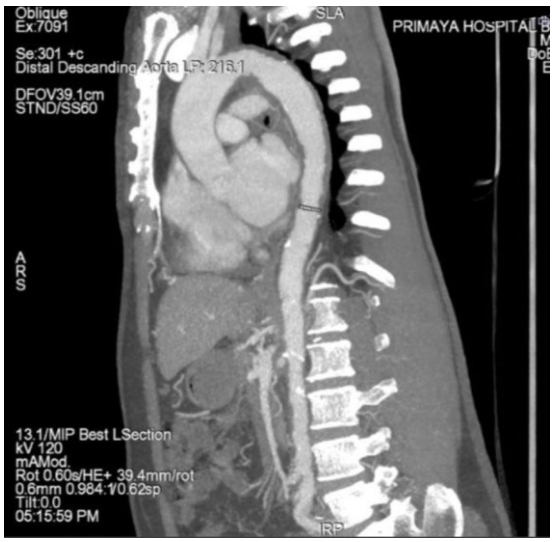

Figure 1. CCTA showing thickening of aortic wall

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CASE REPORT / CASE SERIES

Complete Left Bundle Branch Block Criteria Sgarbossa 5, Need to be Reperfused or Not?

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Background: Left bundle branch block (LBBB) on the electrocardiogram (ECG) may conceal the changes of ST elevation Myocardial Infarction (STEMI), which can delay both its recognition and treatment. Diagnosis of MI with an ECG is difficult in the setting of LBBB because of the characteristic ECG changes caused by altered ventricular depolarization. STEMI is the primary indication for emergency reperfusion therapy; however, identifying STEMI in the setting LBBB remains challenging.

Case illustration: A 47-year-old patient came to the ED complaining of chest pain 10 hours before admission to the hospital. Chest pain feels like a heavy object is being pressed into the chest and the back. 12 lead ECG showed sinus rhythm with complete LBBB and concordant ST elevation in V6 lead which made the patient had sgarbossa criteria 5. According to Sgarbossa criteria, the patient was diagnosed with STEMI equivalent with TIMI 4/14 and KILLIP class 2 then given 320 mg of acetylsalicylic acid and 180 mg ticagrelor. Cardiac enzymes: CKMB 85 U/L, Troponin >2000ng/L. Radial access was chosen and the coronary angiography revealed total occlusion in proximal left anterior descending (LAD) with thrombus grade 5 and subtotal occlusion in right coronary artery (RCA) with thrombus grade 4. The patient then diagnosed with STEMI with LAD as the culprit lesion. We decided to perform complete revascularization to this patient.
After complete revascularization, complete LBBB was disappeared.

Conclusion:
Patients with acute ischemic symptoms and new LBBB represent a high-risk patient population with unique clinical challenges. New complete LBBB that meets the Sgarbossa criteria must be referred as STEMI equivalent. The patient had Sgarbossa criteria 5 considering concordant ST elevation in V6. Emergency angiography and primary PCI should be considered the optimal strategy. According to the angiography findings, we concluded that LAD was the culprit lesion. We decided to perform complete revascularization to this patient because recent trials showed revascularization of non-IRA in STEMI will decrease mortality and major adverse cardiovascular events.

KEYWORD: *ST elevation Myocardial Infarction, Left bundle branch block, Sgarbossa*

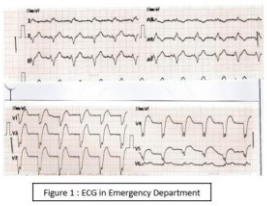
Figure 1 : ECG in Emergency Department

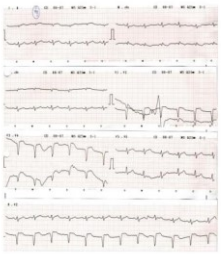
Figure 2 : ECG after Revascularization

Figure 1 : ECG in Emergency Department, Figure 2 : ECG after Revascularization

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CASE REPORT / CASE SERIES

Ascending Aortic Aneurysm and Severe Aortic Regurgitation, is Bentall Procedure Necessary?

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Background: The current incidence of thoracic aortic aneurysms is about 10 in 100,000 patients per year which has increased from 5.9 in 100,000 since the 1980s. The annual incidence of aortic dissection or rupture in these patients is approximately 3.5 per 100,000 patients. Proximal aortic aneurysm disease can involve any part of the ascending aorta to the aortic arch proximal to the origin of the innominate artery. The presence of a proximal aortic aneurysm poses a risk of rupture or dissection if not treated in time and is therefore life-threatening.

Case illustration: A 50-year-old male patient came to RSUP Kandou with complaints shortness of breath since 4 months ago. Shortness of breath is felt during activity and gets worse when doing strenuous activities. TTE/TEE in RSUP Kandou : aortic dilatation 60.8 mm, aortic arch up to 40 mm, severe AR, trivial MR, LV dilatation, global LV systolic function decreased, EF 48% (Simpson's BP), mild global hypokinetic, adequate RV contractility. CT aortic angiography in NCC Harapan Kita : aortic root 63.8 mm, aortic ascendens 48.3 mm, aortic arch 34.6 mm, aortic descendens 26.2 mm with dilatation without dissection. According to the patient's condition, Bentall procedure was performed with an ascending aortic prosthetic Saint Jude mechanical valved graft 29 mm with 14 pledget sutures. 7 months after surgery echocardiography was repeated and found AV after Bentall procedure, in a good position, paravalvar leak (-), mild central AR, effective AVA 3.8 cm^2. Average AVG 3.4 mmHg, coronary arteries good. The other heart valves are normal. Normal cardiac chamber dimensions. Global LV systolic function normal, EF 66%. Global normokinetics. Normal LV diastolic function. RV contractility is normal.

Conclusion:
Ascending aortic aneurysm and severe aortic regurgitation, these conditions can be dangerous and life-threatening for the patient. Many guidelines describe the benefits of the Bentall procedure in patients with aortic aneurysms with other complications. The right choice of procedure as in this patient will bring tremendous success and benefit.

KEYWORD: *Aortic aneurysm, Aortic regurgitation, Bentall procedure*

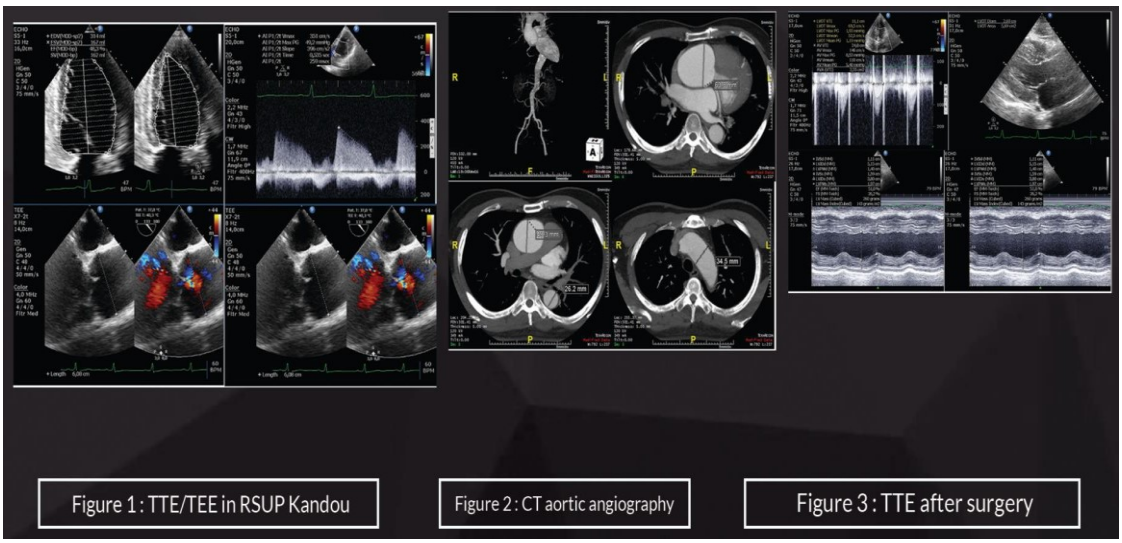

Figure 1 : ECG in Emergency Department, Figure 2 : ECG after Revascularization

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CASE REPORT / CASE SERIES

Restrictive Cardiomyopathy: An Echocardiographic-Cased Diagnostic Approach

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Background: Restrictive cardiomyopathy (RCM) is a myocardial disorder caused by increased myocardial stiffness leading to impaired ventricular filling and increased diastolic pressure. Biventricular size and systolic function are usually normal or near normal values, RCM can cause left and right heart failure, arrhythmias and conduction disturbances.

Case illustration: A 63-year-old male referred from the other hospital with a diagnosis of CHF, IHD. The patient complained of shortness of breath in the last 1 week. Examination of vital signs showed blood pressure 106/96 mmHg, pulse rate 84 times per minute, heart rate 84 times per minute, respiratory rate 26 times per minute with 98% oxygen saturation with O2 3 lpm nasal cannula. On physical examination, the heart appears to be wide caudolaterally. Lung examination revealed fine wet crackles (+/+) 1/3 basal. There was edema in the lower extremities. ECG examination revealed a sinus rhythm of 84 bpm, RAD, with low-voltage leads in the extremities. Echocardiographic examination revealed concentric LVH geometry with good LV systolic function, 53% ejection fraction using the Simpson method, 60% using the Teicholz method, restrictive diastolic dysfunction, E/A ratio 2.89, decelerated time 123 ms, e septal 5cm/s, e lateral 7 cm/s, with E/e' 15.05, LAVI 42.68 ml/m2, tricuspid respiratory flow E 30%, mitral flow not achieved E respiratory, Hepatic vein Doppler pulse wave showed an increase in inspiratory rate compared to expiration IVRT 49ms, GLS obtained decrease in the entire mid-basal LV with cherry on top appearance, granular and sparkling appearance throughout the LV wall, normal RV dimensions with RV TAPSE contractility 1.7 cm, FAC 64%, no atrial dilatation was found. From the results of echocardiography examination supports of restrictive cardiomyopathy.

Conclusions: Echocardiography supports restrictive cardiomyopathy with restrictive diastolic dysfunction, granular, sparkling and cherry on top appearance.

KEYWORD: *Restrictive Cardiomyopathy, restrictive diastolic dysfunction, granular, sparkling, Hepatic Vein, cherry on top appearance*

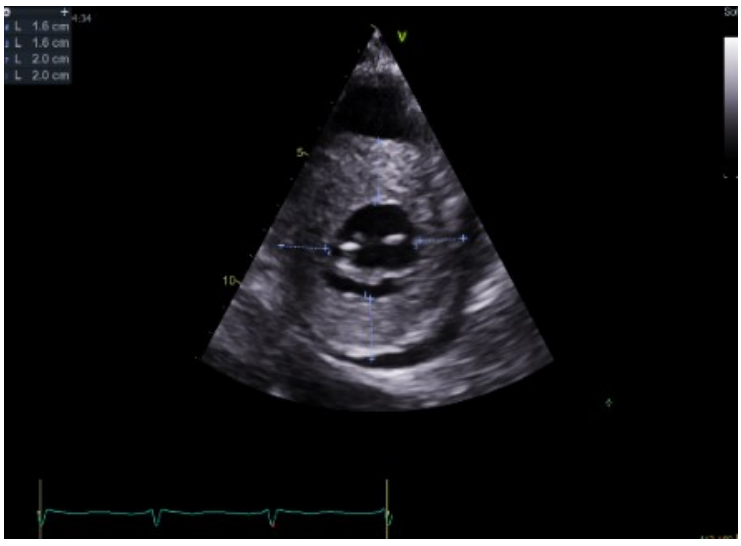

Figure 1. Granular and Sparkling

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CASE REPORT / CASE SERIES

Complete Heart Block With Atrial Flutter In Young Woman: Rare Case Report

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Background: Atrial flutter is a common arrhythmia that may manifest with a variety of symptoms. Addition of complete atrioventricular block atop of this could be challenging to diagnose. Congenital, drug-induced, and degenerative etiologies are the most common among youngsters.

Case Illustration: A 39 years old woman came with frequent vomiting since 1 week ago. She also felt easily fatigued since 3 years ago post-partum. Patient was fully alert with BP 90/60 mmHg, HR 110 bpm. ECG showed atrial flutter with complete AV block. The patient has a history of taking digoxin but serum digoxin level was in normal limit, excluding intoxication. Echocardiography showed decreased LV and RV systolic function, all-chamber dilatation, mild PR, and LV spontaneous echo contrast. Patient was treated with permanent VVIR pacemaker insertion and NOAC. ECG showed pacing rhythm with atrial flutter. Early conduction disease, manifesting as sinus bradycardia, sinus node arrest, AV blocks (first or second degree AV block, later progressing to complete heart block) or LBBB are relatively common in this form of dilatative cardiomyopathy. Tachycardia-induced cardiomyopathy is defined as a reversible impairment of ventricular function with or without chamber dilatation induced by persistent arrhythmia. Both atrial (i.e. supraventricular arrhythmias, particularly AF, atrial flutter and atrial tachycardia) and ventricular arrhythmias may cause or at least promote LV or biventricular systolic dysfunction. Management strategies for atrial flutter involves either rate or rhythm control. Patients with atrial flutter generally present with variable rate atrioventricular (AV) block. Attempt at rate control strategy requires a routine ECG review to avoid complete heart block. This can be identified by a fixed R-R coupling interval that is not a common multiple of the basic atrial flutter rate. Anticoagulation should be administered for the atrial flutter until AV synchrony is achieved. A wide QRS interval due to bundle branch block should also be investigated further.

Conclusion: The association of complete heart block and atrial flutter is uncommon. Discreet ECG review is important to provide a proper therapy and management.

KEYWORD*: Complete heart block, atrial flutter, arrhythmia*

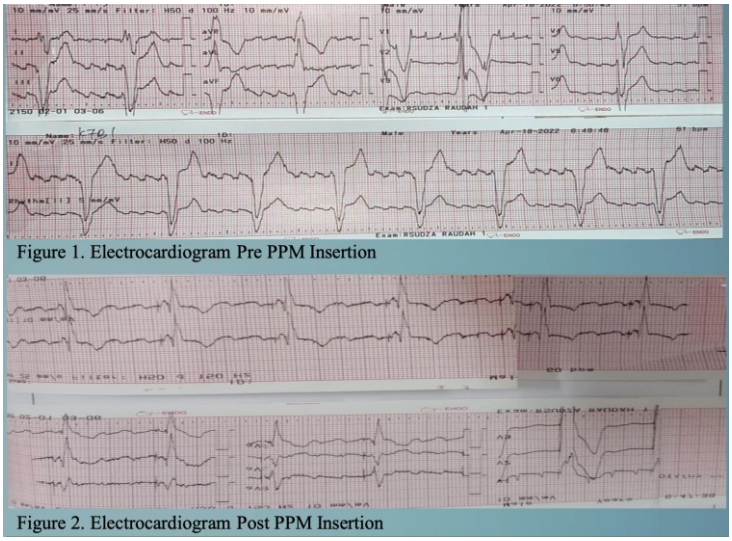
Figure 1. Electrocardiogram Pre PPM Insertion

Figure 2. Electrocardiogram Post PPM Insertion

Figure 1. Electrocardiogram Pre PPM Insertion; Figure 2. Electrocardiogram Post PPM Isertion

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CASE REPORT / CASE SERIES

Stenosis Left Main Coronary Bifurcation Lesions Intervention With Double Kissing Crush Tecnique

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[1]RS Abdul Moeloek

Background: DK crush is the most widely used two-stent bifurcation technique. DK crush was superior to classic crush[3] and temporary stenting[4] in bifurcasio lesions. Recent meta-analysis studies have shown that DK crush is superior to some other techniques because it has the ability to perform more frequent final kissing.

Case Illustration : A 60-year-old woman came to the hospital with complaints of typical cardiac chest pain for the past 6 months. The results of angiography showed that 90% stenosis of the distal LMCA, 90% stenosis of the LAD osteal, 90% stenosis of the LCx osteal, and CTO medial RCA concluded CAD 3 VD. The patient was scheduled to have a stent placed on the LMCA bifurcation with the double kissing crush. One stent technique is currently the main choice, but the two-stent is more often used for lesions in the LMCA bifurcation. Placement stent technique depends on the distribution of the plaque, the size of the main branch (MB) and side branch (DB), the severity and length of the SB lesion at bifurcation angulation, and the skill of the operator. DEFINITION criteria divide the type of LMCA bifurcation, simple type if the diameter of the SB stenosis is <70% and length of the incision is <10mm. Simple lesions can be intervened with the one-stent. Complex type if the diameter of the stenosis is >70% and the length of the lesion is >10mm. Simple lesions can become complex if there are 2 of 6 minor criteria: 1) moderate to severe calcification; 2) bifurcation angle >70°; 3) MB diameter < 2.5mm; 4) multiple lesions; 5) there is a thrombus; 6) MB lesion length >25mm. DK crush can be done using a radial access and a 6 Fr catheter. However, in complex bifurcations, it is preferable to use a larger (7 or 8 Fr) catheter and through the femoral access.

Conclusion : The DK crush technique is a superior technique and is expected to be the technique of choice in complex lesions such as the LMCA bifurcation[4]

KEYWORD: *DK crush, bifurcation, LMCA (left main coronary artery), stent*

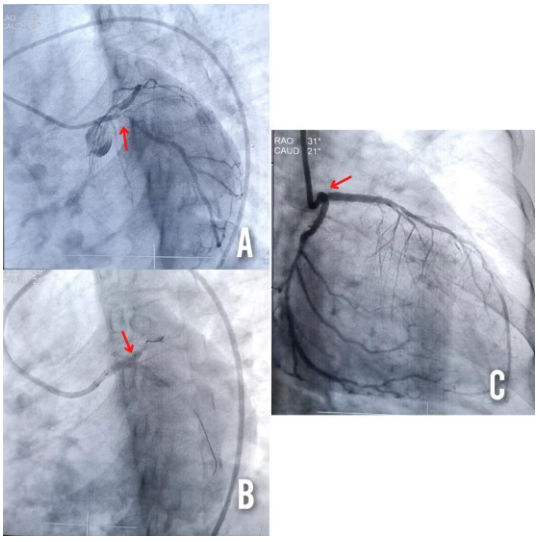

Figure 1. A. has occlusion in bifurcation in LMCA , B. Stents appeared in LMCA lesions forming the letter Y and dilatation of 16 atm simultaneously C. LCMA after stent installation with double kissing crush technique

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CASE REPORT / CASE SERIES

The Final Outcome Of Long-Standing Rheumatic Mitral Stenosis Without Surgical Correction: A Case Series

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[1]Universitas Syiah Kuala

Background: Rheumatic heart disease (RHD) is the long-term consequence of acute rheumatic fever (ARF) and still responsible for 95% - 99.3% of all mitral valve stenosis in individuals aged <50 years old and specially in women. The prevalence of RHD varied inversely with the level of a country's income, and Aceh province is one of province in Indonesia with RHD cases still high until now. In this report, we describe three patients RHD with mitral stenosis who denied surgical therapy.

Case illustration: The first patient was a 42-year-old female presented with major complaint breathlessness during activity which decreased with rest. The second patient was a 53-year-old female presented with major complaint breathlessness and swollen her legs which had been felt for several days before being admitted to hospital. The third patient a 58-year-old female presented with major complaint breathlessness and swollen her legs which had been felt for several days before being admitted to hospital. These Patients were diagnosed with: acute decompasated heart failure wet and warm type with severe tricuspid regurgitation, severe pulmonary hypertension and atrial fibrillation ec severe mitral stenosis ec RHD. In these cases, Mitral valve replacement surgery is indicated because patients with symptomatic severe mitral stenosis and its complication. Like other heart valve problems, mitral valve stenosis can decrease blood flow. Without surgery, mitral valve stenosis can lead to complications such as: pulmonary hypertension, heart failure and atrial fibrillation.

Conclusions: In conclusion, Treatment for mitral stenosis (MS) involves medical therapy, percutaneous mitral valvuloplasty, and surgical therapy. RHD is chronic degenerative heart disease that medical therapy just to delay proggession and complication of disease. Percutaneous mitral valvuloplasty or surgical therapy is the "true therapy" for RHD with valvular complication. Untreated well, mitral valve stenosis can lead to complications like patients we reported.

KEYWORD: *mitral stenosis, rheumatic heart disease, medical therapy, surgical therapy*

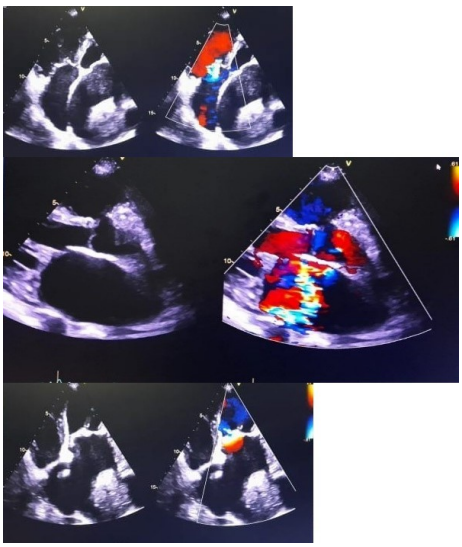

Figure 1. Echocardiography show Mitral stenosis in RHD

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CASE REPORT / CASE SERIES

Pericardial Effusion et causa Tuberculous pericarditis: A Case Report

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Background: Tuberculosis is one of the causes of pericarditis, which begins as a fever but gradually progresses due to the onset of pericardial effusion, which can lead to cardiac tamponade. Because the process tend to be slow, the diagnosis is frequently delayed. The incidence of tuberculous pericardial effusion is about 1% from all tuberculosis cases, with a mortality rate ranging from 3-40%.The two most common causes of death are pericardial effusion that leads to cardiac tamponade and constrictive pericarditis. A proper history, physical examination, and support are indeed required to diagnosis of tuberculous pericardial effusion. Tuberculous pericardial effusion morbidity and mortality can be reduced with proper diagnosis and treatment.

Case Illustration : A 29 years old man came to cardiologist with complaints of recent shortness of breath that worsened with activity, swelling both of legs, cough when lying on his back, a have history of fever. Physical examination revealed a pulse rate of 143 bpm, JVP was high and on auscultation the heart sounds were muffled and peripheral edema. Labor results revealed that neutrophils were 82.4%, SGOT was 52 u/L, and SGPT was 64 u/L. The ECG appeared sinus tachycardia with low voltage. Cardiomegaly with inhomogeneous percolation in the lower right lung was found on a chest X-ray. Echocardiography showed a massive pericardial effusion with severe inflammation around the heart chambers and then tricuspid inflow variant of less than 30%. A thoracic surgeon was consulted for a pericardiectomy and an ADA test of pericardial fluid result is 101 IU/L. The patient received anti-tuberculosis drug, oral anti-inflammatory, and beta blockers. Patient was discharge from the hospital in a good condition and one week followed up using chest X ray revealed not cardiomegaly and Echocardiography showed mild pericardial effusion residue.

Conclusions:
Pericardial tuberculosis clinical symptoms are a combination of pericardial effusion and tuberculosis complaints. If there is cardiac tamponade, patients may complain of shortness of breath. Cardiac tamponade is a potentially dangerous condition that must be treated. Echocardiography is the effective diagnostic method to detect pericardial effusion and cardiac tamponade. OAT, corticosteroids, pericardiocentesis, and pericardiectomy can be used to treat tuberculous pericardial effusion.

KEYWORD: *Pericardial effusion, Tuberculous pericarditis, Cardiac tamponade*

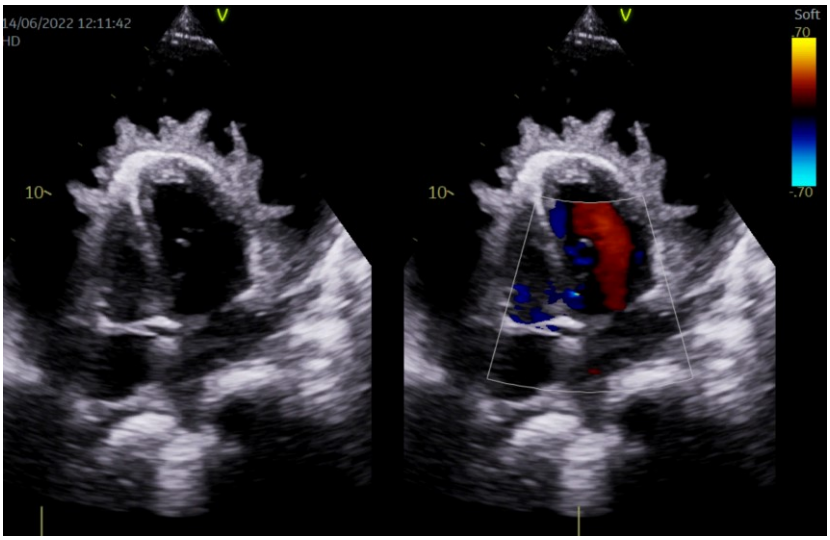

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Figure 1. Echocardiography showed a massive pericardial effusion with severe inflammation around the heart chambers and then tricuspid inflow variant of less than 30%

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CASE REPORT / CASE SERIES

PERIPARTUM CARDIOMYOPATHY (PPCM) IN YOUNG PRIMIGRAVIDA WOMEN WITH IMPROVEMENT IN LEFT VENTRICULAR FUNCTION UNDER 6 MONTHS

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Background: Peripartum Cardiomyopathy (PPCM) is a condition that often occurs in women with symptoms of heart failure in late pregnancy, shortly before delivery, with evidence being left ventricular dysfunction with EF <45%. The prevalence of PPCM occurs in several ethnic and geographic regions including Asia-Pacific, reported cases go as high as 57%. Several risk factors for PPCM are hypertension in pregnancy, preeclampsia, multiparity and it is reported 24 to 37% in young women. In this case, we report PPCM in young primigravida women with improved Left Ventricular function under 6 months.

Case Illustration: Patient A, 20-year-old woman came with complaints of severe shortness of breath for 6 days after giving birth by Sectio secaria with the indication of preeclampsia and transverse position of the baby. The severe shortness of breath does not decrease with rest and a change in position. The patient sleeps using 3 pillows. Blood pressure 155/110mmHg, heart rate 118x/m, respiratory rate 38x/m, saturation 95% via nasal cannula 3 L/min. On physical examination, it was found out that the patient experienced shortness of breath, coughs, jugular vein distension, bilateral peripheral edema. Echocardiography showed decreased left ventricular contraction with ejection fraction 32%, mild mitral valve regurgitation, mild tricuspid regurgitation. The patient was given injection of furosemide and captopril. After 3 days of treatment the patient was discharged. Then 7 days the patient went to the polyclinic to underwent control and it was found that the patient had no complaints and echo examination of the left ventricular contractions had improved, namely the ejection fraction to 48,3%.

Conclusion: Prompt and appropriate management of PPCM patients is expected to reduce morbidity and mortality in PPCM patients. In this patient, there was an increase in left ventricular function as evidenced by an increase in the ejection fraction on echocardiography examination and no complaints were found after being treated.

KEYWORD: *young primigravida women, PPCM.*

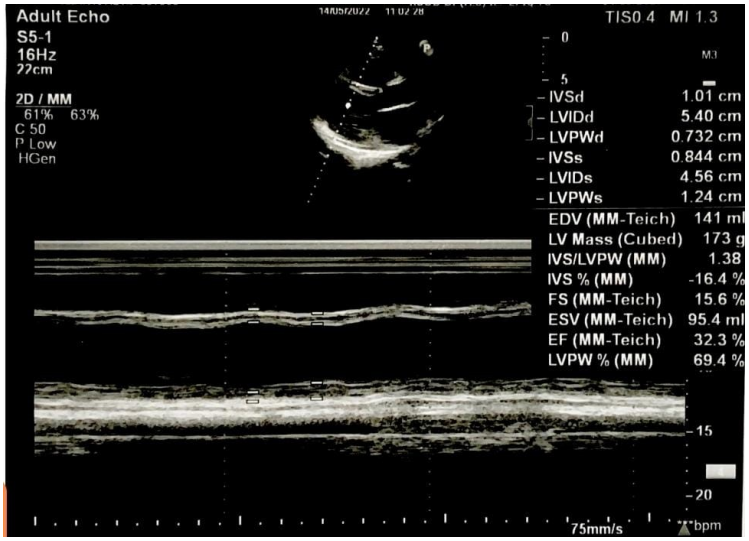

Figure 1. Echocardiography when the patient is in the first day of treatment

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CASE REPORT / CASE SERIES

Bradycardia and Prolonged QT at Myocarditis Dengue Fever

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Background: Dengue fever is now known to involve the heart by inducing myocardial inflammation, arrhythmias, and fulminant myocarditis. Cardiac involvement in dengue fever is not uncommon and has been reported in ECG abnormalities such as bradyarrhythmia or tachyarrhythmia and ST changes.

Case illustration: A 40 years old male presented with fever since 2 days. On physical examination the blood pressure was 120/80 mmHg and pulse 86 bpm regular. ECG result was sinus rhythm 73 bpm, with QTc 398 ms. Blood test revealed thrombocytopenia and NS 1 positive. After 5 days in general ward, he had new symptom dizziness and his pulse was 46 bpm. ECG result sinus bradycardia 46 bpm, with QTc 464 ms. Therefore, the next procedure was echocardiography. On echocardiography found that ejection fraction was 64% with left atrium and left ventricle dilatation, no RWMA detected. ECG follow up still showed bradycardia and prolonged QTc. MRI cardiac non stress test was scheduled, but the patient did want to do because claustrophobia. Therefore, the patient discharge with prescription L-carnitine and trimetazidine.

Conclusion: ECG changes that we found was sinus bradycardia and prolonged QTc. Sinus bradycardia is the most common electrical disturbance seen in dengue, and usually benign, also transient and resolve by three weeks without requiring any intervention. Serial evaluation is warranted in symptomatic patient. Echocardiography is the mainstay of diagnosis. Cardiac MRI provides valuable additional information on diagnosis myocarditis but not freely available in many hospitals. In conclusion, we need to evaluate earlier symptomatic cardiac involvement patient with dengue fever.

KEYWORD: *Dengue, Myocarditis, Bradycardia*

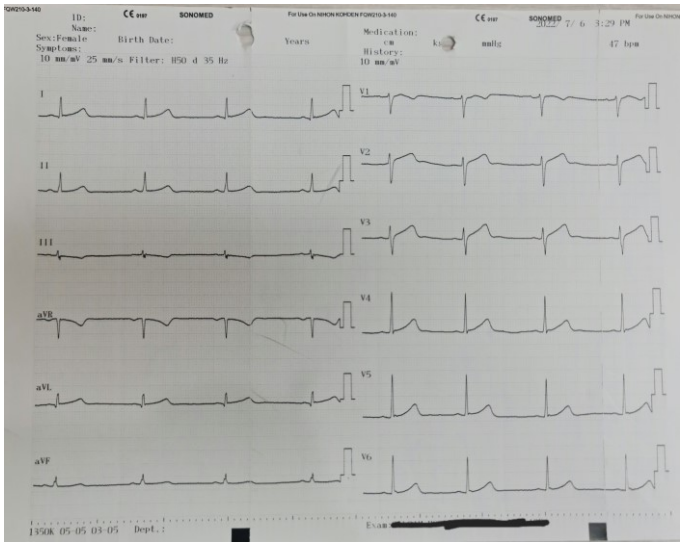

Figure 1. ECG at general ward

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CASE REPORT / CASE SERIES

Incidental finding of Sinus Node Dysfunction in Young Adult on Preoperative Evaluation

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Background: Sinus node dysfunction (SND) refers to a broad range of abnormalities involving sinus node and atrial impulse generation and propagation. SND is commonly diagnosed in geriatric population. Only small amount of case was seen in young population.

Case Illustration: A 35-year-old male with no significant medical history was referred for preoperative evaluation because of asymptomatic junctional bradycardia. The ECG finding includes incomplete RBBB and inverted P wave in II, III, avF. The patient denied any symptoms such as presyncope or syncope. However, lately the patient experiences exercise tolerance and dizziness especially when he performs sports activity. Results from initial medical evaluation, including CBC, ESR, electrolyte serum were normal. A TTE showed an LV EF of 59.1%. The patient referred to an electrophysiologist for further evaluation. One month later, holter monitoring test results uncovered baseline junctional rhythm with no symptoms during recording. Exercise stress tests revealed average functional capacity (10.17 METs) and baseline bradycardia with only 65% maximum predicted heart rate was achieved. SND results from various conditions which have the capability to depress automaticity and electrical conduction from the sinus node. Most SND cases in young patients are related to congenital heart disease. Holter monitor can exclude SND as the cause of symptoms if normal sinus rhythm is documented during presyncope, or syncope. Exercise stress test is useful in differentiating patients with chronotropic incompetence from those with resting bradycardia. Long-term prognosis of asymptomatic bradycardia patient is generally benign. However, conflicting evidence seen from a guideline perspective which suggest permanent pacing with rate-responsive programming can improve symptoms.

Conclusion
Diagnostic approach for SND includes baseline ECG data followed by 24-h holter monitoring as well as treadmill test to confirm chronotropic incompetence in this patient. Further monitoring is still necessary to monitor the patient's symptoms and possible options for permanent pacing.

KEYWORD: *sinus node dysfunction, holter, stress test.*

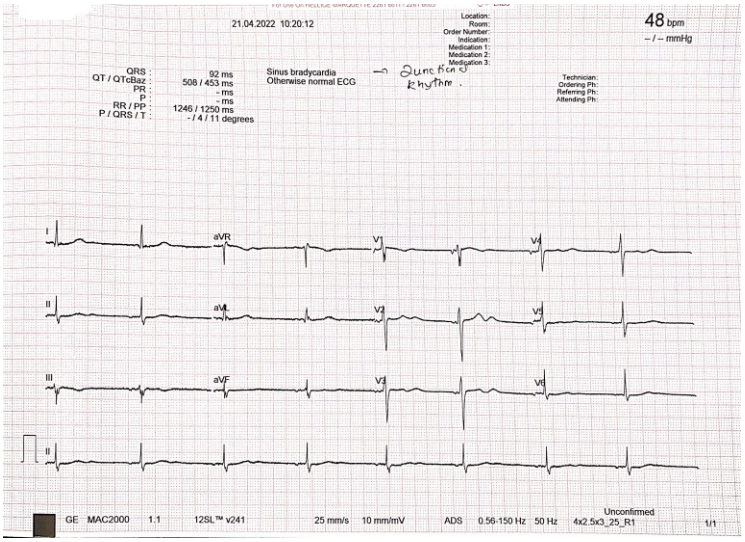

Figure 1. Baseline ECG

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CASE REPORT / CASE SERIES

Cocktail Therapy For Pulmonary Embolism In Limited Health Care Facility

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Background : Pulmonary embolism (PE) is common most severe complications in pregnancy and is associated with significant maternal morbidity and mortality, and may be fatal for the mother if not treated immediately. There is frequently a need for advance diagnostic and therapeutic , and this is always a challenge, Especially due to lack of healthcare facilities in rural hospital.

Case illustration : We present 2 patient with history of shortness of breath before delivery and worsening after delivery. Both of patients had a history of preeclamsia, unilateral leg swelling, multipara pregnancy and PE-likely scoring. first patient, 28 years old women with shortness of breath worsening since 10 days ago after delivery and stable hemodynamic but SpO2 85%-88%, from echocardiography EF 70%, TAPSE 22 mm, RVS' 13 cm/s, with LV D-Shaped, RA-RV dilatation, SEC at RV, TR moderate TVG 40 mmHg, dilatation of IVC. Second patient, 34 years old, with shortness of breath worsening since 3 weeks ago after delivery and stable hemodynamic, from echocardiography EF 60%, TAPSE 11 mm, RVS' 7 cm/s, LV D shaped, RA-RV dilatation, SEC at RV, TR moderate TVG 43.6 mmHg, dilatation of IVC. Both of patients refuse to be referred to a tertiary hospital, patient should check of plasma d-dimer and performed computed tomography pulmonary angiography, and for the first patient thrombolysis may be can usefull. All patients received "cocktail" therapy such as fondaparinux, warfarin, furosemide, sildenafil, spironolactone, and digoxin. All patient felt better after being treated and symptomless at outpatient clinic.

Conclusion :
PE is common during pregnancy and is associated with fetal and maternal morbidity and mortality in before, during and after delivery. Therefore, it is important to established a diagnosis and therapy immediately, but in rural hospitals with limited facilities we need to optimize the resources we have.

KEYWORD: *pulmonary embolism, pregnancy, cocktail*

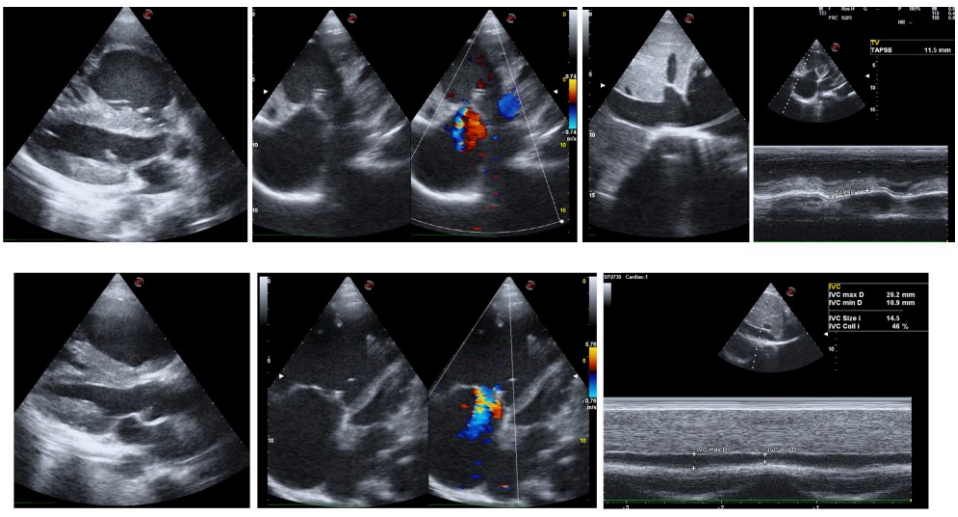

Figure 1. Echocardiography.

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CASE REPORT / CASE SERIES

Type A Aortic Dissection Mimicking Acute Coronary Syndrome and Stroke; How Emergency Physician can Maximize their Potential in Managing a Life-threatening Acute Cardiovascular Diseases

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Background: Type A Aortic Dissection (TAAD) is often misdiagnosed as acute coronary syndrome (ACS), especially "non-ST elevation" (NSTEACS). Proper screening and initial management will help reducing misdiagnosis which also affect the outcome of the patient.

Case Illustration: A 56 years old male was referred to our hospital with NSTEACS. Symptoms were burning and radiating chest pain pain to his left arm and leg which caused a bit difficult for him to lift them, dizziness, and nausea. Risk factor was uncontrolled dyslipidemia. This patient has been initially thought for having a stroke with slight left hemiparesis. Head CT showed no sign stroke or any other lesions. The diagnosis was then switched to angina pectoris, and ECG and cardiac enzyme was measured. Initial ECG showed no significant ST-T changes, but troponin and CKMB were high, thus the diagnosis of NSTEACS was made. Patient already received antiplatelets and nitroglycerin as a treatment.
In our ED, we reassessed patient condition and performed ECG, and we still found no significant ST-T changes. Bedside echo was then performed by emergency physician, we found no RWMA, and suspected an intimal flap around aortic root. These findings were confirmed by cardiologist, after that, CT angiography (CTA) was ordered to confirmed the diagnosis. CTA found dissecting aorta with intramural hematoma and thrombus, classified as Type A Standford aortic dissection/de Bakey Type I. This patient was then referred to cardiac center for surgical management.

Conclusion: Patient with TAAD may present with chest pain that typical for ACS. Since the prevalence of ACS is 200 times that of aortic dissection, the patient might be initially diagnosed with ACS. The use of antiplatelet in such patient is common and justified. But for TAAD patient with high bleeding risk, the use of antiplatelet may delay the surgical intervention since it will increase the risk of bleeding intraoperative or even death. The role of emergency physician in distinguishing these two conditions is vital. Utilization of echocardiography should be maximized in acute cardiovascular diseases, and emergency physician as a frontliner is expected to be able to perform basic echocardiography in such settings.

KEYWORD: *Emergency physician, Echocardiography, Aortic Dissection, Acute Coronary Syndrome*

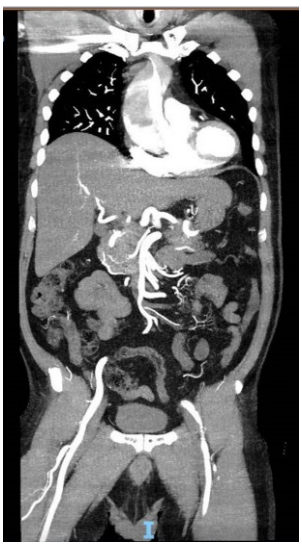

Figure I: Contrast CT angiography showed aortic dissection with aneurysm of ascending aorta

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CASE REPORT / CASE SERIES

Effusive-Constrictive Pericarditis as First Manifestation of Late-Onset Systemic Lupus Erythematosus: An Atypical Case with Grave Prognosis

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Background: Systemic lupus erythematosus (SLE) is a multisystem autoimmune disease which has a great diversity of clinical presentations and occurs mostly in young women. However, late-onset SLE does exist and seldom presents with an atypical case, including pericardial effusion (PE).

Case Illustration: A 64-years-old Asian woman presented with weakness all over the body and slightly breathlessness since the past two days prior to the hospital admission. Her initial vital signs are 80/50mmHg for blood pressure and respiration rate of 24 breaths/minute. Rhonchi was heard on left lung and pitting oedema on both legs. No evidence of any skin rash. Laboratory examination displayed anemia, hematocrit decrement, and azotemia. A 12-lead ECG demonstrated left axis deviation with low voltage (Figure 1). Chest x-ray showed left massive pleural effusion (Figure 2). Transthoracic echocardiography revealed biatrial enlargement, normal EF 60%, diastolic dysfunction grade II, thickening of pericardium with mild circumferential PE corresponding with effusive-constrictive pericarditis (Figure 3). Patient also brought CT angiography and cardiac MRI result, which confirmed pericarditis with PE. Treatment was initiated in ICU with fluid resuscitation of normal saline. Patient's routine oral treatments, including furosemide, ramipril, colchicine, bisoprolol, and warfarin were carried on. Autoimmune workup was performed by cardiologist demonstrated an elevation in anti-nuclear antibody/ANA (IF) of 1:100, which finally unveiled a diagnosis of SLE. Pericardial effusion is one critical condition to consider, despite it is an uncommon presentation in late-onset SLE. Mild pericarditis in an SLE case can be treated with corticosteroid administration. Colchicine also has been found to reduce the risk of pericarditis recurrence. However, an atypical presentation from this case led to a slightly delayed treatment which escalated the morbidity and mortality risk. The patient had sudden cardiac arrest and passed away three days after being treated.

Conclusion: Atypical presentation during late onset SLE, mainly in the form of pericardial effusion even constrictive pericarditis, should be taken as a consideration, since they are a scarce feature in SLE patients. The swift recognition and prompt treatment are important for the optimal outcome.

KEYWORD: *pericardial effusion, constrictive pericarditis, systemic lupus erythematosus, late-onset*

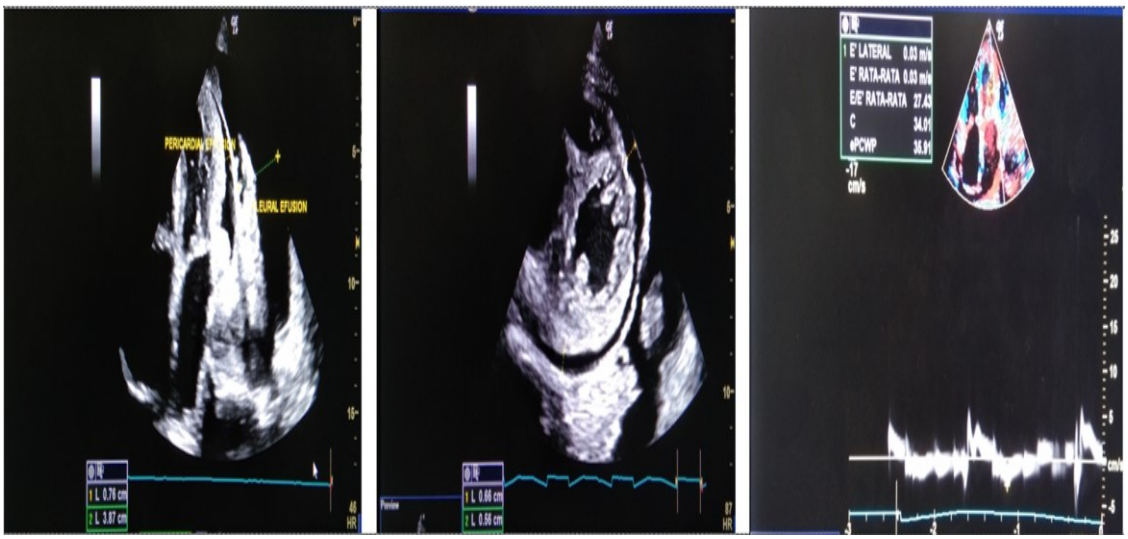

Figure 1. Transthoracic echocardiogram displayed increased left ventricular filling pressure with diastolic dysfunction grade III, mild circumferential pericardial effusion with adjacent pleural effusion

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CASE REPORT / CASE SERIES

A Deadly Electrocardiogram Shark Fin sign ECG in Extensive Anterior ST-Elevation Myocardial Infarction (STEMI): A Case Report

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Background: Shark fin ECG pattern, also known as 'giant R waves', or 'triangular QRS-ST-T waveform' is a high risk ECG pattern associated with ST-elevation myocardial infarction (STEMI). This ECG pattern may be misdiagnosed as wide complex tachycardia. Shark fin ECG is typically accompanied by occlusion of the left main coronary artery and the left anterior descending artery, and it is considered to be related with a high risk of death through cardiac arrest and cardiogenic shock.

Case illustration: 44 years old male came to our emergency room unconscious with an impalpable pulse, and an absence of breath. Two hours prior the patient rode a bicycle from Salatiga to Purworejo, and then the patient complained of sudden typical chest pain, agitation, and diaphoresis. He was an active smoker. CPR was conducted for 45 minutes, then the ECG monitor showed ventricular tachycardia. After intubation, seven times of defibrillation, six times of intravenous epinephrine, and 300 mg and 150 mg of intravenous amiodarone, the patient then achieved ROSC. The patient's blood pressure was 80/40 mmHg, and heart rate was 110 bpm. The laboratory results showed elevated CKMB and leukocytosis. The ECG showed ST elevation in V1-V6, lead I, and aVL with giant R waves. The patient was diagnosed with Extensive Anterior STEMI Killip IV, Cardiogenic Shock SCAI E, ROSC Post Cardiac arrest mode VT/VF. The patient was then transferred to the higher center for percutaneous coronary intervention (PCI). In the higher center, coronary angiography was done, and proximal total occlusion of the left anterior descending coronary artery was relieved. After PCI, the patient's condition had improved, and he was then able to do daily activities.

Conclusions:
In conclusion, a patient with Extensive Anterior STEMI Killip IV, Cardiogenic Shock SCAI E, and ST elevation in V1-V6, lead I, and aVL, with shark fin ECG and total occlusion of the left anterior descending coronary artery still had a chance of ROSC. A good CPR, aggressive management, differentiation of shark fin from other similar ECGs, and immediate PCI were needed to save the patient from serious complications and influenced the prognosis of the patient.

KEYWORD: *Shark fin ECG, Extensive anterior STEMI, Cardiogenic shock*

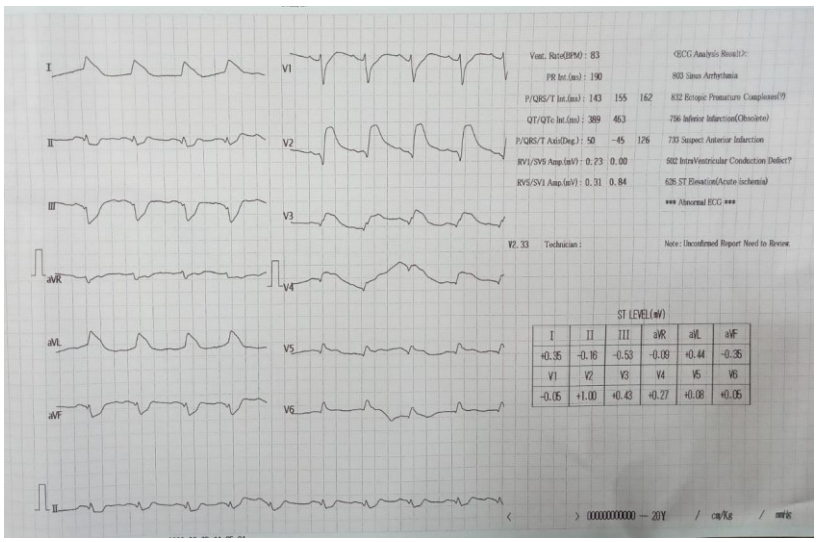

Figure 1 Patient's ECG at ER showing ST elevation in V1-V6, lead I, and aVL with giant R waves (Shark fin pattern)

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CASE REPORT / CASE SERIES

Recurrent Pericardial Effusion : Autoimune or Infection? What to Not Miss

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[1]Sebelas Maret University

Background: Pericardial syndrome includes various diseases involving the pericard with different clinical features. Tuberculosis infection is the most common cause of pericardial effusion in developing countries, especially those classified as endemic tuberculosis, such as Indonesia. The management of pericardial effusion in addition to pericardiocentesis is the therapy to the underlying etiology itself.

Case Illustration: A 27 year old male was referred to our hospital with massive pericardial effusion. Pericardiocentesis was performed urgently considering the signs of impending tamponade in this patient. After some days of hospitalization we suspected the etiology of pericardial effusion in this case was autoimmune (primary Sjogren's syndrome), as the acid fast bacilli examination of sputum and pericardial fluid showed negative result and ANA-IF showed borderline in Ro-60 marker. Patient discharged with some oral steroid therapy. One month later patient came to our clinic with similar complaint and symptom. Transthoracic echocardiography revealed massive pericardial effusion, this time without signs of tamponade. Pericardiocentesis was performed for the second time in this patient. Genexpert MTB/RIF indicate positive result from pericardial fluid and negative from sputum sample which led us to extrapulmonary tuberculosis as the etiology. Later we administered antituberculosis, anti-inflammatory and steroid in order to prevent pericarditis. Evaluation during outpatient treatment showed improvement. There was no pericardial effusion recurring, neither complications such as constrictive pericarditis occurred. It is very fundamental to determine the cause of pericardial effusion. In this case, ANA-IF result could not fully establish the diagnosis of primary Sjogren's syndrome. This result might reflect a picture of normal sera or reactive result due to tuberculosis infection. Still, it is necessary to carry out further histopathological examinations and ANA IF evaluation after antituberculosis therapy completely administered.

Conclusions:
Genexpert MTB as the gold standard of tuberculosis examination should be performed in cases with pericardial effusion, considering Indonesia as endemic tuberculosis. Pericardial effusion that is not managed properly will lead to sequelae of constrictive pericarditis, which later requires more invasive and certainly riskier management.

KEYWORD: *Pericardial effusion, Tuberculosis, Syndrome Sjogren*

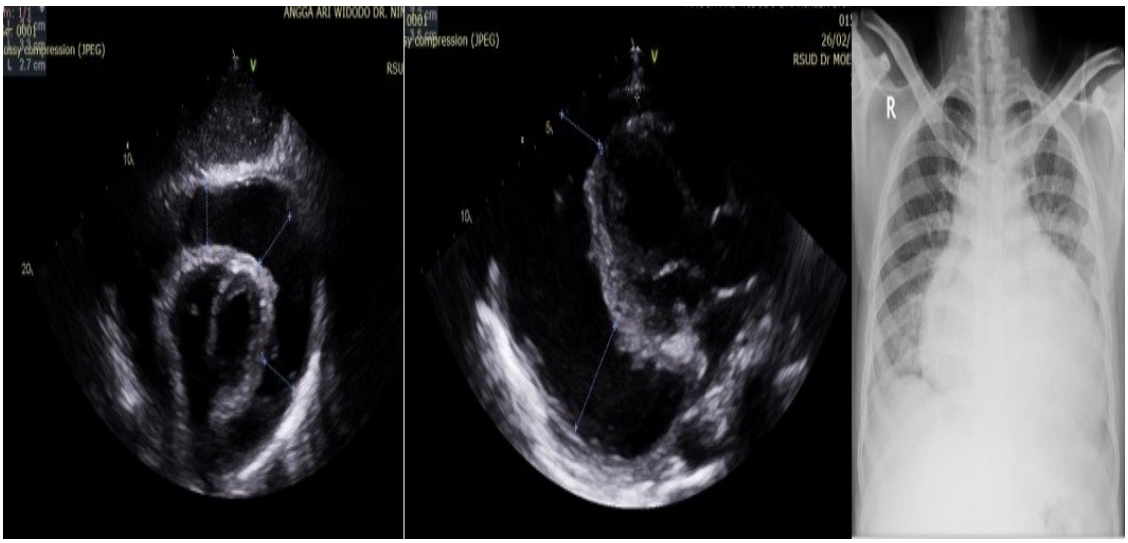

Figure 1. Transthoracic Echocardiography and Chest X-Ray of Patient With Pericardial Effusion

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CASE REPORT / CASE SERIES

Acute Heart Failure in Post PCI patient with history of Inferior STEMI and Junctional Rhythm: a dilemma of therapeutic management

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Background: Acute Myocardial Infarction (MI) is still the common cause of mortality in cardiovascular disorders. Despite the remarkable advances in the treatment of acute MI, heart failure (HF) is still a frequent complication of MI. In this case report, we present a new onset of HF development in RV infarction by acute MI occurrence with its challenge in therapeutic management.

Case Illustration: We present the case of a 47-year-old man referred to the Emergency Department with acute sustained typical chest pain with signs of shock but improved with inotropic agent. An electrocardiogram showed Inferior STEMI and junctional rhythm. Laboratory tests showed an increase the level of troponin. The patient underwent inserting a temporary transvenous pacemaker (TTVPM) and angiography revealed total occlusion of proximal right coronary artery (RCA) and 70% stenosis of distal left circumflex (LCx). Afterwards, the percutaneous coronary intervention was performed on the RCA and drug-eluting stent was implanted in the proximal-distal RCA. Five days after the procedure, ECG showed sinus rhythm returned and TTVPM was released. However, the condition of cardiogenic shock changed to emergency hypertension and signs of HF appeared. This new onset HF development can be followed by the myocardial compromise due to myocardial necrosis, myocardial stunning, and mechanical complications. Then the hemodynamic echocardiography showed right ventricle dysfunction, small IVC diameter, and subtle left ventricular dysfunction. We highlight this condition as a dilemma of classic therapy of RV Infarct such as appropriate volume loading and contraindicated to nitrate compared to HF therapy which indicates vice versa. Then we decided to initiate guideline-directed HF therapy in this patient. Following the HF therapy, the patient's condition showed improvement.

Conclusion:
This case we present the therapeutic management dilemma in RV infarction and new onset heart failure. Comprehensive assessment and evaluation of therapeutic management were needed in this case.

KEYWORD: *Heart Failure, Right Ventricle Infarction, Fluid Management, Medical Therapy*

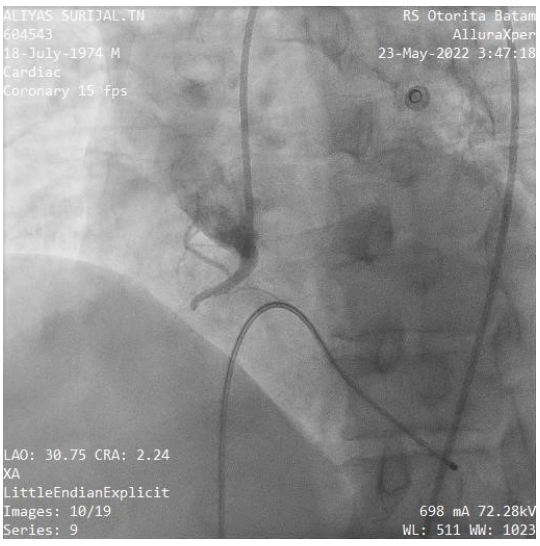

Figure 1 acute total thrombus occlusion of the proximal RCA

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CASE REPORT / CASE SERIES

Permanent Pacemaker in Recurrent Ventricular Tachycardia of Advanced Heart Block: Simple but Not Easy

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[1]RSSA

Background: Several clinical studies have linked bradycardia to the development of ventricular tachycardia. To minimize mortality rates, proper and immediate treatment based on electrophysiology mechanisms should be attempted. For advanced AV block with tachycardia condition, permanent pacemaker implantation and combination of anti-arrhythmic drugs are required in some cases.

Case illustration: A 59-year-old woman presented in emergency room with chest discomfort for three days prior. It was precipitated with palpitation, epigastric pain, and also experienced near-syncope. Postural changes or respiratory movement had no effect. An ECG examination was performed, the doctor in charge diagnosed her with VT with pulse. Her ECG was converted to 1st degree AV block after cardioversion and amiodarone. She was admitted to the ICU. On the third day of treatment in the ICU, the patient experienced another episode of VT with pulse, then she referred to our hospital. When she arrived at our hospital, her heart rate was 170bpm and BP 98/65 mmHg, other physical examinations were unremarkable, 12-lead ECG showed VT with LVOT origin, she performed cardioversion, and her ECG changed to 2nd degree AV block Mobitz type I. Her laboratory findings were normal, her echocardiography revealed LV dilatation, systolic LV dysfunction, and global hypokinetic, but her DCA revealed no signs of ischemic heart disease. Again, she had episodic of NSVT that was later self-terminated, before she had recurrent VT, but every time she was given antiarrhythmic drugs, her ECG showed her baseline rhythm as 1st degree AV block with episodic of 2nd degree AV Block and complete heart block. A permanent pacemaker was then inserted into the right ventricle's apex and setting pulse generator set to 70 beats per minute. She also had beta-blocker to reduce her burden of ventricular tachycardia. The patient has not experienced any chest discomfort or near-syncope since being discharged from the hospital.

Conclusions:
Antiarrhythmic, and cardiac pacemakers have all been used to treat recurrent ventricular tachycardia. Permanent pacemakers reduce the morbidity and mortality associated with complete heart block and indicated for symptomatic bradycardia. Aside from the fact that this patient had an inadequate response to pharmacological treatment, this patient was offered pacemaker implantation as a final treatment. A combination of anti-arrhythmic drugs and a pacemaker should also be considered because it may be more effective than either alone.

KEYWORD: *Ventricular Tachycardia, Heart Block, Permanent pacemaker*.

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CASE REPORT / CASE SERIES

BICUSPID AORTIC VALVE AND CARDIOMYOPATHY: A CASE REPORT

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Background: Bicuspid aortic valves (BAV) are cardiac valvular anomaly which the valve only has two leafets or flaps that control blood flow through the heart, occurring in 1–2% of the general population and most common in males. BAV in many cases are asymptomatic, but patient with BAV may have predisposition to varying degrees of severity of aortic stenosis or regurgitation in middle life. Early detection are crucial to allow early intervention and preservation of cardiac function.

Case Illustration: A 27-year-old man came to outpatient clinic with chief complaint of sudden shortness of breath and swollen legs since 2 weeks ago. This complaint was felt for the first time by the patient and the patient had no previous history of any disease. On physical examination, there is no abnormality in patient's vital signs and systolic murmur was heard in the second intercostal space on the right parasternal line. From electrocardiogram showed sinus rhythm with left axis deviation, left atrial hypertrophic, and left ventricular hypertrophic. On echocardiography, we found bicuspid aortic valve with mild aortic stenosis, abnormal left ventricular (LV) systolic function (EF by teich 29.87%) and LV global hypokinetic. The patient was given acetyl salicylic acid 80 mg, furosemide 20 mg, spironolacton 25 mg, bisoprolol 2.5 mg all in once daily. A bicuspid aortic valve is the result of abnormal aortic valve formation during valvulogenesis. Although the bicuspid aortic valve can function normally, the valve leaflets can be subjected to hemodynamic stresses that cause degeneration, calcification, and stenosis.The symptoms of shortness of breath and swollen legs in this patient maybe caused by stenosis of the aortic valve and abnormal LV systolic function.

Conclusions: Many people in the general population with a bicuspid aortic valve are never diagnosed or have no symptoms. Failure to present until clinical symptoms develop, can have important consequences. Early detection and continued monitoring are crucial to allow early intervention and preservation of cardiac function.

KEYWORD: *Bicuspid aortic valve, aortic stenosis, heart failure.*

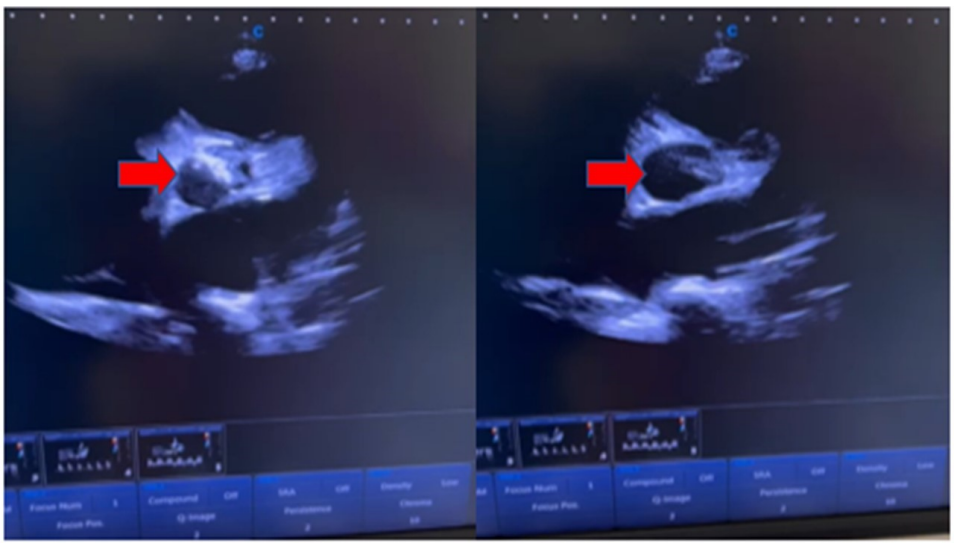

Figure 1. Echocardiography examination showing bicuspid aortic valve (red arrow).

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CASE REPORT / CASE SERIES

Intravenous Immunoglobulin Associated Bradycardia: A Case Report

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Background: The coronavirus (COVID-19) pandemic has resulted in a significant increase in hospitalizations with pneumonia and multiorgan disease. Continuous IVIG infusion can increase serum IgG levels, can effectively neutralize pathogens in the patient's respiratory tract so as to cure the disease and shorten the course of the disease. Despite the widespread use of IVIG, we don't know much about the safety of these drugs on the cardiovascular system. Several cardiac side effects due to IVIGs infusion have been reported including supraventricular tachycardia, hypotension, and bradycardia; however, these are usually rare and associated with an underlying heart disease. In this paper, we report a case of a patient with confirmed case COVID 19 patient with no past cardiac history who complained of bradycardia during IVIG administration.

Case illustration: A 32-year-old woman confirmed COVID 19 with a PCR swab was admitted to INCOVIT ward with with complaints of cough, fever and diarrhea since the previous 5 days. On the 3rd day of treatment, the patient still had a cough and fever and worsening shortness of breath. Durante IVIG was given on the 3rd day during 3rd flash of 5 flash IVIG, the patient complained of weakness and dizziness. From the examination, the patient was in a hypertensive condition, with BP 169/91, and found bradycardia with a regular pulse of 45x/m. So that, IVIG giving is discontinued. 1 day after IVIG administration, the heart rate again increased to 55x/minute and heart rhythm monitoring was continued 2 days later and the heart rate returned to normal, 80x/minute without any complaints.

Conclusions:
Intravenous Immunoglobin infusion can result in severe bradycardia, indeed in patients with no past cardiac history. Yet uncommon, it is basic that physicians recognize, diagnose and treat the uncommon event of symptomatic bradycardia after IVIG infusion to rapidly and appropriately oversee patients and anticipate morbidity and mortality from severe bradycardia induced by IVIG infusions.

KEYWORD: *Intravenous Immunoglobin infusion, bradycardia, COVID 19*

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CASE REPORT / CASE SERIES

Aortic Root Dilatation in Young Male Adult : A Rare Case

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[1]RSUD Sanjiwani Gianyar

Background: Aortic dilatation in mid to advanced adulthood has been related to cardiovascular risk factors and cardiovascular events, and it may begin early in young adulthood and be a marker for accelerated vascular aging. The etiology of pathological aortic dilatation is varied, ranging from congenital, infectious, autoimmune, and idiopathic conditions; and influences the medical and surgical management.

Case Illustration : A 20 years old man came to emergency room with shortness of breath and fever since 4 days ago. He admitted having history of controlled valvular heart disease since long time ago and has finished his rheumatic fever prophylactic injection. His echocardiography findings shows dilated aortic root and prolapse of RCC, LCC, and NCC which caused him severe aortic regurgitation and declined ejection fraction (45.8%). His blood culture shows no bacteria growth which excluded infective endocarditis in this case. He then admitted to ward, and after 3 days he was sent home with better condition. A systematic review in 2014 of 10,741 patients with hypertension revealed men had a significantly higher incidence of aortic dilatation relative to women. Depending on how large the aortic root aneurysm has become, and the severity of any symptoms associated with the presence of aortic valve regurgitation, surgery will be required as the aneurysm, once dilated, will not reduce on its own.

Conclusion :
Due to the variety of clinical conditions that can result in aortic dilatation, and the risks associated with its worsening, a thorough understanding of the pathophysiology, noninvasive imaging modalities, and pharmacologic therapies is critical. However, while natural variations in the size of the aortic root are well known, the identification of progression from normal to pathologic aortic dilatation is a key clinical diagnosis that carries significant cardiovascular risk including aortic dissection, rupture, valvular regurgitation and cardiac tamponade

KEYWORD: *Aortic root dilatation, Valvular heart Disease*

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CASE REPORT / CASE SERIES

Giant LA Mass presenting in long standing Atrial Fibrillation Woman: A Double Trouble

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Background: Masses in cardiac chambers are a challenging case. Differential diagnoses vary widely, and the gold standard for diagnostics, such as biopsy, is not always easily to performed, leading to an over-reliance on non invasive imaging to establish the diagnosis. Diagnosing intracardiac masses sometimes are difficult to distinguish by echocardiography.

Case illustration: An Atrial Fibrillation 52 -years old female with a history of heart failure with routinely consuming spironolactone, captopril, beta blocker and warfarin admitted with acute decompensated heart failure after she did mild to moderate activity and felt palpitation. The electrocardiogram showed atrial fibrillation rapid ventricular response with a heart rate of 110-125bpm. Echocardiography showed RA, RV and LA dilatation with a large fixated ovoid mass in the left atrial. It was thought to be a Thrombus rather than Myxoma because patients with atrial fibrillation. Patients with a history of surgical closure of ASD, no reports of masses. From previous history, the patient had echocardiography and suspected a thrombus in the left atrium and was routinely given DOAC. Thrombus can develop in patients with atrial fibrillation or a dilated chamber. We considered left atrial myxoma as an alternate diagnosis because of the giant size, globular shape and pedunculated was not clearly visible of the mass on the left atrium. When the operation was performed, there was a mass in the left atrium, not a thrombus.

Conclusions:
Biopsy from pathology anatomy remains the gold standard for establishing the diagnosis of cardiac masses. Non invasive imaging modalities such as echocardiography, have excellent accuracy, if echocardiography could be able to characterize morphologic shape and appearance, types of margin, site of attachment, with or without stalk and presence of mass in the left atrial appendage. misdiagnoses still occur, especially in patients with atrial fibrillation conditions. An initial administered of anticoagulation and re-evaluated echocardiography periodically might be effective to avoid unnecessary surgery if it was a thrombus.

KEYWORD: *Myxoma, Thrombus, Left Atrium, Atrial fibrilation, Doac, Anti Coagulant, Echocardiography.*

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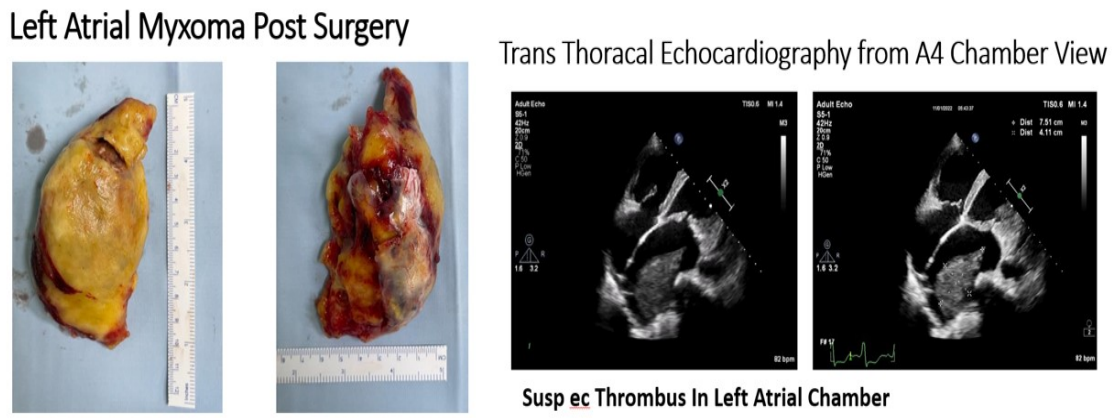

Figure 1. LA Myoma and Susp Thrombus in left Atrial chamber from TTE

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CASE REPORT / CASE SERIES

The Challenge in Diagnosing STEMI: Forgotten ECG Leads

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Background: ST – segment elevation myocardial infarction (STEMI) is the most critical manifestation of acute coronary syndrome (ACS) and is associated with great morbidity and mortality. Primary PCI is the golden standard in managing STEMI cases, while risk stratification is mandatory in dertermining to revascularization strategy in NSTEMI/UAP cases. Electrocardiogram (ECG) is very important in acute setting to determine definitive treatment in ACS cases, therefore prudent and meticulous ECG interpretation in acute setting is crucial.

Case Illustration: 51 years old male presented with typical chest pain, that worsened since two hours prior to hospital, his risk factor are smoking, hypertension, dyslipidaemia, and strong family history. His initial ECG was "borderline" showing ST depression and mild T inverted in inferior lead, and rS pattern in V1 without any specific ST – T Changes in anterior leads, serial ECG Showed similar result, prior on going chest pain, posterior and RV lead were performed and reveal ST Elevation in posterior leads, and reciprocal changes in RV leads. Primary PCI was chosen as definitive therapy in this case. His angiogram showed total occlusion in Left Circumflex Coronary artery. His laboratory finding later on showed increase troponin value.

Conclusion
The role of ECG in ACS cases is crucial to determine definitive treatment as recommended by current guideline. Posterior and RV ECG leads examination are warranted to rule out STEMI in posterior and RV wall.

KEYWORD: *STEMI, ACS, ECG*

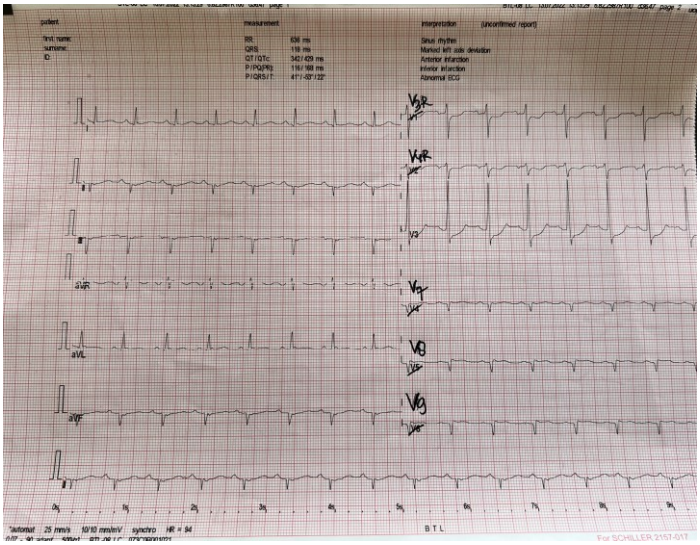

Figure 1. Posterior lead showing ST elevation in V7 – V9 and ST depression in V3R and V4R

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CASE REPORT / CASE SERIES

Atrial Fibrillation As The Cause Of Recurrent Transient Ischemic Attack With Full Recovery In Young Female Adult With Severe Mitral Stenosis

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Background : Atrial fibrillation (AF) is estimated to affect 33 million people worldwide. It is frequent in patients with rheumatic mitral stenosis. It is also one of the ten potentially modifiable risk factors associated with acute stroke and greater baseline neurological impairment and worse outcomes following ischemic stroke.

Case Illustration : A 38 years old woman came to emergency room with sudden weakness on the left side of her body and difficulties in speaking since 6 hours ago. She has never felt this before and got no history of any disease. Her ECG shows Atrial Fibrillation 100 bpm with normal vital sign. She admitted to the ward and her strength went back to normal after 4 hours. She was allowed to go home after observation for 7 days with no recurrent symptoms. Her echocardiography findings shows calcification in AML, PML (dome shape appearance) which cause her severe mitral stenosis. There was no thrombus in her LAA. Four days after her return to home, she went back to the hospital with the same complaint which resolve in only several hours. Atrial fibrillation is a preventable cause of ischemic stroke for which early detection and treatment are critical. The CHA2 DS2–VASc adds to the evaluation of the risk of stroke by reliably identifying patients at very low risk. Oral anticoagulant therapy is mandatory when AF complicates MS, regardless of its severity and CHA2DS2-VASc score. In addition, a non-pharmacologic procedure like left atrial appendage occlusion is a possible option in selected patients.

Conclusion : The prevention of stroke related to AF is a global public health priority. Risk stratification for the risk of stroke in AF and early initiation of therapy that aims to reduce the risk of AF-associated stroke is a crucial component in the management of this arrhythmia.

KEYWORD: *Atrial Fibrillation, Transient Ischemic Attack*

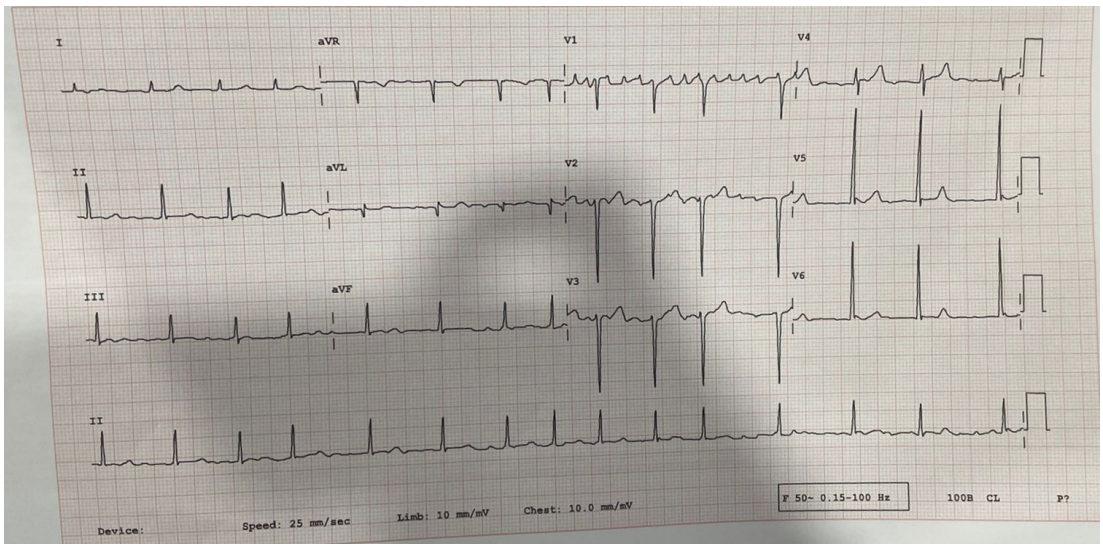

Figure 1. Atrial Fibrillation.

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CASE REPORT / CASE SERIES

Wide QRS Regular Tachycardia in Young Male patient: Should we be worried?

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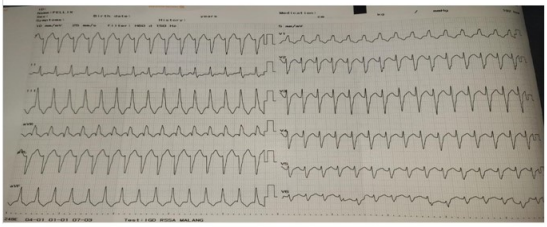
Background: Wide QRS Regular Tachycardia, like ventricular tachycardia (VT), that can rapidly progression into cardiac arrest. It can be caused by a wide variety of causes, including intoxication, metabolic problems and acute coronary syndromes. It is not always Malignant Arrhythmias. It may be also due to supraventricular tachycardia (SVT) with aberrant conduction, or atrioventricular reentrant tachycardia (AVRT) with an accessory pathway (AP). Distinguishing between the types and causes, and treating them appropriately, is a fundamental skill for the emergency physician.

Case illustration: A 22-year-old man, with a history of anxiety and lack of Sleep, presented with several days of intermittent palpitations. He came to the emergency department complaining of sudden palpitations for 1 hour. He had no family history of sudden cardiac death. In our ER, he was hemodynamically stable with a SBP of 110 mmHg and a HR of 190 beats per minute. ECG was taken. He was noted to have wide complex tachycardia. It was thought to be a SVT AVRT rather than VT because there was no History of MI, structural heart disease, or old age. From Brugada algorithm was favoured for SVT. He was administered Amiodarone, which was unsuccessful. we did cardioversion and successfully converted to sinus rhythm.

Conclusion:
If we find regular wide QRS Regular Tachycardia in the ER, if there is any confusion, we must consider the diagnosis is VT and treat the patient like a case of VT. From the basic ECG during sinus rhythm, we did not find bundle branch block, possibly the SVT mechanism was due to the presence of AP. In hemodynamically stable patients, Antiarrhythmic agents remains an option. it should be targeted at the AP. Procainamide (class I) would be first line but we didn't have in ER. Amiodarone are second-line therapy, but their benefits is less Potent established. Electrical cardioversion may still be needed if drug therapy doesn't work.

KEYWORD: *malignant arrhythmias, ventricular tachycardia (VT) supraventricular tachycardia (SVT), Aberrant conduction, Atrioventricular reentrant tachycardia (AVRT), accessory pathway (AP).*

Wide QRS complex Regular tachycardia, HR 190 bpm



Sinus Rhythm 91 bpm after Electrical cardioversion

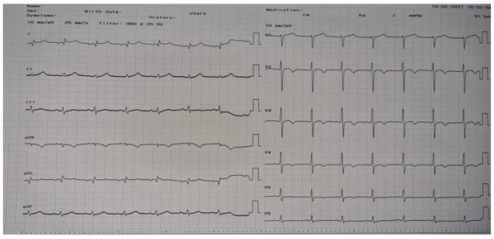


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Figure 1. Wide Regular Tachycardia

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CASE REPORT / CASE SERIES

Premature Ventricular Contraction Bigeminy In Non ST Elevation Acute Coronary Syndrome, How Dangerous It Would Be?

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Background : Myocardial ischemia and infarction leads to severe metabolic and electrophysiological changes that induce silent or symptomatic life-threatening arrhythmias. Premature ventricular contractions (PVCs) are common in the early phase. PVCs of any coupling interval do increase the risk of VT/VF, as all VT/VF is initiated by a PVC. Frequent ventricular premature beats, VT, and VF are all associated with increased long-term mortality following acute MI.

Case Illustration : A 70 year old woman came to emergency room with sudden left heavy chest pain since 5 hours before. The pain radiates to the left arm and back. It was continuously felt by the patient and not getting better with rest. She also felt shortness of breath, palpitation, and diaphoresis since the onset of chest pain. She has hemorrhagic stroke history in 2020, controlled hypertension, and controlled diabetes mellitus. His ECG shows ST depression in V3-V6 with PVC bigeminy and left ventricular enlargement. She then got treated by anti-coagulant Lovenox. She was admitted to ward, got stable for 4 days there, but unfortunately the patient passed away in the fifth day. Hypoxia state caused by acute coronary syndrome will produce cellular depolarization, shortened action potentials, and decreased conduction velocity which contribute to arrhythmias. Prompt revascularization and medication, including anti-platelets, statins, angiotensin converting enzyme (ACE)-inhibitors and beta-blockers, have markedly reduced the incidence of arrhythmias. Nevertheless, approximately 10% of post-MI survivors remain at high risk of dying in the first months or years following hospital discharge. Sudden death secondary to sustained VT or VF accounts for about 50% of all deaths in these high-risk patients.

Conclusion : Arrhythmias associated with ACS are common, and may be related to more complicated comorbidity and severe impairment of myocardium, all of which indicated a more feeble clinical status and lead to a poorer prognosis.

KEYWORD*: Acute Coronary Syndrome, Premature Ventricular Contraction*

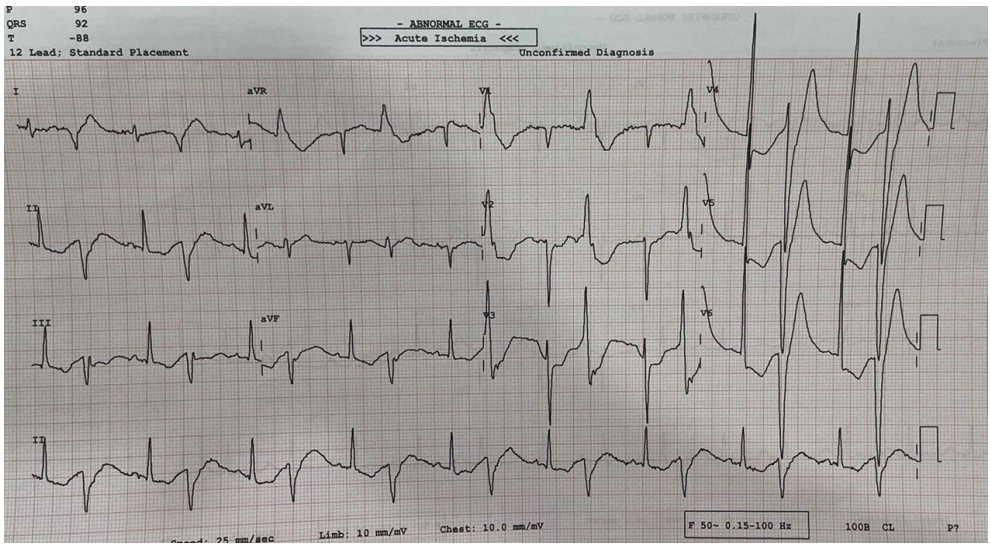

Figure 1. Patient's ECG.

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CASE REPORT / CASE SERIES

Ventricular Septal Rupture post Anterior Acute Myocardial Infarction: Preoperative Haemodynamics Optimization

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Background: Ventricular Septal Rupture (VSR) post Acute Myocardial Infarction incidence is 1-2%. Prognosis of these patients depends on prompt echocardiographic diagnosis and the proactive medical and surgical therapy. Various options have been put forward including the timing for surgery. Regardless, the preoperative stabilization by inotropes and mechanical support has shown to improve the outcome.

Case Illustration: A 74-years old female complaining of 4 days onset chest pain was referred to our hospital. ECG was revealed acute anterior extensive ST- segment elevation (STEMI). The patient had a history of uncontrolled diabetes mellitus type II and hypertension. On physical examination, the patient was restless and distress. The blood pressure was 90/57 mm Hg, pulse 122 bpm, respiratory rate 24 bpm. His skin was cool and poorly perfused with shallow respiration and weak peripheral pulses. Cardiac auscultation revealed pansystolic murmur at the left lower sternal border. Laboratory investigations were showing increase of troponin (10.3 ng/mL) and normal serum creatinine level (1.0 mg/dL). Chest X-ray showed increased cardiothoracic ratio. Coronary angiography was revealed total occluded at left descending artery (LAD) and primary PCI was performed. Trans-Thoracic Echocardiography (TTE) demonstrated a VSR (15 mm) located apicoseptal segment and EF 45%. Patient was in cardiogenic shock. Adequate intravascular volume was ensured. Inotropic and vasopressor were initiated until intra-aortic balloon pump (IABP) was inserted to improve cardiac output and reduce shunt. After the IABP was introduced, the inotropic and vasopressor were slowly tapered off. Vasodilator was initiated and uptitration. At the 9th day of care, nitroglycerine infusion also initiated depending on hemodynamic stability with a view to reduce afterload and left to right shunt systemic blood flow. Patient at stable haemodynamics until 14th day after onset and planned for closure surgery.

Conclusion: In patient with ventricular septal rupture, preoperative management should be enhancing effective cardiac output and reducing left to right shunt and shunt flow ratio. Optimization haemodynamics before closure surgery is expected to produce the better outcome.

KEYWORD: *Ventricular Septal Rupture, Anterior Acute Myocardial Infarction, Post Infarction Mechanical Complications, Intra Aortic Balloon Pump*

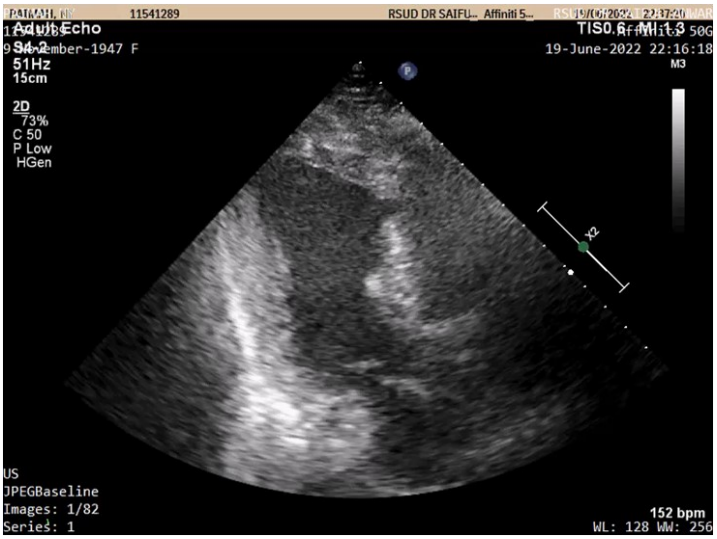

Figure 1. TTE demonstrated a VSR (15 mm) located apicoseptal

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CASE REPORT / CASE SERIES

Sudden Cardiac Arrest As The First Clinical Manifestation of Peripartum Cardiomyopathy In Young Female Adult

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Background : Peripartum cardiomyopathy (PPCM) is a potentially life-threatening pregnancy-associated disease that marked by left ventricular dysfunction and heart failure. It is a rare, often dilated, cardiomyopathy with systolic dysfunction that presents in late pregnancy or, more commonly, the early postpartum period with no determinable cause. The left ventricular ejection fraction is typically reduced below 45%.

Case Illustration : A 27 years old woman brought by her family unconsciously to emergency room reported having some periods of convulsion at home. She just had her second section caesarean operation 13 days prior to this condition and this is her second children. Her first pregnancy went smoothly without any complaint. She was having shortness of breath 2 days before the convulsion without any additional symptoms. Recurrent VT and VF are recorded, cardioversions was delivered and she went back to ROSC after some cycles of resuscitation. She then submitted to Intensive Care Unit. Her echocardiography result shows markedly low ejection fraction of 21.26%. After 3 days in Intensive Care Unit, her condition got better and she was moved to ward. Two days after that she was discharged with no sign and symptoms of heart failure. Optimization of heart failure therapy is crucial to improve patient's condition. Women with PPCM complicated by arrhythmias may require acute or chronic administration (or both) of antiarrhythmic drugs. Cardioversion and defibrillation are considered safe throughout pregnancy and should be performed without delay in emergencies, as in non-pregnant patients. Despite the limited data on wearable cardioverter defibrillators in PPCM, the ESC and AHA recommend consideration of these devices in women with PPCM and LVEF ≤35% as a bridge to left ventricular recovery or to ICD implantation after three to six months.

Conclusion : Peripartum cardiomyopathy is an uncommon but serious medical condition that affects women throughout the world. While the underlying pathophysiology remains unclear, vasculo-hormonal influences and genetic susceptibility probably play a role. Ongoing efforts will be needed to answer unresolved questions and define optimal management strategies.

KEYWORD: *Peripartum Cardiomyopathy, Sudden Cardiac Arrest*

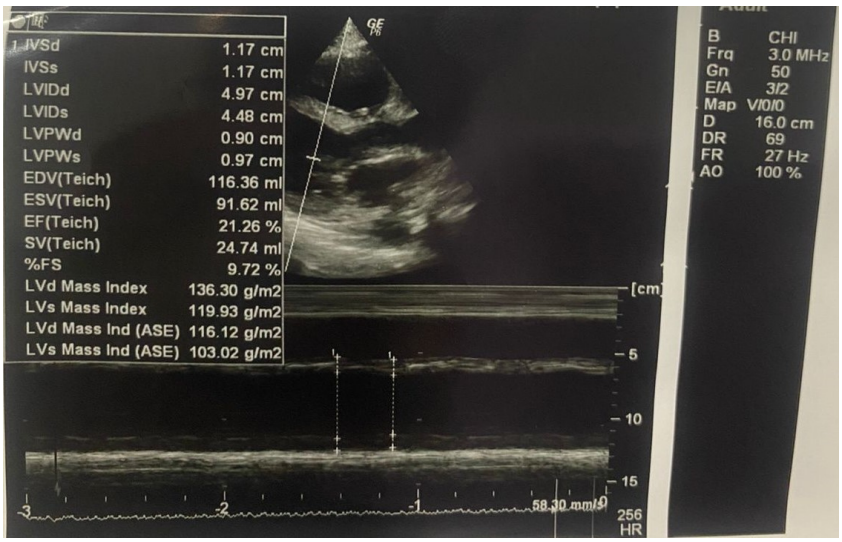

Figure 1. Transthoracic Echocardiography.

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CASE REPORT / CASE SERIES

Recurrent Cerebral Abscess : A Rare Complication in Adult With Tetralogy of Fallot

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Background : Cerebral abscess was a rare but potentially life threatening complication among patient with cyanotic heart disease, particularly uncorrected tetralogy of fallot (TOF). In developing countries, delay in surgical repair of TOF puts children or adult with Congenital Heart Disease (CHD) at greater risk of developing adverse neurological complications, particularly brain abscess. We described a female with multiple recurrent brain abscess due to Unrepaired TOF.

Case Illustration: A 24 years old cyanotic woman admitted to emergency department with continuous focal seizure in her right hand, severe headache and vomitus. We found cyanotic clubbing finger, ejection murmur III/VI in the left sternal border and focal seizure in right hand without any other neurological defect. She was diagnosed with TOF since 2 years ago and had not undergone any surgical correction. Echocardiography revealed a tetralogy of fallot with moderate subinfundibular pulmonary stenosis with pressure gradient 92 mmHg. Brain MRI revealed multiple cerebral abscess without increased intracranial pressure. During hospitalization, there were several episodes of seizure. These finding supported a diagnosis brain abscess due to Unrepaired TOF, requiring an urgent abscess evacuation. Abscess cultur revealed Staphylococcus Saprophyticus as a responsible microorganism and antibiotic vancomycin was administered. On two weeks follow-up, she had still symptomatic seizure and underwent penetration craniotomi of the abscess 3 times due to recurrent abscess in her brain. Finally we planned for total correction of TOF surgery. Complete correction of heart defect was done and after 6 months follow-up, no signs of sequelae or any complaint were seen.

Conclusion :
Considering the fact that brain abscess complicates uncorrected cyanotic congenital heart diseases, physicians should do a routine screening and early detection for complication of cyanotic heart related brain abscess to avoid unnecessary delay in diagnosis and management. However, total correction of heart defect is need to be done in this case to avoid further recurrency of the abscess.

KEYWORD: *tetralogy of fallot, brain abscess, cyanotic heart disease*

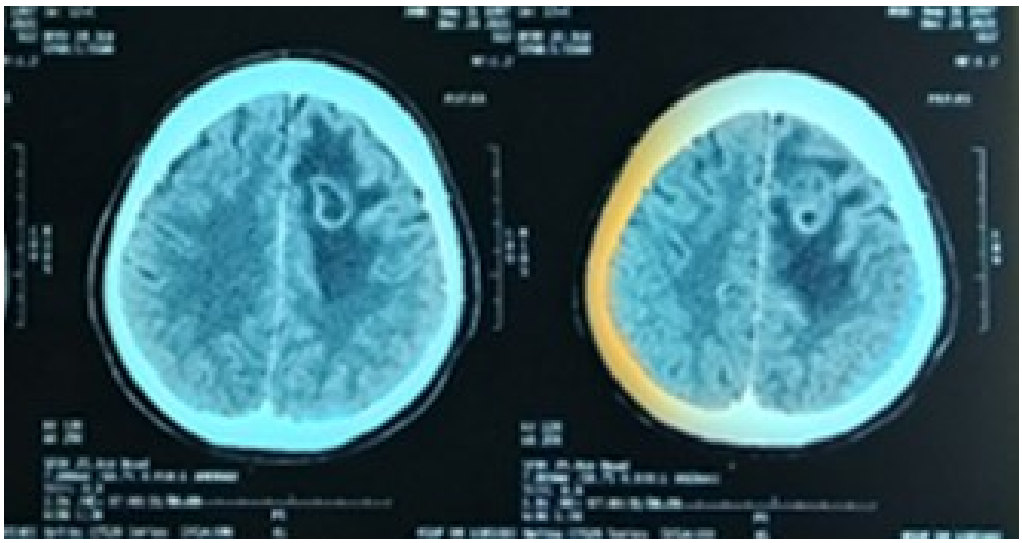

Figure 1. Head CT scan showed multiple cystic ring lession at frontotemporal

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CASE REPORT / CASE SERIES

A-57 Years Old Male with Alcoholic Cardiomyopathy at Wahidin Makassar Hospital, Makassar-Indonesia: A Case Report

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[1]RS Wahidin Sudirohusodo/RS Unhas

Background: Alcoholic cardiomyopathy is a condition caused by excessive alcohol consumption, which causes a reduction in cardiac function and disturbance in heart pumping ability. Its clinical findings share similar features to other forms of dilated cardiomyopathy. Diagnosis can be made based on the history of long term alcohol abuse, clinical findings, and supporting diagnostic studies. This case report aims to overview alcoholic cardiomyopathy; from establishing the initial diagnosis to the treatment given for the condition.

Case illustration : A 57 years old male came to the emergency department unit with shortness of breath since last few days. Shortness of breath was said to be getting worse over time and progressed to breathlessness at rest. Other complaints were chest pain,palpitations, and fatigue. The patient was found to have a history of drinking alcohol in large quantities since 20 years ago. The blood pressure was 108 /70mmHg, pulse rate 120 beats/min, and respiratory rate was 22 breaths/min. From auscultation examination, bibasilar crepitation on both lungs was found. Cardiac examination showed systolic murmur of mitral regurgitation (MR) .On supporting investigation, a MSCT showed cardiomegaly with Lung Edema. ECG examination showed sinus tachycardia QST Elevation at V1-V5. Trans-thoracal echocardiographic (TTE) examination revealed; RWMA: segmental hypokinetic-akinetic, multi-chamber dilated and Moderately Abnormal LV systolic dysfunction (EF 37 %) and (Valve examination showed Mild MR. Coronary Angiography showed Normal Coroner and MRI showed dilated cardiomyopathy (non ischemia cardiomyopathy) with Dysfunction EFLV (35 %).

Conclusion: Alcohol cardiomyopathy is one of the causes of heart failure which sometime forgotten and carries a poor prognosis if not treated properly. Treatment of alcoholic cardiomyopathy mainly includes total alcohol abstinence along with drugs used to treat systolic heart failure in appropriate guideline to reverse the condition and correct any nutritional deficiencies.

KEYWORD: *cardiomyopathy, HFrEF, Wahidin Makasar hospital*

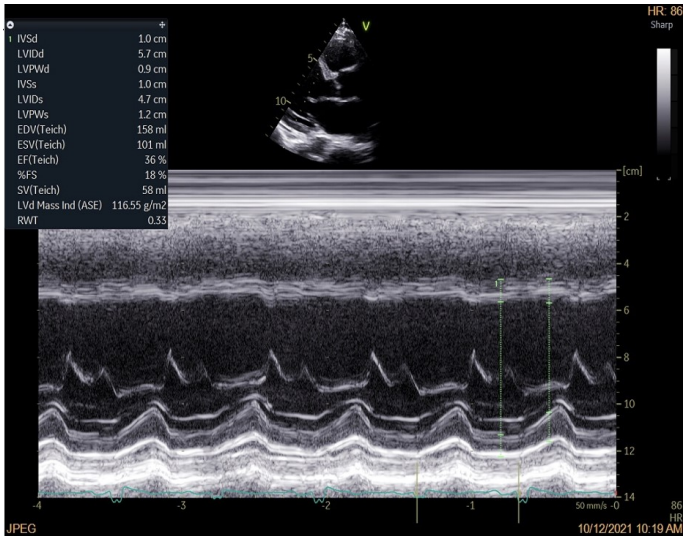

Figure 1. LV Study Echocardiogrphy

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CASE REPORT / CASE SERIES

Concomitant Coronary Artery Bypass Graft And Mitral Valve Replacement In RHD Patient With Giant LA Thrombus: Double The Trouble

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Background: Rheumatic heart disease (RHD) is one of the most common cause of valvular heart disease in developing countries like Indonesia. Occurrence of coronary artery disease (CAD) in RHD patient results in poor prognosis and possibly more complicated treatment approach. We present an incidental finding of CAD in RHD patient which lead to concomitant coronary artery bypass graft (CABG) and mitral valve replacement (MVR) surgery.

Case illustration: A 50-year-old woman came to our emergency department with signs and symptoms of acute decompensated heart failure. Her complaints first appeared since one month before admission and she never seek for any medical attention. She never experienced any angina and did not have any risk factors for CAD except for her age. ECG showed atrial fibrillation with rapid ventricular response. Chest X-ray showed enlarged right heart with congestion. Her heart sonogram revealed a giant LA thrombus with severe mitral stenosis due to RHD. Signs of severe pulmonary hypertension were also seen. The patient was discharged after couple days of admission and was sent to tertiary hospital to undergo definitive treatment. After 6 months, the patient came back to our hospital after she received MVR with mechanical valve, LA thrombus evacuation and CABG with single graft. Her coronary angiography revealed multiple stenosis (30% distal left main, subtotal mid to distal LAD, 40% proximal LCx, 60% OM1 and 40% proximal RCA). Her symptoms were significantly improved and she is adequately anticoagulated with VKA. Coronary angiogram is selectively done to exclude CAD before valve surgery. Studies showed single-vessel involvement, mostly LAD, is more common among these patient. Combined valve replacement with CABG were initially thought to increase complexity and risks of early and late complications. However, recent studies showed that concomitant CABG and valve surgery have demonstrated insignificant adverse impact. It reduces the rate of perioperative MI, improves short and mid terms outcomes.

Conclusions: Screening for CAD is mandatory in selected RHD patients who are planned to undergo valve surgery. Should the burden of CAD requires revascularization, combined CABG with valve surgery is safe and can be performed in pursuit of better prognosis.

KEYWORD: *Rheumatic heart disease, Coronary artery disease, CABG, Mitral valve replacement.*

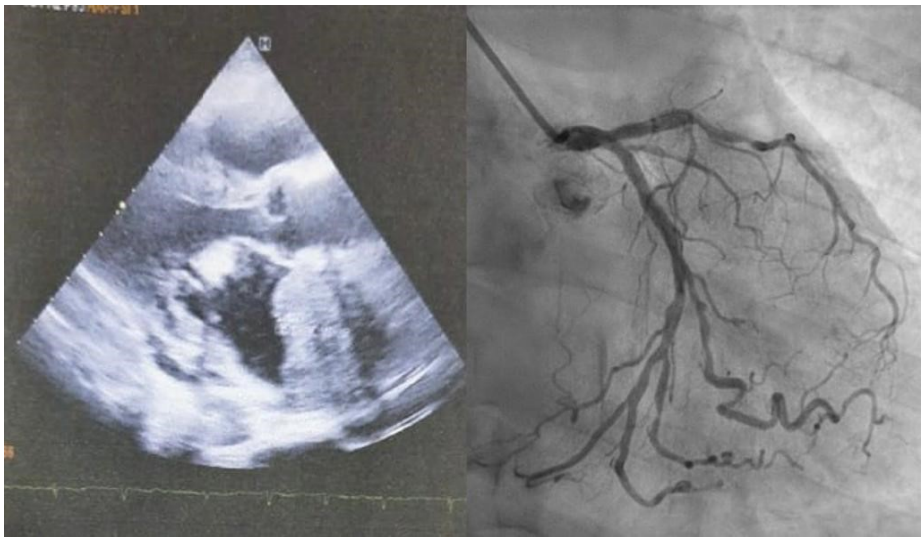

Figure 1 : LA thrombus was revealed by echocardiography and coronary angiography showed multiple stenosis.

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CASE REPORT / CASE SERIES

Infective Endocarditis With Multiple Serious Complication

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[2]Faculty of Medicine, Universitas Diponegoro, Semarang

Background: Infective endocarditis (IE) remains a life-threatening disease. It might have many serious systemic complications. Complications include cardiac, neurological, renal, and in some cases, thrombocytopenia can be seen. Platelets have an important role in the pathogenesis of endocarditis itself. And more importantly, platelets count also have a prognostic factor. In this report, we present a patient with multiple serious complication associated with infective endocarditis.

Case Illustration: 40 years old man came to our Emergency Department with chief complaint of shortness of breath. His complaint was aggravated by physical activity and worsen over time. He also had fever for 7 days before admission. Patient's blood pressure was 100/40 mmHg, heart rate 98 bpm, temperature 38,5 ºC. To and fro murmur was heard in Erb's area. Purpuric lesion was found in upper and lower extremities. Laboratory findings showed anemia, thrombocytopenia and chronic kidney disease grade V treated with hemodialysis, three separate cultures of blood were positive for Streptococcus viridans. Transthoracic echocardiography showed dilated of all chambers, severe aortic regurgitation associated with rupture of RCC sinus, multiple vegetation in the aortic valve, LVEF 40,5% (Biplane), TAPSE 21 mm and regional wall movement abnormality.

Conclusion:
In conclusion, we diagnosed our patient with infective endocarditis with multiple serious complication. This case report also shows thrombocytopenic purpura as an unusual presentation that can be seen in patient with infective endocarditis and also correlate with poor prognosis of infective endocarditis patient.

KEYWORD: *Infective endocarditis, Thrombocytopenic purpura*

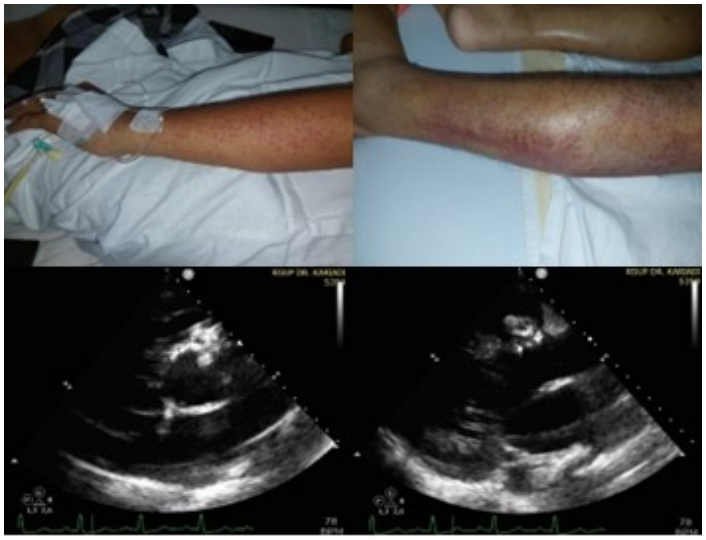

Figure 1. Upper left- right : Purpuric lesion in upper and lower extremity; Lower left – right : vegetation in aortic valve in systolic phase, protruded to the RV due to Rupture of Sinus Valsava

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CASE REPORT / CASE SERIES

Myocardial Infarction with Nonobstructive Coronary Arteries (MINOCA) : Case Report

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Background: Myocardial infarction with nonobstructive coronary arteries(MINOCA) is clinically defined by the presence of the universal acute myocardial infarction(AMI) criteria, absence of obstructive coronary artery disease, and no overt cause for the clinical presentation at the time of angiography. With the more frequent contemporary use of coronary angiograph in AMI, clinicians have been regularly confronted with this puzzling problem and seeking guidance in its management.

Case Illustration: A 16 year old man presented to the hospital with dyspnoe. Complaint about always feel nausea and vomit after eat or drink something. No chest pain described. At ecg we found Normal Sinus Rhythm, heart rate 95x/minute, Normoaxis, with ST depresion at lead II, III, aVF, V3 and V4. And lab result increase of Troponin I enzim. Echocardiogram showed Reduced LV systolic function, LV normal geometry, Diastolic dysfunction impaired relaxation, normal RV contractility, Mild hypokinetc in anterior, anteroseptal, at the level of B-M, Mild TR with low probabilty PH. And the patient was given the diagnosis of Myocardial Infarction with non-obstrucstive coronary arteries(MINOCA). And we give patient with single platelet only, anti-angina, B-blocker, Ace-inhibitor, and low dose statin with one month follow up.

Conclusion: Myocardial infarction with nonobstructive coronary arteries(MINOCA) should be diagnostic comseideration in patients resenting with chest pain. Nevertheless, clinically defined by the presence of the universal acute myocardial infarction(AMI) criteria, absence of obstructive coronary artery disease, and no overt cause for the clinical presentation at the time of angiography. Although, there is no obviouscoronary stenosis in MINOCA patients, there are still risk of adverse CV events, and to be treated with full caution. Therapy for MINOCA, it has been shown that the use of statins and ACEI/ARB to enhance MINOCA patients long-term prognosis has significantly benefits. Meanwhile, the advancement of multicenter research into the potential diagnosis and treatment of MINOCA will guide therapy and enhance the prognosis of patients. There is a need for further extensive studies regarding pathogenesis and treatment for this unique case with the potential to upgrade the quality of life of patients with MINOCA.

KEYWORD: *MINOCA, Myocardial infarction with nonobstructive coronary arteries, statin, ACEI*

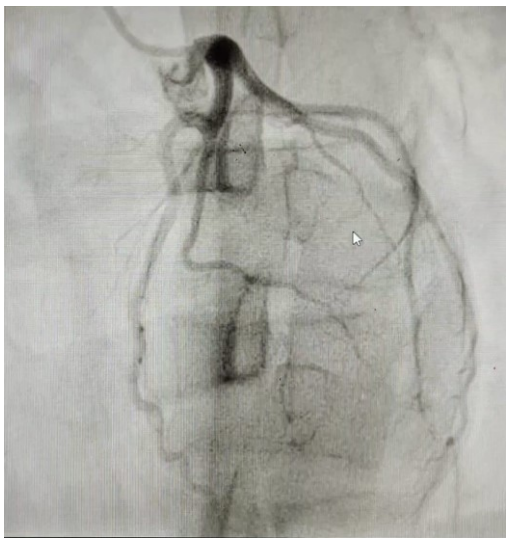

Figure 1. Coronary Angiography.

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CASE REPORT / CASE SERIES

Perioperative Myocard Infarction Related Early Graft Failure : Serial Intrahospital Cases

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[1]PJNHK

Background: Perioperative myocardial infarction (MI) is a serious complication following coronary artery bypass graft (CABG) surgery with an incidence between 5 and 10%. Myocardial damage following CABG surgery is due to two different causes classified as graft or non-graft related. At National Cardiovascular Centre Harapan Kita (NCCHK), there two cases of PMI that evaluated angiographically and confirming of graft failure.

Case illustration : First case, a 53 years old man, underwent an elective surgical bypass surgery. On the first day, the patient had perioperative myocardial infarction with new pathological Q wave and RBBB, elevated cardiac troponin >10 times, new regional wall motion (RWMA) and confirmed by coronary angiography. This patient had redo bypass surgery to correct the graft. Second case, a 68 years old man, underwent an elective surgical bypass surgery. The patient had perioperative myocardial infarct based arrhytmia events, elevated creatine-kinase myocard band enzyme (CKMB), new RWMA and angiography. PCI at the native coronary artery was done in this patient.

Conclusion:
Two case of periprocedural myocardial infarction due to early postoperative coronary artery bypass graft failure. Graft failure was suspected from increased cardiac troponin (cTN) >10 times URL, ischemic findings from electrocardiogram (ECG) and new regional wall motion abnormality (RWMA) from echocardiography which lead to coroangiography procedure. The difference revascularization management for early graft failure comes from the related to native coronary arteries and failure of left internal mammary artery (LIMA) graft.

KEYWORD: *perioperative myocardial infarction, coronary artery bypass graft surgery, early graft failure*

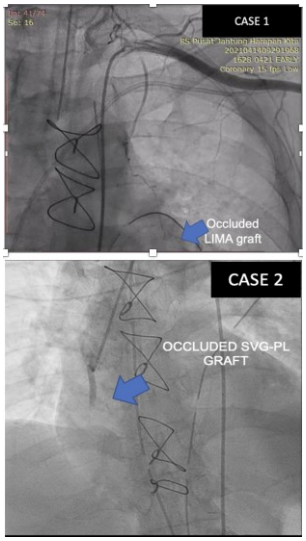

Figure 1. Revascularization.

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CASE REPORT / CASE SERIES

May Thurner-Syndrome : Latter is Poorer

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[1]Saiful Anwar Hospital

Background: May-Thurner syndrome (MTS) is a venous disorder of the lower extremity that can present in early presentation as deep vein thrombosis. This disorder result from compression and/or irritation from adjacent crossing right common iliac artery to left iliac venous. Because of chronic mechanical compression, medication alone can only giving little effect on therapy. Late presentation may worsen the outcome.

Case illustration: A 49-year-old man was admitted to the hospital because of left leg swelling. The symptoms was happen for 6 month. Doppler ultrasound (DUS) was perform and thrombus at left V femoralis was found with normal flow of artery and vein of right lower extrimites. He had been assessed as DVT. He got anticoagulant (rivaroxaban) for 21 days and been continued for 3 months. After 3 months of anticoagulant, DUS evaluation still showed thrombus at left V. Femoralis. CT venography was performed with result : thrombus at vena communis femoralis sinistra +/- 2.4 cm that cuase severe stenosis (+/- 60%). Six month after anticoagulant, patient still complaint of leg swelling and heaviness of left leg. Patient was diagnosed with MTS.Venography was performed with result total occlusion of left common femoral vein and left iliac vein with adequate collateral flow. PTV was performed on CTO but failed. Anticoagulant was continued after procedure. Three months after venography, he came again to hospital with symptom of leg swelling after long standing or moderate to high activity with slightly reduce quality of life. PTA was tried again with anterograde and retrograde access, PTV successfully penetrated the occlusion in the left iliac vein but failed to penetrate the left femoral vein. Anticoagulant (rivaroxaban) 1x20mg was suggested to continued and had stocking compression frequently. Follow up regularly for any symptoms or reducing quality of life.

Conclusion
Late presentation of May-Thurner syndrome was related to high sources burden and poorer quality of life.

KEYWORD: *May-Thurner syndrome, Percutaneous transluminal venoplasty, Anticoagulant*

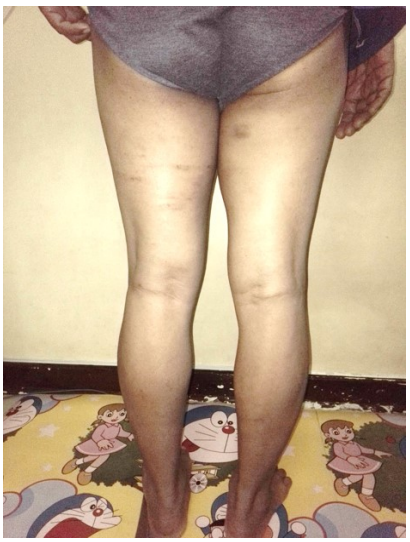

Figure 1. Clinical Presentation after PTV

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CASE REPORT / CASE SERIES

Post-myocardial Infarction Ventricular Septal Rupture Following Asymptomatic STEMI Anterior

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Background: Myocardial tissue rupture is the most severe mechanical complication of STEMI with high mortality rates. Clinical presentation of this complication varies depending on the site and size of rupture. VSR is a rare in the era of primary PCI.

Case Illustration: A 61-year-old woman came to ER with chief complain of weakness the last 2 days. No chest pain present. The patient had history of hypertension, ischemic stroke and DM. Patient was alert, with BP 119/85 mmHg, HR 105 bpm, RR 26 bpm, temperature 36 and SpO2 95%. There was pansystolic murmur at the apex and LLSB, thrill, and wet crackles in both lungs. ECG shows ST elevation with pathologic Q in V2-V6. Laboratory results showed an increasing of cardiac markers (troponin T 1441 ng/L, CKMB 3.0 ng/mL) and AKI (urea 78 mg/dL, creatinine 2.22 mg/dL). Chest X-ray showed cardiomegaly with bilateral pleural effusions. Echocardiogram showed IVS rupture 1.6 cm L-R shunt, TR mild, MR mild. The patient was given double antiplatelet, heparin, nitrate, furosemide, carvedilol, ramipril, and low dose dobutamine. Currently the patient is treated in our ward with stable hemodynamics. VSR often occur in female, elderly, with a history of kidney disease. This event is more common in patients who has first MI with absent or delayed reperfusion. VSR can occur in 1-14 days post STEMI. However, it usually occurs on the first day or 3-5 days post-infarction. The prognosis is good if the rupture size is small and hemodynamically stable. However, in most cases, hemodynamics deterioration can lead to cardiogenic shock. VSR requires surgery in symptomatic patients. The procedure is VSR closure and CABG. Over time, techniques and prosthetics for surgery have improved that patients can have good outcome. The patient was advised to refer to central hospital for surgery but unfortunately refused.

Conclusion: VSR is rare but deadly complication of MI. Primary reperfusion is recommended to prevent this event. Surgery remains as standard treatment.

KEYWORD: *VSR, STEMI*

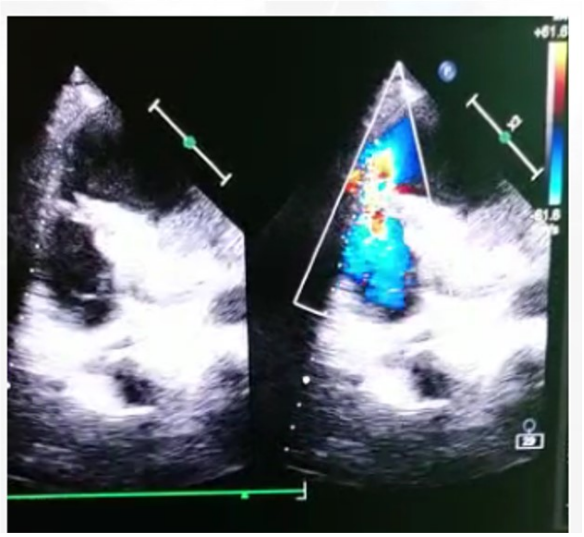

Figure 1. Echocardiogram shows ventricular septal rupture with left to right shunt

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CASE REPORT / CASE SERIES

Managing Total Atrioventricular Block Post Transcatheter Aortic Valve Implantation : A Case Report

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[1]National Cardiovascular Center Harapan Kita

Background: Transcathter aortic valve implantation (TAVI) has increasingly been seen as alternative procedure in patients with severe aortic stenosis especially in those with high risk for surgical aortic valve replacement. Proximity of the conduction system of the hearth and aortic valve structures enable high risk of conduction system disturbances such as high degree AV block. This case report illustrated the first experience in managing case of TAVB in post TAVI patients in Indonesia.

Case Illustration: A 78 year old male with severe aortic stenosis and reduced left ventricular ejection fraction underwent transcatheter aortic valve implantation. Patient experienced total atrioventricular block during second day admission in the intensive care. Hemodynamic monitoring in the intensive care showed that the patient is hemodynamically stable with adequate escape rythm. After several days of observation in the intensive care and no resolution of the TAVB, the team decided to do permanent pacemaker implantation. The procedure was done uneventfully. Patient was discharged from the hospital after the procedure.

Conclusion
Total Atrioventricular block is one of the more common post TAVI implantation complication. Early screening for high risk patients and early detection of TAVB post TAVI implantation may be needed. Guidelines from the European Society of Cardiology recommends 7 day period of clinical observation to observe the significant of the AV block. Earlier PPI were indicated in patient with AV block with slow escape rhythm or unstable hemodynamics.

Keywords: *Transcathter Aortic Valve Implantation, Total Atrioventricular Block, Permanent Pacemaker*

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CASE REPORT / CASE SERIES

Brugada Syndrome (BrS): Mimicking ST-elevation Myocardial Infarction

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Background: Brugada Syndrome (BrS) is a rare case which has been associated with sudden cardiac death. In some reported cases of BrS, the patients rarely have complaints. While in other cases, symptomatic patients with BrS are often diagnosed with acute coronary syndrome (ACS). Identifying BrS is important because the patient is at risk for sudden death. This case highlights how a patient with BrS was diagnosed with ACS before.

Case Illustration: 56 years old man with a history of diabetes mellitus presented with typical chest pain, shortness of breath and sweating profusely that began 15 hours before came to the emergency room (ER). He denied any syncope, palpitation or any previous cardiac problems. There was no prior history of sudden death in his relatives. Patient heart rate was 110 bpm, blood pressure was 150/90. Electrocardiogram (ECG) showed sinus tachycardia with coved ST-segment elevation in V1-V3. Patient was given a loading dose of dual antiplatelet then consulted to a cardiologist. Troponin I level was in normal range. Echocardiography shows good RV and LV function. Coronary angiography also showed no abnormalities. Patient admitted to the intensive coronary care unit (ICCU) for observation. ECG serials were conducted and showed neither coved ST-elevation nor ECG evolution of ST-elevation myocardial infarction. Patient was given beta blocker and dual antiplatelet was discontinued. Later, his symptoms were relieved and allowed to discharge. Patient was then referred to the arrhythmia division in Harapan Kita Hospital where Ajmalin test was performed and came positive for BrS type 1. Patient was scheduled for an implantable cardioverter defibrillator (ICD).

Conclusion: Identifying BrS either in asymptomatic or symptomatic patients is important, as its pattern is often mimicking ACS. If there is an ST-elevation with BrS pattern, we should also dig into the history of syncope and family history of sudden death. Knowing that the patient is also possible for having BrS can prevent the patient from being given unnecessary antiplatelet and most importantly to refer the patient to the cardiologist for ICD requirements.

KEYWORD: *Brugada syndrome, ST-elevation myocardial infarction, sudden death*

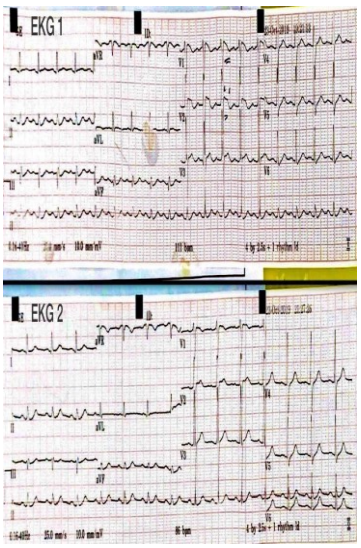

Figure 1. ECG serials in the ER (ECG 1) and in the ICCU (ECG 2)

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CASE REPORT / CASE SERIES

Too Fast or Too Curious: A Confusing Case of Acute Myocardial Infarct

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[1]Pelita Harapan University

Background: Acute myocardial infarction (AMI) is defined as the irreversible damage to the heart muscle due to a lack of oxygen. An MI can present with symptoms of ischemia, ST-segment changes, pathological Q waves on the ECG, or the presence of an intracoronary thrombus on angiography. Despite of that, there are unique cases that can mimic the clinical presentation of MI, such as electrolyte imbalance.

Case Illustration: A 63-year-old female was brought to the hospital due to persistent nausea and vomiting since 2 weeks before entering the hospital. The patient denies any symptoms of typical angina pectoris, fever, or acid reflux. The patient also denies any history of hypertension or type-2 diabetes. The patient was referred to a cardiologist with a suspicion of MI, because of elevated CK-MB (89.1 U/L) and Troponin-T (188.8 pg/mL), ECG also showed ST depression on lead V5 and V6. Echocardiogram revealed normokinetic at rest with normal systolic function. Severe hypokalemia was also found in this patient, with a serum Potassium level of 2 mmol/L. However, during cardiac catherization, moderate stenosis on LAD with IFR 1.0 was found. Is it too fast to conclude AMI with such clinical features? Confusing management often happens due to uncertain diagnosis. However, atypical angina pectoris with ST segment deviation and elevated troponin levels would be not a straightforward decision especially in this patient. Severe hypokalemia was found with a value of 2 mmol/L. It is thought that hypokalemia can cause vasoconstriction by inhibiting the Na-K pump in vascular smooth muscle. Vasospastic angina, or Printzmetal angina, is caused by diffuse or segmental spasm of the coronary arteries. Decreased blood supply to the myocardium can cause symptoms such as chest pain. Spasms can be triggered by many factors such as cold weather, endothelial dysfunction, or any substance that causes vasoconstriction. Thus, in this patient, clinical presentation could mimic AMI even though coronary flow was normal during catheterization.

Conclusion:
Vasospastic angina is a type of angina pectoris caused by coronary artery spasm and can be triggered by substances that cause vasoconstriction, such as severe hypokalemia. Therefore, it is important to recognize and treat it accordingly.

KEYWORD: *Vasospastic Angina, Acute Myocardial Infarct*

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CASE REPORT / CASE SERIES

Acute Pleuropericarditis After Successful Percutaneous Coronary Intervention (PCI)

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[1]FK UNS/RSUD Dr Moewardi

Background : Pleuropericarditis has a variety of causes. The syndrome of pleuropericarditis with fever, pleuritic chest pain, and elevated inflammatory markers secondary to cardiac injury is referred to as post-cardiac injury syndrome (PCIS). In this report, we present a patient with acute pleuropericarditis following coronary artery microperforation during PCI.

Case Illustration : Male, 46 years old, a referred from UNS Hospital with diagnosed advanced HF, CAD-RADS 5 and total occlusion in mid LAD by CCTA. Patients were treated for PCI and obtained 20% stenosis results in RCA and total occlusion in proximal-mid LAD so that stenting 1 DES was performed in proximal-mid LAD, TIMI Flow III. Three hours after the procedure, pleuritic chest pain and dyspnea increased and a fever developed. On the physical examination, BP was 80/40 mmHg, RR was 30 bpm, and HR was 110 bpm. The Hs Troponin was 1016 ng/L. The leukocyte count (1.5× 109/L), and hS-CRP concentration (9.95 mg/dL) were all elevated. A moderate pericardial effusion was surrounding the heart with mitral inflow 20% and tricuspid inflow 21 % in echocardiogram. The chest X-ray showed a left pleural effusion. We concluded that the patient had an PCIS. He was given 25 mg of methylprednisolone/12 hours and colchicine 0.5 mg/24 hours. The pericardial and plueral effusion was gradually resolved in 5 days. PCIS could also explain a complication of pleuritis with pericarditis, because multiple serositis is commonly seen in PCIS. Pre-immunization by recent mild myocardial injury might explain for this incompatibility, because the patient's angina appeared only a few months before the event of pleuropericarditis after PCI. Mild injuries of the coronary artery during PCI, such as unrecognized perforation, might cause small bleeding into the pericardial space and trigger PCIS in the pre-immunized patient. The remarkable responsiveness to steroids, a clinical characteristic of PCIS, indicates a possible immune-mediated mechanism in PCIS pathogenesis.

Conclusion: The clinical features of the present case were mostly consistent with the diagnostic criteria of PCIS. Prior injury after coronary stenting (iatrogenic trauma from micro-perforation), fever, leukocytosis, elevated inflammatory markers, and remarkable steroid responsiveness were all detected in this case.

KEYWORD: *Acute Pleuropericarditis, Coronary Intervention*

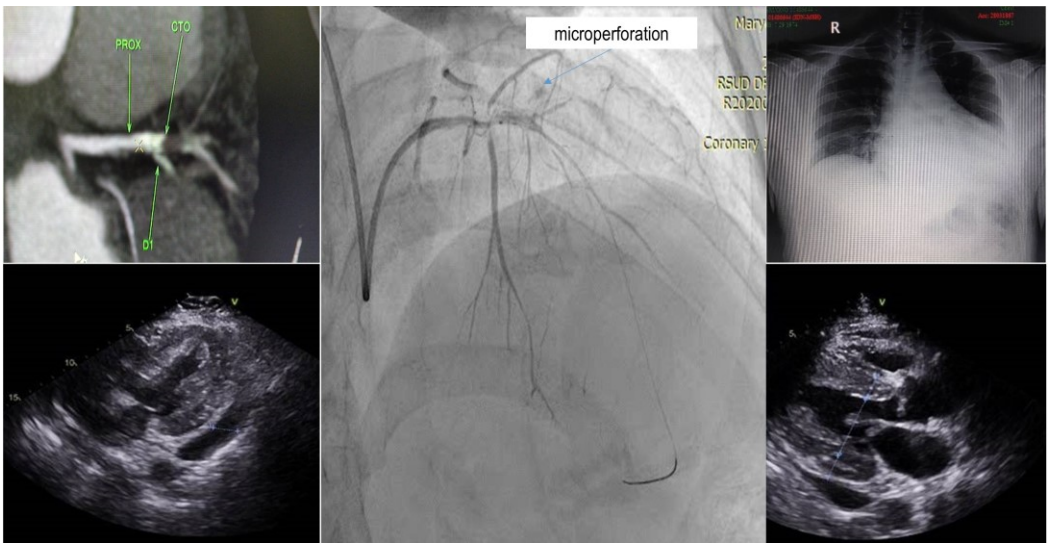

Figure 1. CCTA revealed CAD-RADS 5 and total occlusion in mid LAD. Echocardiogram showed moderate pericardial effusion and x-ray revealed left pleural effusion. In CAG-PCI procedure, revealed microperfuration during index procedure and treated with stenting 1 DES Proximal-Mid LAD

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CASE REPORT / CASE SERIES

A Curious Case from a Limited Facility--Persistent Elevation of ST Segment Weeks after an Episode of Late Onset Anterior STEMI: A New Episode, Sequel, or Spinoff?

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[1]Raffa Hospital

Background: Some old literature had mentioned that persistent ST elevation following anterior myocardial infarction might be attributed to left ventricular aneurysm formation, which usually presented along with deep Q waves without reciprocal ST changes. More recent studies highlighted that reperfusion injury, size of necrotic area, and microvascular damage demonstrate a clear causal relationship with the persistence of ST elevation.

Case illustration: A 57-year-old female with a history of stroke, dyslipidemia, and hypertension was hospitalized after having dyspepsia which radiated to the back around 24h before presentation. Sinus tachycardia (108bpm), pathologic Q in inferior leads, and ST elevation in V1-V6 precordial and inferior leads were discovered on the ECG. Elevated troponin I level (11.6ng/mL) was present. She was treated with a loading dose of aspirin and clopidogrel, 40mg atorvastatin, unfractionated heparin for 24h, then daily medication of 80mg aspirin, 75mg clopidogrel, 20mg atorvastatin, 2.5mg ramipril, 2.5mg bisoprolol and 5mg tid ISDN. She was discharged on the 4th day. Fifty-one days later, she was re-admitted after experiencing malaise, anorexia, labored breathing, and palpitation but denied any chest pain. She was tachypneic (26 breaths/minute) and desaturated (SpO_2 90% on room air). Ronchi was heard on both lungs. The significant ECG finding was ST elevation in V2-V4 precordial leads. Pancardiomegaly, bronchopneumonia, and nodular opacity in the right paracardial were reported in the thorax radiograph. Troponin I level was 0.4ng/mL. Fasting cholesterol testing was slightly elevated for LDL (141mg/dL). Treatment with oxygenation, 80mg daily aspirin, 75mg daily clopidogrel, 40mg daily atorvastatin, and 1gram bid ceftriaxone led to clinical improvement. It was not possible to perform exercise testing, cardiac MRI, or angiography to disclose the etiology because of the facility limitation.

Conclusion: Left ventricular aneurysm cannot yet be ruled out as the cause although the latter ECG did not show deep Q waves, and so is ischemia. However, the most probable mechanism is through the formation of large infarct size after a late onset episode which leads to early repolarization. If possible, referral to higher facility to perform further workups is encouraged to prevent morbidity and mortality that may arise from pathologic early repolarization.

KEYWORD: *Persistent ST elevation, Anterior STEMI, Early Repolarization*

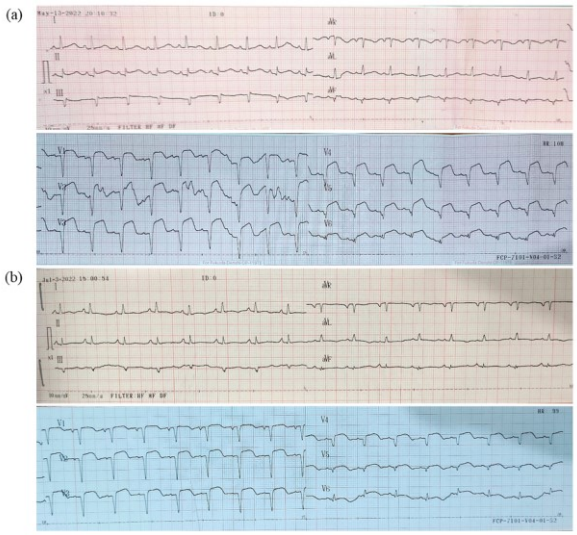

Figure 1 (a) ECG of the episode of anterior STEMI; (b) ECG 51 days later

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CASE REPORT / CASE SERIES

Initial Diagnosis of Chest Pain Patients at First Level Health Facilities with Electrocardiogram at Sebamban II Health Center

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Background: Coronary heart disease causes a high mortality rate in Indonesia, it requires fast and appropriate treatment and diagnostics. Health Center as a first-level health facility is an initial service with limited facilities so that the diagnostic acuity of doctors is needed through clinical symptoms and simple supporting tools in the form of an electrocardiogram.

Case Illustration: 61 years old man came to the Health Center with a chief complaint of chest pain. Chest pain radiates to the left arm. The pain feels like a heavy weight is being crushed and a feeling of suffocation, making it difficult for the patient to breathe. History of similar symptoms (-) History of hypertension (+) Diabetes Mellitus (-) Father died with the same symptoms. History of smoking (+) for 20 years Consciousness compos mentis GCS 456 Examination blood pressure 150/80mmHg heart rate 88x/minute, Respiratory Rate 24x/minute SpO2 94% without oxygenation, SpO2 99% with oxygenation 4lpm. Physical examination shows no murmurs, additional heart sounds, or rhonchi (-) wheezing (-). Anteroseptal stemi electrocardiogram was performed. Initially diagnosed as chest pain et causa STEMI dd NSTEMI. The initial treatment from the Health Center provides oxygenation, pain relief, anti-ischemic loading, and anti-thrombotic. For further treatment, patient referred to the hospital.

Conclusion: First-level health facilities, the initial diagnosis of patients with chest pain can be based on the patient's clinical symptoms and using a simple electrocardiogram. The results can be normal but have typical clinical symptoms, a referral for further treatment and diagnosis is necessary with a gold standard using coronary angiography.

KEYWORD: *chest pain, health-center, electrocardiogram*

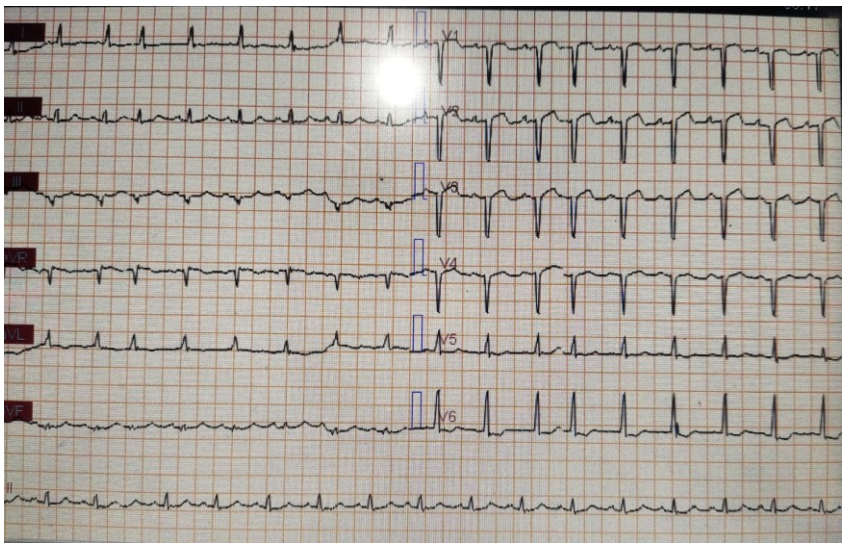

Figure 1. Electrocardiogram

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CASE REPORT / CASE SERIES

Electrocardiogram Evolution: Refractory Ventricular Tachycardia in Severe Hyperkalemia Patients Caused by Undetected Chronic Renal Failure

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Background: Hyperkalemia is defined as serum potassium level of more than 5 mmol/L. Since severe hyperkalemia can cause fatal cardiac dysrhythmias, prompt detection of hyperkalemia and appropriate management are critical. Electrocardiogram (ECG) alterations linked to hyperkalemia come in a variety of patterns. The evolution of the ECG abnormalities in a patient with severe hyperkalemia will be demonstrated in this case report.

Case Illustration: A 60-year-old man visits the emergency room (ER) complaining of shortness of breath that has been present for the past week. Breathlessness is undergone after engaging in light activity, and it subsides after taking a seat to rest. The other complaint was palpitations lasting 3–5 minutes 3 days prior and vomiting in the ER. His medical history included smoking, uncontrolled hypertension, and hypercholesterolemia. His vital sign revealed tachycardia and tachypnea. Physical examination revealed pale conjunctiva, crackles at the base of the lungs, and mild pitting edema on the lower extremities. Peak T waves were detected in all leads on an electrocardiogram. The findings of the laboratory test showed anemia gravis, azotemia, and severe hyperkalemia, therefore he suspected chronic renal failure. Durante potassium correction, the EKG evolved to ventricular tachycardia and sine wave. Disturbances in atrioventricular conduction are linked to hyperkalemia. In this patient, we noticed a rapid (15-minute) transition from a peaked T wave to a sine wave. Evaluation of vital signs is crucial once hyperkalemia has been identified in order to determine hemodynamic stability and detect any cardiac arrhythmias that more likely to be evident in rapidly progressing hyperkalemia.

Conclusion: As the quickest indicator of hyperkalemia, continuous electrocardiography is required to monitor the progression of potassium levels. It is critical to create guidelines for treating hyperkalemic disorders based on clinical data and electrocardiograms to prevent malignant arrythmia and reduce mortality.

KEYWORD: *hyperkalemia, peaked T wave, ventricular tachycardia, sine wave, Chronic Renal Failure*

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CASE REPORT / CASE SERIES

Post Acute Myocarditis in Pre-Pandemic Era : Learning from The Past to Prepare for The Future

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Background: Viral myocarditis is a disease entity with various signs and symptoms that is often similar to other diseases. It is estimated that around 1-5% with viral infection experienced some kind of myocarditis. Imaging modalities such as magnetic resonance imaging may aid cardiologist in establishing diagnosis of myocarditis in patient with high clinical suspicion of myocarditis. Magnetic resonance imaging is one of the best tool to help diagnose and determine prognosis of viral myocarditis in Indonesian populations.

Case Illustration: Two cases of myocarditis were identified in National Cardiovascular Center Harapan Kita. The first case came with presentation of arrhythmia whereas the second case came with shortness of breath. Both patients underwent catheterization in which the coronary arteries were normal. Cardiac Magnetic Resonance Imaging examinations were conducted on the patients and revealed patterns corresponding to myocarditis. Both patients were managed medically and both made significant progress clincally post admission.

Conclusion
Cardiac magnetic resonance imaging modality is of paramount importance in diagnosing cases of myocarditis. CMR not only has the ability to diagnose cases of myocarditis but also determine the prognosis of the patient. Cardiologist should recognize the utility of this examination and utilize it if the resource is available. Other diagnostic tools may be helpful

KEYWORD**:** *Viral Myocarditis, Magnetic Resonance Imaging.*

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CASE REPORT / CASE SERIES

Reactivation of Rheumatic Heart Disease in a Low Income Setting

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Background: Rheumatic heart disease (RHD), preceded by rheumatic fever (RF), remains a major health issue in developing countries including Indonesia, despite being preventable. Primary complication of RHD in children is heart failure which could lead to mortality. Poverty, lack of hygiene and sanitation, and poor access to healthcare could influence the transmission of infection and lead to RHD reactivation.

Case Illustration: A ten-year-old female patient with a previous history of RHD came to the emergency room with chief complaint shortness of breath for three hours. The symptom started six days before presentation, worsened with activity, and subsided with rest. She also complained of palpitations, fever, cough, and bilateral knee and ankle non-migratory joint pain, which disabled her from walking. Previously, she showed improvement with good adherence for one year. However, she was lost to follow up for two years because her family could not pay for their healthcare insurance. Physical examination revealed tachycardia of 144 bpm. Auscultation showed pansystolic murmur with 3/6 intensity at apex. She was malnourished with unkempt personal hygiene. There were multiple dental cavities with root inflammation as focal infection. Electrocardiogram showed sinus tachycardia with left ventricular hypertrophy. Echocardiography revealed severe mitral regurgitation, anterior mitral leaflet thickening, and hockey stick appearance. Chest x-ray exhibited bronchopneumonia without cardiomegaly. Laboratory examination showed increased ASTO, CRP, and LED. Carditis, increase of acute phase reactants, and fever, showed that she was qualified for reactivation of RF according to Jones's criteria. She was immediately treated with Benzathine Penicillin G (1.200.000 IU) intramuscularly, high dose aspirin, steroid, symptomatic therapy, and source control of focal infection. Throat culture revealed no bacterial growth, likely because sample was taken after antibiotic administration. The patient stabilized after six days of hospitalization, but the family requested to be discharged before treatment completion.

Conclusion:
We described a reactivation of RHD in low-income situation in a developing country, hence the latency period in this case was considerably shorter. Timely diagnosis of RF reactivation is essential to deliver prompt treatment to prevent morbidity, further complications, and mortality especially RHD reactivation is more common in children.

KEYWORD: *Rheumatic heart disease, acute rheumatic fever reactivation, mitral regurgitation*

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CASE REPORT / CASE SERIES

Asymptomatic Ebstein Anomaly In Late Pregnancy with Wolff-Parkinson-White Syndrome: A rare case

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Background: Ebstein anomaly is a rare congenital heart disorder occurring in 1 per 200.000 live births and accounting for less than one percent of all cases of congenital heart disease. The common feature in all cases of EA is the apical displacement of the septal tricuspid leaflet in conjunction with leaflet dysplasia. Many cardiac anomalies may be associated with EA including atrial septal defect, conduction system abnormalities, and in severe cases, right heart failure and sudden death. The evaluation and management of pregnancy with EA by a multidisciplinary team are highly challenging.

Case illustration: A 24-year-old woman who presented at 37-38 weeks of her first pregnancy, was referred to the Cardiology Department to evaluate her cardiac conditions before delivery. The patient has a history of congenital heart disease and electrical disorders but never does a regular check-up with the cardiologist because there were no disturbing complaints, other than palpitation five times a year. The electrocardiogram showed sinus rhythm, short PR interval with delta wave, and Wolff-Parkinson-White pattern. On echocardiography examination, the tricuspid valve displacement was seen with moderate tricuspid regurgitation. No interatrial shunt and other cardiac malformations were found. Based on the Carpentier Classification, this patient belongs to Type A, where the right ventricular function is still normal. In asymptomatic patients, routine observation by the Cardiologist is needed. Pre-excitation occurs in about 10–25% of cases, which is formed when the atrioventricular annulus fails to fuse with the hypoplastic central cardiac fibrous skeleton. The patient was planned to do electrophysiology studies for her WPW syndrome for further therapy. The patient was classified as WHO maternal risk class II, where the risk was mild to moderate and vaginal delivery could still be an option but with a note that there was a potential risk for arrhythmias and desaturation during the labour process. The Cesarean section was performed at term gestational age, both mother and her baby were in good condition. Intraoperative arrhythmias or desaturation did not occur.

Conclusions: Treatment of Ebstein Anomaly must be individualized. In mild asymptomatic patients, only observation is required and the maternal risk is mild to moderate. Accessory pathways could be evaluated through electrophysiology study. Multidisciplinary medical team decisions are needed to improve maternal outcomes in high-risk pregnancies.

KEYWORD: *Ebstein Anomaly, Tricuspid Valve, Maternal Risk, WPW*

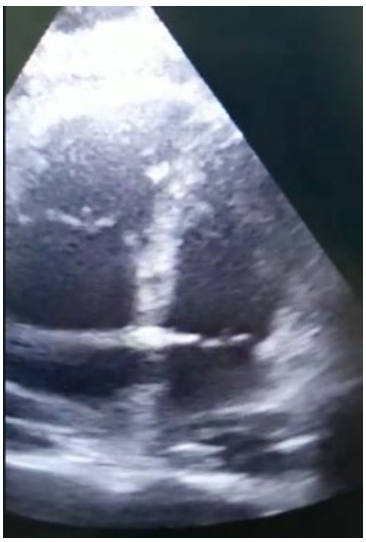

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Figure 1 Echocardiography, 4 chamber view shows tricuspid valve displacement

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CASE REPORT / CASE SERIES

Cor Triatiatum Dexter: A Rare Case with Presentation of Heart Failure, Atrial Fibrillation and Cerebrovascular Accident

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[1]RSUD Labuha

Background: Cor triatriatum dexter (CTD) is a rare congenital heart malformation in which a persistent rightsinus venosus valve divides the right atrium into two chambers. CTD has varying clinical manifestations, depending on the degree of partitioning or septation of the right atrium. We report a case of CTD with heart failure, atrial fibrillation and cerebrovascular accident (CVA).

Case illustration: A 22 year-old male child, was brought to Emergency Departement, with one week history of shortness of breath, swelling in both lower extremities and sudden left sided weakness. He has been diagnosed with mitral stenosis because of rheumatoid heart disease and congestive heart failure since he was 16 years old. On physical examination, there was elevated jugular venous pressure, hepatomegaly, pitting edema in both lower extremities, decrease motoric strength on the left sided. There were rales in the lung basals, 5/6 diastolic murmur in the mitral area and loud pulmonary component of the second heart sound consistent with severe mitral stenosis and pulmonary hypertension. His electrocardiogram exhibited atrial fibrillation with a heart rate of 141 beats/min. Pulmonary congestion and cardiomegaly were observed in CXR. Transthoracic echocardiography revealed for a left ventricular ejection fraction (LVEF) of 55% and severe mitral stenosis. In addition, a fibromuscular membrane dividing the right atrium in two, compatible with the cor triatriatum dexter, was observed in the right atrium . He treated with diuretics, beta blocker, amiodarone, statin and unfractionated heparin. The condition improved after being treated for 5 days in the ward. However, a week later the patient was admitted to the hospital again and passed away because of cardiogenic shock.

Conclusions:

Although cor triatriatum dexter is a very rare congenital anomaly in the society, the development of diagnostic methods has increased the diagnosis of this anomaly. Symptoms and signs of right heart failure and arrhythmias are common in this anomaly. Suspecting is the most important diagnostic parameter in the diagnosis of this anomaly. Percutaneous or surgical treatment can be chosen according to the size of fenestration in patients with resistant symptoms and signs.

KEYWORD: *Cor triatriatum dexter, heart failure, atrial fibrillation, cerebrovascular accident, mitral stenosis*

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CASE REPORT / CASE SERIES

A Mystifying Case of Haemorrhagic Cardiac Tamponade Following a Non-Revascularized Extensive Anterior STEMI

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Background: The incidence of haemorrhagic pericardial effusion following acute STEMI is very rare. However, a little fluid in the pericardial sac can give significant clinical and hemodynamic consequences to the diseased heart. This case illustrates the importance of recognizing hemorrhagic cardiac tamponade, pursuing the cause and managing the hemodynamic consequences in critical care setting.

Case Illustration: 37 years old man came to our ER with chief complaint of dizziness and fatigue. The patient was hospitalized 10 days before in another hospital with diagnosis of anterior STEMI, he got abdominal injections of anticoagulant for 5 days. His blood pressure was 70/52 (56) mmHg with HR 90 bpm. From echocardiography, we found circumferential pericardial effusion diameter with mean diameter of 2 cm, with hyperdynamic RV and collapsing RA. Reduced LV and RV contractility with EF 28 % and TAPSE 11 mm were observed. Fluid resuscitation and inotropic was given. Bedside pericardiocentesis was done and 50 cc of haemorrhagic fluid was drained, pigtail cathteter was inserted and the patient was then transferred to CVCU. Diagnostic workup was done. Pericardial fluid hemoglobin analysis showed close resemblance to plasma hemoglobin. Angiography show subtotal stenosis in mid LAD (CAD1VD) and LV graphy didn't show contrast extravasation. During observation, the patient showed hemodynamic deterioration worsened with anaemia due to blood loss and pre-renal AKI. Routine aspiration from pigtail was done every 6 hours. The hypotension and tachycardia were improving after every aspiration but then started to deteriorate soon as the pericardial fluid re-accumulated. Transfusion was done daily to compensate the blood loss from the aspiration. Cardiac CT showed no contrast extravasation to the pericardium, no mass were seen in the heart, pericardium, nor the lungs. Explorative sternotomy was finally performed on POD-9, showing no major source of bleeding, only clots and fibrinous tissue surrounding the heart. The patient was discharged at POD-15. Outpatient follow-up echocardiography showed good result with minimal residual effusion.

Conclusion: We presented a mystifying case of hemorrhagic pericarditis resulting in cardiac tamponade with uncertain aetiology following an episode of STEMI. Microvessels rupture of infarcted area was thought to be the etiology in our case. Hemodynamic support, evacuation of pericardial fluid, volume expansion, and urgent explorative surgery to control bleeding were important in this case.

KEYWORD: *Hemorrhagic pericarditis, Hemopericardium, Cardiac tamponade, Pericardial effusion, STEMI*

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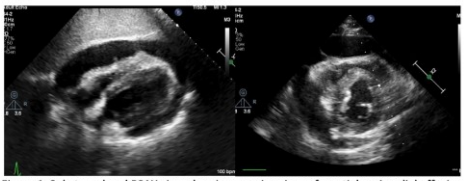

Figure 1. Substernal and PSAX view showing massive circumferential pericardial effusion

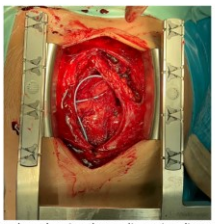

Figure 2. Sternotomy procedure showing the cardiac epicardium covered with blood clot and fibrinous complexes

Figure 1. Substernal and PSAX view showing massive circumferential pericardial effusion | Figure 2. Sternotomy procedure showing the cardiac epicardium covered with blood clot and fibrinous complexes

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CASE REPORT / CASE SERIES

Acute Chest Pain in LBBB patient with Systemic Hypertension, Which One to Treat First?

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Background: Acute chest pain in obstructive coronary artery disease (CAD) and nonobstructive coronary artery disease (NOCAD) is difficult to recognize, clinically, often a missed diagnosis. This is a challenge on how first treatment should be done.

Case illustration: An Asian woman, 69 yo, with a known history of type 2 diabetes mellitus and long standing hypertension, came to PCI center capable with a chief complaint of acute chest pain radiating to the left arm for more than 30 minutes, with an onset of 12 hours (4 hours at first medical contact). It was followed by cold sweating. Her examination revealed an overweight BMI of 25.0 kg/m2 and a 185/102 mmHg blood pressure. Initial laboratory evaluation revealed a random glucose of 170 mg/dl, and HS-Troponin-I was normal (37.8 ng/L). Evaluation of serial troponin I was slightly increased (3.5 □ to 6.8). The ECG showed sinus tachycardia with ischemia LBBB discordant ST elevation 2mm at V1-V3, ST depression at I, aVL. Repeated ECG showed no evolution in ST-segment elevation. The patient received loading aspirin 320 mg, ticagrelor 180 mg, UFH, and ISDN drip. Then referred to perform PPCI. Her angiography confirmed that CAD minor disease, stenosis 20% at proximal LAD. LCx dominant with stenosis 30% at OM4. Osteal RCA at high posterior take-off. Stenosis 20% at mid-RCA. Small diameter RCA. The patient was treated with nitrate and optimal ARB. On the next day, her symptom improved.

Conclusions:
The pathophysiology underlying acute chest pain in systemic hypertension patients with NOCD is still largely unknown. The first treatment, intravenous nitrate and beta-blocker can be used to lower blood pressure. Adding ACEi/ARB and antianginal pain are proven benefit.

KEYWORD: *Acute Chest pain, Left Bundle Branch Block, Systemic Hypertension*

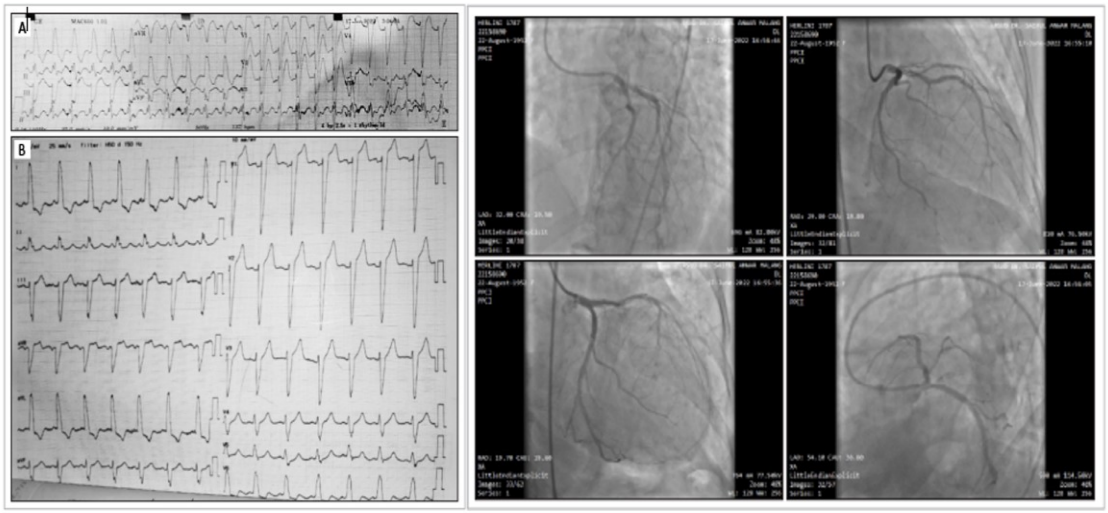

Figure 1. First ECG at first medical contact, onset 4 hours (A) Second ECG at PCI center capable, onset 12 hours (B). Figure 2. Angiographic revealed CAD minor disease

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CASE REPORT / CASE SERIES

NON THERMAL ABLATION IN CHRONIC VEIN INSUFFICIENCY: MOCA & CYANOACRYLATE GLUE ABLATION

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Background: Thermal Ablation becomes standard procedure in Chronic Vein Insufficiency (CVI). This intervention method is relatively safe with patency of 95-97%. However, pain and nerve damage are still around as several risks to be considered. Non thermal ablation as mechanochemical ablation (MOCA) and Cyanoacrylate Glue (CAG) have an edge of this part.

Case Illustration:
Case I:
A 38 years old man with chronic cramps and edema diagnosed with chronic vein insufficiency. Duplex ultrasound revealed a dilated GSV with severe reflux. Venous intervention was done with MOCA. During procedure, a tortuous venous vessel challenged the path during insertion and partly due to less steerable point of the catheter than laser catheter. Two weeks after procedure, the varicose vein resolved with no complaint and very minimum wound.

Case II:
A 58 years old woman with venous claudication and varicose vein, underwent a duplex examination showed severe reflux in GSV with dilated GSV and relatively straight venous pathway. Cyanoacrylate glue ablation was successfully done without any serious complication. Point of note there was mild allergic and resolved with oral antihistamine in 2 days.

Conclusion:
Non thermal ablation could be an alternative in CVI intervention, although it is too early to replace endovenous laser ablation. Several benefits are less tumescent and have no risk of thermal injuries, however, procedural challenge and post procedural risk of allergy are notable.

KEYWORD: *Cyanoacrylate glue, Nonthermal ablation, Chronic vein insufficiency*

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CASE REPORT / CASE SERIES

Unexplained Recurrent Syncope on Head and Neck Cancer: Just a Reflex Syncope or It Is Something More?

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Background: Syncope is a common presentation among patients in the emergency department. Determining the etiology of syncope could be very challenging. The differential diagnosis of syncope is broad and the management itself varies significantly depending on underlying etiology, age, frequency and availability of treatment modalities.

Case Illustration: We present a 58-year-old male with history of growing mass in his left cheek extending to the neck along with abrupt pain sensation. His family brought him to emergency room because of sudden loss of consciousness occurring repeatedly in the last week. On arrival he appeared conscious with normal vital signs. Physical examination showed a large mass on left cheek extending to neck and preauricular region with diameter of 7 centimeter with normal cardiac examination. Surface ECG shows normal sinus rhythm without any signs of malignant arrhythmia related to patient's complaint. Laboratory exams only showed slight decrease of potassium level (3.14 mmol/L). For the moment, patient got diagnosed with parotid gland tumor along with cancer pain. patient felt choking sensation then got unconscious. After few minutes patient regain his consciousness by himself. We decided to perform 24-hour holter monitoring and revealed sudden drop of heart rate which shows sinus bradycardia and episodes of junctional rhythm correlated with patient's syncope episode within examination period. We also found infrequent multifocal PVCs which was not correlated with patient's symptoms. For the time being we assume that the patient suffered from episodes of reflex syncope caused by carotid sinus syndrome or neuralgia that triggered severe bradycardia.

Conclusion: Syncope is associated with broad possibilities of etiology and pathomechanism. These etiology, whether it is cardiac or non-cardiac etiology should be thoroughly explored to decide the best treatment strategy for the patient. Non-cardiac syncope, despite it is considered more benign, had more complex treatment strategy including underlying etiology elimination, counter-pressure maneuver, drugs and lifestyle modification. Cardiac electronic device could still to be considered as a silver bullet as the last resort for patients with syncope.

KEYWORD: *Syncope, Head and Neck Cancer, Carotid Sinus Syndrome, Syncop*e

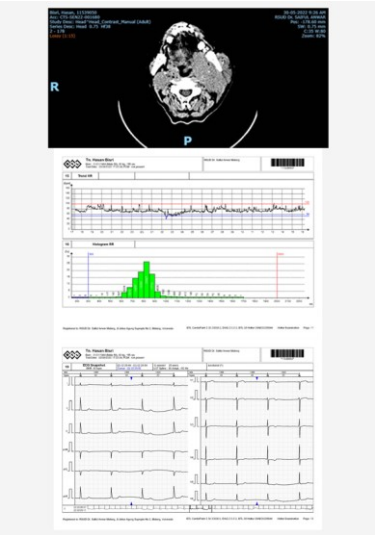

Figure 1. CT Scan of parotid gland tumor with holter monitoring result

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CASE REPORT / CASE SERIES

Timing for Surgery and Permanent Pacemaker Implantation in Patient Post Partum with Underlying Congenital Heart Disease

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Background: Congenital heart disease often presented with arrhythmias as the first feature. Total Atrioventricular Block (TAVB) may present as a congenital disorder or caused by myocarditis. In patient with underlying Ventricular Septal Defect (VSD) with TAVB, timing for Permanent Pacemaker (PPM) and VSD Closure by surgery should be decided carefully.

Case Illustration: A 25-years-old female came to emergency department with chest pain and fever ten days postpartum. Physical examination revealed heart rate of 46 bpm with uncertain murmur on cardiac auscultation. ECG examination showed TAVB, although the patient had no symptom. Laboratory test showed CRP 135 mg/dl with troponin 1.5 ng/dl. Magnetic resonance imaging (MRI) result was suggestive of myocarditis. Transthoracic echocardiography (TTE) examination revealed multiple VSD inlet with MSA left-to-right shunt, stretched PFO, possible vegetation in mitral valve, as well as moderate tricuspid regurgitation (TR). After 14-days of myocarditis and probable infective endocarditis (IE) therapy, TAVB didn't resolve. Continuous monitoring also found constant TAVB with no alternans to other rhythms, thus assessed as congenital TAVB. Three-months later patient underwent VSD closure by surgery, followed by PPM implantation 14 days after surgery. There are no specific recommendations for the management of arrhythmia in myocarditis. Some experts considered evaluation of arrhythmia through waiting period of 5 to 7 days after myocarditis. If afterwards the TAVB didn't resolve, it may be due to congenital TAVB in which PPM implantation is indicated regardless of the symptom. Indication of VSD closure in this patient is due to the high-pressure TR that might further increase RA pressure, thus increased the right-to-left shunting of the PFO, causing high risk of thrombus/stroke. Moreover, this patient also had history of non-bacterial IE, proving the risk of non-repaired VSD. VSD closure need to be done first, then followed by PPM implantation to avoid lead malposition of the PPM.

Conclusion: Surgical closure of VSD with PPM implantation is both considered for patient with L-to-R shunt VSD who had history of IE and TAVB. Indication and timing of surgical management as well as PPM implantation should be discussed with multidisciplinary team.

KEYWORDS: *Congenital TAVB, VSD Closure, PPM, Myocarditis*

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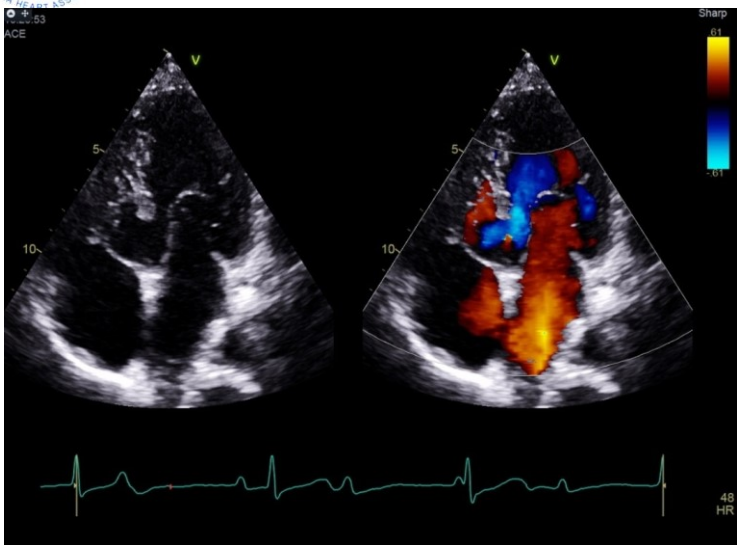

Figure 1. TTE Showed VSD and PFO

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CASE REPORT / CASE SERIES

Decrease of Consciousness and Increasing Creatinine Level Manifested as Inferior STEMI and TAVB: Is Primary Coronary Intervention Worth the Risk?

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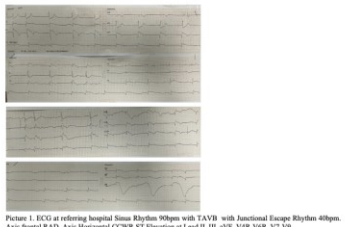
Background: Sudden loss of consciousness may be related to neurological, metabolic, and other cardiac arrest etiologies. In the case of STEMI, loss of consciousness may be caused by inadequate blood circulation thus immediate appropriate management is important to decrease mortality. However, STEMI patients with a decrease in consciousness and increased creatinine level have a higher risk of poor prognosis, thus operators sometimes hesitate to conduct primary PCI

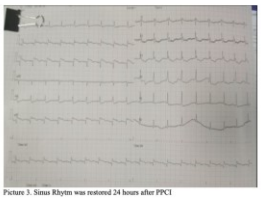
Case illustration: A-61 years old woman was referred to our hospital with a chief complaint decrease of in consciousness (GCS 112) with gasping breathing. Previously, she complained of abdominal discomfort 1 day before being admitted to the hospital, with tiredness nausea, and vomiting. A history of chest pain or discomfort was denied. His cardiovascular risk factors are uncontrolled hypertension, diabetes mellitus, and dyslipidemia. Her heart rate was 30 bpm, blood pressure 105/60 other vital signs were in normal value. The abnormal laboratory was leukocytosis, type 1 respiratory failure, acidosis metabolic, and increased serum creatinine (5.4). ECG revealed TAVB with junctional escape rhythm 40bpm and ST Elevation at lead II, III, aVF, V4R-V6R, and V7-V9. with Killip class IV. She was treated with dual antiplatelet, SA 1 mg, and dopamine pump start 3mcg/kg, however, her GCS is not improving thus the patient was intubated. Immediate Transvenous pacing and Percutaneous Coronary Intervention were performed. Total occlusion in the proximal RCA was stented using one DES with TIMI flow III. 24 hours after her TAVB was resolved, ST elevation in the inferior and right lead was decreased and her GCS became 456 after extubated. Her heart rate and blood pressures were 95 bpm and 150/70 mmHg respectively with a decreased level of creatinine serum (4.0) even without dialysis.

Conclusions
Inferior STEMI can cause sudden loss of consciousness due to TAVB, while immediate primary PCI and TPM management may favor the outcome despite the patient having increased creatinine levels

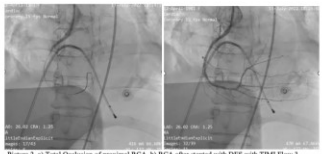
KEYWORD: *Creatinine, STEMI, PPCI, Total AV Block, Temporary Pace Maker.*



Picture 1. ECG at referring hospital Sinus Rhythm 90bpm with TAVB with Junctional Escape Rhythm 40bpm. Axis frontal RAD, Axis Horizontal CCWR ST Elevation at Lead II, III, aVF, V4R-V6R, V7-V9.



Picture 3. Sinus Rhytm was restored 24 hours after PPCI



Picture 2. a) Total Occlusion of proximal RCA, b) RCA after stented with DES with TIMI Flow 3

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CASE REPORT / CASE SERIES

Primary Percutaneous Coronary Intervention In Elderly: Complexity In The Invasive Strategy Approach A Case Series

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Background: Acute coronary syndrome accounts for a significant proportion of the deaths in the elderly. Primary percutaneous coronary intervention (PPCI) is a well-established treatment STEMI in the elderly due to reduced risk of bleeding compared to fibrinolytics. However studies have shown that elderly patients are less likely to undergo revascularization due to the increased risk and complication in these patients. This case series tried to present three case of elderly PPCI that may became reflection in clinical practice.

Case illustration: We presented three cases of elderly patient presenting to the ED with STEMI Diagnosis. The first patient was a 72-years old male diagnosed with STEMI anteroextensive and paroxysmal atrial fibrilation. Initial treatment consist of aspirin, ticagrelol and enoxaparin sodium. Coronary angiography showed total occlusion in proximal LAD. Patient was then treated with deferred stenting strategy in LAD resulting with TIMI flow III. Patient was discharged without chest pain. Second patient was a 80-years old female with STEMI inferior and asymptomatic bradycardia. Initial treatment consist of aspirin, clopidogrel and continued with enoxaparin sodium. Coronary angiography showed Subtotal stenosis in mid RCA and CTO in proximal LAD. PPCI was done in RCA with similar deferred stenting strategy, TIMI flow III and patient recovery goes uneventful then patient was discharged. Last patient was a 72 years old female with STEMI inferoposterolateral. Initial treatment consist of aspirin, clopidogrel , and enoxaparin sodium. ECG shows junctional rhythm and coronary angiography showed total stenosis in RCA. She underwent insertion of a temporary pacemaker and PPCI in RCA, TIMI Flow III. After PCI, patient was observed for several days before discharged.

Conclusions: Older patients often overlooked and excluded from large RCT due to comorbidities and age, rendering it impossible to decide upon an optimal approach in most clinical situations. However, the decision to perform PCI should be based on each patient's clinical circumstances as a whole. It must be emphasized that PPCI on elderly population remain a challenge due to comorbidities and physical tolerance toward intervention. Deferred stenting may be beneficial in this situation as the thrombus burden will decrease, mitigating the slow-flow/no-reflow phenomenon.

KEYWORD: *Primary PCI, STEMI, Deferred stenting*

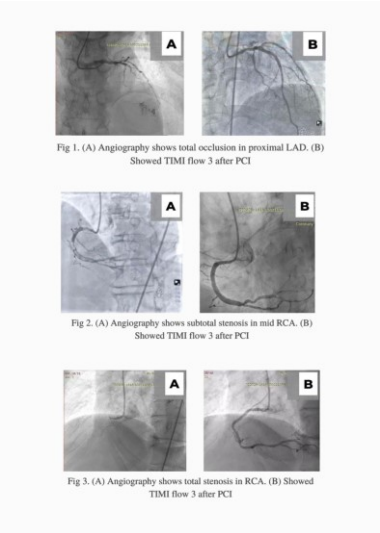

Fig 1. (A) Angiography shows total occlusion in proximal LAD. (B) Showed TIMI flow 3 after PCI

Fig 2. (A) Angiography shows subtotal stenosis in mid RCA. (B) Showed TIMI flow 3 after PCI

Fig 3. (A) Angiography shows total stenosis in RCA. (B) Showed TIMI flow 3 after PCI

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CASE REPORT / CASE SERIES

Concomitant Cardiac Tamponade and Covid-19 with revealed Purulent Fungal Pericarditis Caused by Candida parapsilosis: a Rare Case

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Background: Cardiac tamponade is a life-threatening condition caused by an accumulation of excessive pericardial fluid leading to obstructive shock also has ever been reported as secondary to Covid-19 infection, as a SARS-CoV-2 is a global pandemic manifesting as severe respiratory illness, concomitant cardiac tamponade and Covid -19 became challenging in diagnosis and management due to overlapping in clinical presentation; thus other aetiologies are often overlooked in which we found fungal infection to be the cause of pericardial effusion in our patient, *candida parapsilosis* causing candida pericarditis is a rare condition with higher mortality.

Case Illustration: we reported a 36-year-old male admitted to our emergency unit due to severe shortness of breath; upon admission patient was hypotensive with BP 90/60 mmHg, Tachycardia, desaturation 84%, ECG showed sinus tachycardia with electrical alternans and low voltage patterns, CT Thorax showed Bilateral pneumonia, bilateral pleural effusion and large circumferential pericardial effusion, bedside echocardiography was obtained and revealed large pericardial effusion, swinging-heart, RA-RV collapse and IVC plethora, then we decided to perform pericardiocentesis, during preparation patient was apnea and loss of vital sign, we perform cardiopulmonary resuscitation and intubation along with pericardiocentesis, 715cc of hemopurulent fluid was evacuated, and patient regain to spontaneous circulation, we treat the patient in the intensive care unit, and nasopharyngeal smear comes up with a positive result of covid 19 and being treated with covid-19 regimens and NSAID, after five days patient was extubated, blood test showed increased of D-Dimer, procalcitonin, CRP, culture of pericardial fluid revealed *candida parapsilosis* aetiology, we started antifungal with fluconazole but the patient experienced clinical deterioration with profound shock and on the following day patient was declared death.

Conclusion: Cardiac tamponade concomitant with Covid-19 infection are double jeopardy that requires prompt management because these two entities manifest with acute dyspnea symptoms with different approach and management, candida pericarditis by *candida parapsilosis* often missed; thus, delay in proper antibiotics lead into higher mortality, candida pericarditis is a rare aetiology that should be suspected in patients with refractory conditions of pericardial fluid accumulation and resistant to standard regimens.

KEYWORD: *Cardiac tamponade, Covid-19, Pericardiocentesis, Candida parapsilosis*

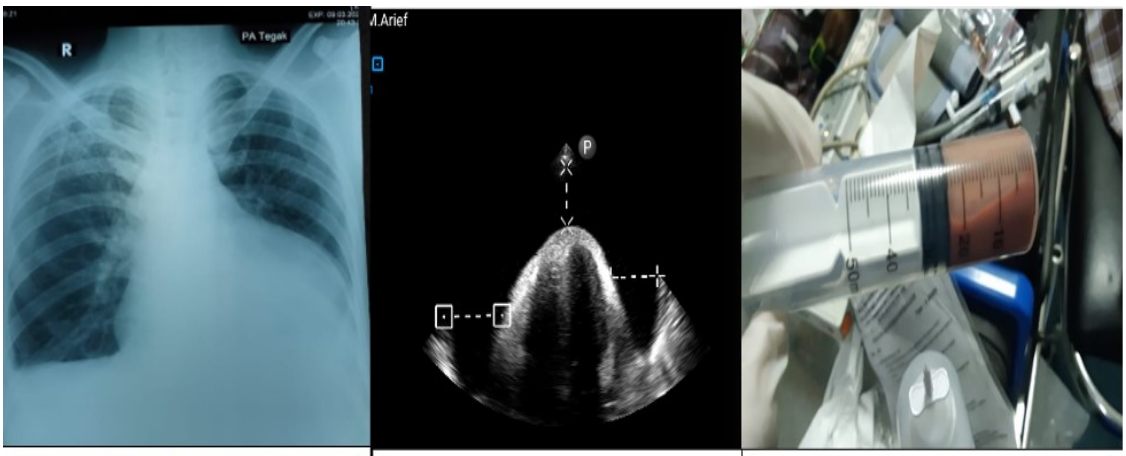

Fig 1.1 Chest X-ray | Fig 1.2 Echocardiography | Fig 1.3 Pericardiocentesis

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Figure 1 Diagnosis Approach & Pericardiocentesis

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CASE REPORT / CASE SERIES

Abdominal Aortic Occlusion In Severe Mitral Stenosis Patient Following Large Left Atrial Thrombus Embolization: A Rare Case

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[1]USU

Background: Left atrial thrombus is one complication of atrial fibrillation and mitral valve stenosis. It carries a high risk for systemic thromboembolism. Acute aortic occlusion is a rare manifestation of it. Acute aortic pathology demands a high index of suspicion and frequent reevaluations during emergency department (ED) visit for proper diagnosis. Even when diagnosed promptly, the overall mortality rate was 52%. Our case report showed an example of abdominal aortic occlusion following large left atrial thrombus embolization.

Case illustration: A 40-year-old female came to our emergency unit with shortness of breath and vague pain in both legs started 2 weeks prior to hospital admission. She had history of severe mitral valve stenosis and atrial fibrillation. Initial vital sign showed tachypnea and tachycardia with irregular pulse. Systolic murmur at left sternal border and bilateral crackers were the pronounced finding from physical examination. The ECG showed atrial fibrillation with rapid ventricular response. Patient underwent echocardiography to confirm the diagnosis and the results showed severe mitral stenosis with large left atrial thrombus (4,3 x 2,6 cm). The patient treated with diuretic and moved to the ward uneventfully. Two days later she complained that her leg pain suddenly worsen. We found no pulsation in her both lower extremity accompanied by cold and painful sensation during palpation. We performed Duplex ultrasound that showed tardus-parvus pattern in both CFA. There was no atherosclerotic plaque or thrombus seen in the remaining artery. Venous signal was still audible. CTA found tortuous abdominal aorta facing to the right and a subtotal occlusion of the abdominal aorta.

Conclusions: Acute aortic occlusion is a frightening specter for doctors who work in the ED. Low overall incidence rate, vague symptoms and common alternative diagnoses make diagnosis is often overlooked. Unfortunately, the consequences of missing the acute aortic occlusion carries high mortality rate. It needs high index of suspicion especially when dealing with high risk condition such as patient with cardiac thrombus so careful physical examination and duplex ultrasound should be promptly performed.

KEYWORD: *Ischemia, aortic, occlusion, embolization, thrombus*

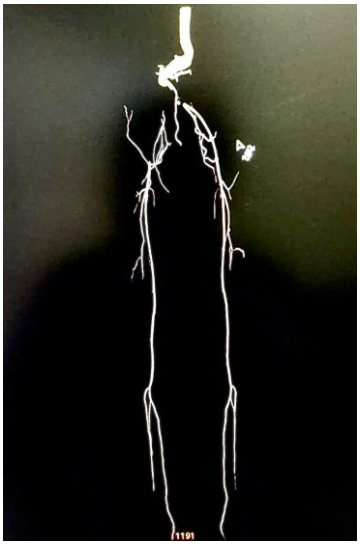

Figure 1. Contrast CTA of abdominal aorta and lower extremities showed tortuous abdominal aorta facing to the right and subtotal occlusion on abdominal aorta possibly caused by saddle embolism

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CASE REPORT / CASE SERIES

The Characteristics and Outcome of Pediatric Patients with Congenital Aortic Stenosis Treated with Percutaneous Balloon Aortic Valvuloplasty at Sanglah Hospital: A Serial Case of 6 Patients

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Background: Congenital Aortic stenosis (AS) is the commonest cause of left ventricular outflow tract (LVOT) obstruction. Clinical manifestations varied from asymptomatic to life threatening duct dependent-critical AS. Percutaneous Balloon Aortic Valvuloplasty (PT-BAV) has been known as the effective invasive management of symptomatic AS with moderate to severe LVOT obstruction. This serial case aims to determine the characteristic and outcome of pediatric patients with congenital AS who had PT-BAV procedure in Sanglah Hospital in 2016-2021 periods.

Case Illustration: Within the period of 2016-2021, there were 6 cases of valvular AS who had PT-BAV procedure, which consist of 4 males and 2 females, within the age of 2 to 18 years. Bicuspid aortic valve anomaly was the underlying valve abnormalities in all cases. There were 3 cases of type 1 valve morphology, 2 cases of type 2, and 1 case of type 3, according to Schaefer Classification. In four cases, valvular AS occurred in conjunction with another congenital heart defect or syndrome. The main clinical manifestation was heart failure. PT-BAV procedure were done using single balloon technique with retrograde approach in majority cases. Although partial release were achieved in 4 cases, residual systolic peak gradient ≤ 40% was only found in 1 case. The commonest complication was catheter induced premature ventricular complex (PVC). 1 case needed PT-BAV reintervention after 3 years of follow up, 3 other cases needed surgical intervention.

Conclusion:
There were 6 cases of pediatric patients with bicuspid aortic valve abnormalities causing moderate-severe degree of AS, who had PT-BAV procedure in our hospital within 2016-2021. The outcome of procedure in our cases was less favourable, where none of them achieved complete release, and half of them need further reintervention. Despite reported as an effective primary approach for patients with congenital AS, there are still risk for late valve restenosis or regurgitation requiring further surgical reintervention or replacement, so regular follow up is necessary.

KEYWORD: *congenital aortic stenosis, bicuspid aortic valve, percutaneous balloon aortic valvuloplasty*

No.	Case Identity	Echo findings	PTBAV Device	Approach	Duration (min)	Pressure Pre Procedure (mmHg)			Pressure Post Procedure (mmHg)			Outcome	Complications			Plan/Actions
						LV	AAo	PG	LV	AAo	PG		Ao Insufficiency		Others	
													Pre	Post		
1	Male, 19 yo	Severe valvular AS ec bicuspid aortic valve type 1 , Complete closure of moderate PM-VSD with MFO 10/8 mm, mild MR, mild PR, trivial TR	Tyshak-II balloon catheter no 20x30 mm	Retrograde	101	178/11	86/56	92	146/9	91/56	51	Partial Release	-	Mild	• Minimal bleeding • VT induced catheter	Redo PTBAV (12/7/2018)
2	Male, 21 yo	Moderate valvular AS ec bicuspid aortic valve type 1, complete closure of moderate PM-VSD with MFO 10/8 mm, mild TR, mild PR	Tyshak-II balloon catheter no 20x30 mm	Retrograde	141	157/16	103/64	54	152/17	105/66	47	Partial Release	-	-	• Minimal bleeding • Run VT and temporary VES when looping guide wire inside LV	AVR Mechanical (8/4/2021)
3	Male, 9 yo	Severe valvular and subvalvular AS ec bicuspid aortic valve type 3, mild MR, mild PR	Tyshak-II balloon catheter no 12x20 mm	Retrograde	63	262/39	95/60	167	208/37	102/73	106	Minimal Release	-	-	• Minimal bleeding • Frequent VES induced by catheter and wire	Planned for AVR
4	Female, 5 yo	Severe valvular AS ec bicuspid Aortic valve type 1, post stenotic dilatation	Tyshak-II balloon catheter no 12x30 mm	Retrograde	35	126/23	78/57	58	112/23	72/55	40	Partial Release	-	-	• Minimal bleeding • PVC induced by wire	Continue heart failure medication and routine follow up
5	Female, 2 yo	Severe valvular AS ec Bicuspid Aortic valve type 2	Tyshak-II balloon catheter no 8x30 mm	Retrograde	59	136/13	76/50	60	129/13	74/49	55	Failed Release	-	Mild	• Minimal bleeding • Transient ischemia	Planned for AVR
6	Male, 17 yo	Severe valvular AS ec bicuspid aortic valve type 2, aneurysma of proximal AAo, PFO	Tyshak-II balloon catheter no 16x30 mm	Antegrade/ Transeptal	292	-	92/67	-	151/8	77/60	74	Partial Release	-	Trivial	• Minimal bleeding • transient VES	Continue heart failure medication and routine follow up

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Table 1. Patient characteristics, procedure, outcome and complications

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CASE REPORT / CASE SERIES

Fenestrated Transcatheter ASD Closure: Could Answer of Challenges in Large Atrial Septal Defect Patient with Severe Pulmonary Hypertension at Sanglah Hospital?

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Background: Atrial septal defects (ASDs) often complicated with severe pulmonary hypertension (PH). ASD closure provides many beneficial. However, closure of ASDs associated with PH will be a challenge in the management, to avoid both perioperative and long-term morbidity and mortality related to progression of PH and right heart failure. In this case report presents a case ASD closure with fenestrated ASO in a large secundum ASD with severe PH.

Case Illustration: A 24-year-old female complained shortness of breath and easy fatigue since 2 months. Physical examination found mild heart failure clinically, pre-ductal as same as post-ductal SpO2 was 96-98%, P2 hardened, S2 wide fixed. SR 100x/min, RAD, RVH, ICRBBB shown on ECG. AP CXR with Cardiomegaly CTR 63%, RAE, RVH, PH configuration. Transthoracic and transoesophageal echocardiography and cardiac catheterization confirmed the diagnosis of FC II CHF cb ACHD, large secundum ASD bidirectional dominant L to R shunt with severe PH (mean LPA pressure 55 mmHg), high flow (FR 1.74), high resistant (PARI 9.80) and after the oxygen test became high flow (FR 3.48), low resistant (PARI 3.08). Then the ASD was closed with handmade fenestrated ASO no 34 mm (Figure 1). Post procedure the patient was stable hemodynamically return with no clinical sign and symptom of PH crisis treated with anti-PH, failure therapy and routine controlled with programmed cardiac rehabilitation.

Conclusion: From this case report, it can be learned that there are challenges in the choice of therapy or action in ASD with severe PH. Comprehensive management from pre-procedure evaluation, selection of ASD closure method, durante procedure and post- procedure evaluation, followed by optimal anti-PH medical therapy, until cardiovascular rehabilitation brought very good outcomes.

KEYWORD: *fenestrated transcatheter ASD closure, atrial septal defect, pulmonary arterial hypertension., ASD, PH*

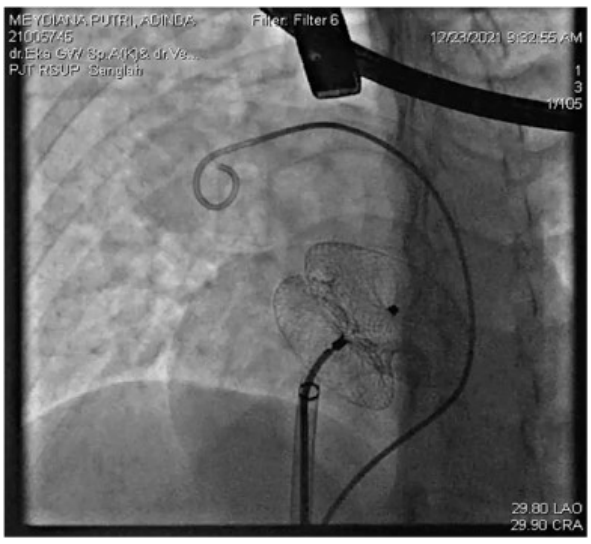

Figure 1. Fenestrated ASO no 34 mm on 30:30 catheterization view.

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CASE REPORT / CASE SERIES

Managing Massive Pulmonary Embolism : Unclogging the Drain

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Background: Pulmonary embolism is one of the cardiovascular emergencies with varied degrees of clinical presentation, often nonspecific, ranged from asymptomatic to devastatingly life-threatening condition, making the diagnosis challenging. The incidence of pulmonary embolism is estimated to be approximately 60 to 70 per 100.000 of the general population. The evaluation of patients with suspected pulmonary embolism should be efficient so that patients can be diagnosed and therapy administered quickly to reduce the associated morbidity and mortality.

Case illustration: 59-year-old obese man with history of previous swelling and pain on the right leg presented to emergency department with sudden onset of shortness of breath. Upon admission patient was lethargic, tachypneic 32x/minute, desaturated SpO2 86%, hypotensive 78/55mmHg with clear lungs on auscultation. Electrocardiography showed sinus rhythm 100x/minute with S1Q3T3 pattern. Laboratory examination revealed increased D-dimer 35.2ug/mL. Echocardiographic pulmonary embolism sign was confirmed accompanied with visible thrombus at RPA, 14.8mm×13.2mm. Venous duplex ultrasound of lower extremities showed non-compressible right popliteal vein with 5.9mm×9.8mm sized thrombus partially occluding the flow. We managed the patient as high risk massive pulmonary embolism, treated with intravenous unfractionated heparin (UFH), fluid resuscitation and vasoactive agents of Dobutamine and Norepinephrine. The patient remained in refractory shock despite treatment and we decided to put the patient on systemic fibrinolytic with Alteplase. Hemodynamic status was improved after fibrinolytic. During the hospitalization period, MSCT Pulmonary angiography was obtained and confirmed diagnosis of massive bilateral pulmonary embolism. Patient was admitted in Cardiovascular Care Unit, put on continuous intravenous UFH for 5 days then continued with novel oral anticoagulant (Rivaroxaban). The patient was hemodynamically stable and clinically improved during 6 days of hospitalization before discharged. Rivaroxaban treatment was continued for at least 3 months and the patient was planned for periodic evaluation in outpatient clinic.

Conclusions: We described patient presenting with massive pulmonary embolism. This case report emphasizes prompt diagnosis and appropriate treatment remain the keystone to improve clinical outcome and survival rate of patients with pulmonary embolism.

KEYWORD: *Massive Pulmonary Embolism, Deep Vein Thrombosis, Fibrinolytic, Anticoagulation*

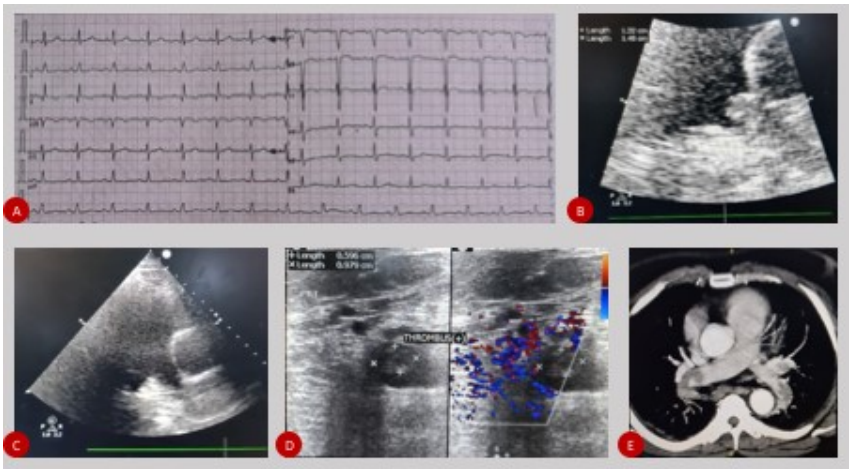

Figure 1 – Pulmonary Embolism Diagnostic Approach: (A) Electrocardiogram showing S1Q3T3 appearance; (B) Echocardiography showing thrombus seen in Left Pulmonary Artery; (C) Post fibrinolytic

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Echocardiography showing no visible thrombus seen in Left Pulmonary Artery; (D) Venous duplex ultrasound showing partially occluding thrombus in right popliteal vein; (E) MSCT Pulmonary angiography showing massive bilateral pulmonary embolism

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CASE REPORT / CASE SERIES

Deep and Long Myocardial Bridging: Unexpected etiology of syncope?

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Background: Myocardial Bridging (MB) is a congenital anomaly, characterized by intramyocardial tunneling of a segment of the epicardial coronary artery, which is compressed by surrounding myocardial fibers during systole. Patients with MB are often asymptomatic, but this anomaly may associated with exertional angina, cardiac arrhythmias, syncope, or even sudden cardiac death. The exact prevalence of MB is unknown, and are seen in 5–58% of cases on autopsy. However functional MB rate on CCTA is similar to the rate on angiography (0.5–16%).

Case illustration: A 31-years-old male patient was admitted to the emergency department with the chief complaint of syncope . Syncope began with chest pain after climbing stairs. He didn't feel any dizziness or palpitation before. Previous history of syncope and atypical chest pain was found 6 month ago. No history of diabetes, hypertension, smoking and relatives with sudden cardiac death in this patient. At emergency department his blood pressure was normal, with normal sinus rhythm on ECG. Reports from echocardiography, exercise stress test and holter monitoring was normal. Diagnostic investigation continued with suspicion of anomalous coronary arteries. He underwent CCTA, which revealed the deep and long myocardial bridging at mid LAD coronary artery (Figure 1), with length of 28-29mm and depth of 2,4-3,3mm with zero calcium plaque burden. Longer occlusion of tunneled segment, leading to disproportion between the time of relaxation and ventricular contraction, reducing cardiac output and consequently would cause low cerebral blood flow leading to syncope. This patient already treated with betablocker and planned for stent placement or surgical myotomy if symptoms still existed.

Conclusions:
Myocardial bridging patients usually asymptomatic, however it could be associated to etiology of syncope. Disproportion between time of relaxation and ventricular contraction during exercise in MB may contributes to this phenomenon. CCTA provides anatomical data from MB including the size of the depth and length of the MB.

KEYWORD: *Myocardial Bridging, Syncope, Atypical Angina, CCTA*

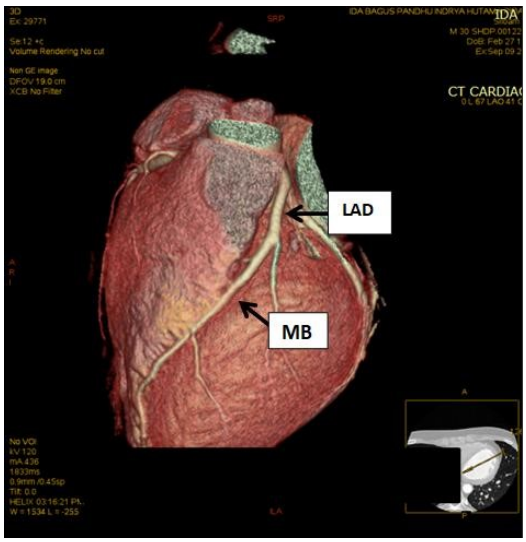

Figure 1. Coronary computed tomography angiography (CCTA) shows myocardial bridging (MB) at mid LAD coronary artery

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CASE REPORT / CASE SERIES

Inferior Vena Cava Filter As An Option for Pulmonary Embolism Prevention in Pregnant Women with Deep Vein Thrombosis, Is It A Good Option?

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Background: Pulmonary embolism is the most common direct cause of maternal mortality in developed countries and it is estimated that one in every 2500 pregnancies may be complicated by DVT or PE. Pregnancy is a critical period of thromboembolic eventand there are times where anticoagulant are contraindicated or not feasible during pregnancy. Recurrent thromboembolism that occurs despite adequate anticoagulation is a condition where vena cava filters placement is indicated.

Case illustration: A 42-year-old multiparous women came to our hospital presented with pain in bothlegsstarted 2 weeks prior to hospital admission. She had history of previous acute pulmonary embolism in 8thweeks of gestation that managed with thrombolytic with Streptokinase 2.5 millions intra venous. The outcome was successful and the patient was continuously treated with self-injection Enoxaparin 0.6 mg/12 hours over 24 weeks. The patient was obese. Physical examination showed both legs were swollen. We performed duplex ultrasound to lower extremities showed thrombus on the left popliteal vein. There was no plaque or thrombus seen on the arteries. The echocardiography showed good LVEF, good RV function and trivial tricuspid regurgitation. We performed IVC filter placement guided by USG with no fluoroscopy control during 34 weeks gestation. The patient stop using anticoagulant. Pregnancy proceed without further complication. The baby was delivered in the 37thgestation with c-section the Apgar score was 9/10. The patient showed improvement in quality of life.

Conclusions: IVC filters are a good solution for pregnant women with increased thromboembolic risk factors to prevent pulmonary embolism without the hemorrhagic risks which associated with anticoagulation therapy.

KEYWORD: *Pregnancy, Pulmonary Embolism, DVT, IVC Filter*.

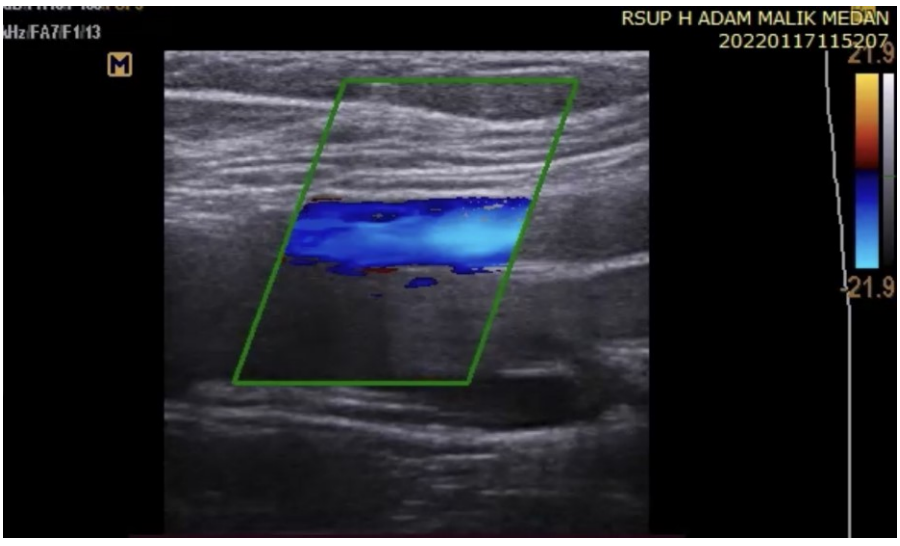

Figure 1. Vascular US.

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CASE REPORT / CASE SERIES

SURABAYA VSR MONTH: Determining The Best Surgical Timing, Identifying Complications, and Improving Survival Rate Based on Six Serial Cases of Ventricular Septal Rupture Admitted in a Single Month

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Background: Ventricular septal rupture (VSR) is one of the most lethal mechanical complications following acute myocardial infarction (AMI) with 94% mortality in one month without surgery. Since it is a rare case, only a few consensuses are available to guide us in managing VSR, determining the surgical timing, and understanding potential complications. Interestingly, in June 2022 we have 6 cases of VSR admitted to Soetomo General Academic Hospital. Herein we describe insightful lessons from these case series.

Case Illustration:
6 cases of VSR were admitted to our hospital in June 2022. All cases are late-presentation of non-reperfused Anterior STEMI coming from a rural hospital. All cases developed recurrent congestion and circulatory failure. 4 cases used IABP (Intra-Aortic Baloon Pump) to prevent cardiogenic shock and further development of VSR. 4 cases underwent surgery with a 75% survival rate. Two cases failed to undergo surgery due to irreversible shock despite multiple hemodynamic support including IABP, another case was due to no insurance. VSR case who was operated on the 21st day had the best clinical outcome and was discharged immediately 4 days after surgery with NYHA Class II, however, we need to deal with sepsis since the patient had a prolonged stay. Another case who was operated at the 14th day was having progressive residual VSR (0.6-1.2 cm) and develops circulatory failure which ended up in progressive kidney and liver damage. However, the patient survived and was discharged 14 days after surgery with NYHA Class IV. Cases that were operated on the 7th day have conflicting outcomes, the first case was successfully corrected with NYHA Class II outcome but with Acute Limb Ischemia in both of her legs, thus they were amputated. The second case failed to be corrected since no scar was available thus VSR hole cannot be stitched and the patient died immediately after. Other interesting findings are all survivors developed vascular complications. 3 cases developed blue toe syndrome and one case develop Acute Limb Ischemia.

Conclusion: Ventricular septal rupture (VSR) timing of surgery may determine the success rate, survival, type of complications, and NYHA class outcome. Delaying surgery until the 21st day may provide the best outcome and survival yet it will be challenging for the cardiologist due to the risk of sepsis and recurrent congestion. Earlier surgery may be challenging for thoracic surgeons since the risk of stitching failure and residual VSR is high. We also need to be aware of vascular complications when managing VSR which may be caused by macro or microemboli which may be triggered by IABP, interseptal patch, or blood turbulence.

KEYWORD: *STEMI, Surgical Timing, Survival, VSR, Vascular complications*

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CASE REPORT / CASE SERIES

Cardiovascular Disease on Women: Rare Case of Cardiac Tamponade in Systemic Lupus Erythematous (SLE)

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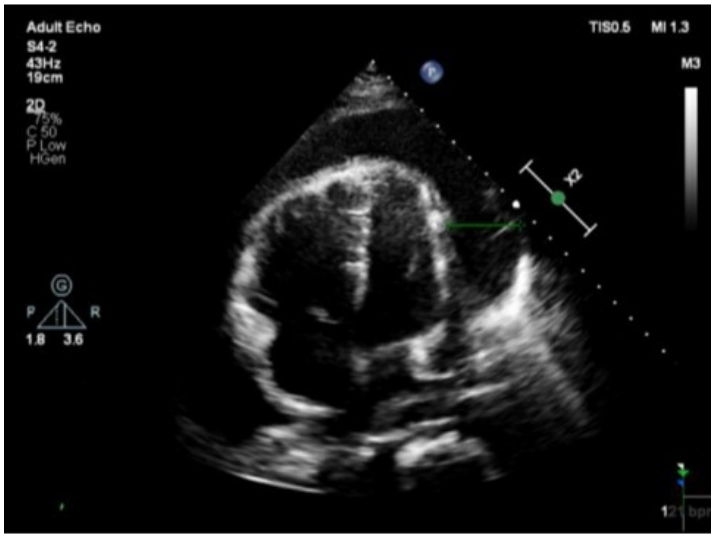
Background: Systemic Lupus Erythematous (SLE) is a chronic autoimmune disease that could affect almost every organ, and hard to detect especially because of the broad symptoms and clinical presentation. With the prevalence of SLE is also higher in women, thus SLE could present serious cardiovascular complication in women, with one of the rarest is cardiac tamponade. Although the incidence rate is low, the development of this disease causes morbidity and provides a much poorer prognosis that can increase mortality risk. Here we present a case of Cardiac Tamponade In Woman with Systemic Lupus Erythematous (SLE).

Case illustration: Female 27-years-old come to emergency room because of the dyspnea since 2 weeks PTA. Dyspnea gradually worsens since 2 days PTA. Patient also complained of pain in both knees. From physical examination Beck's Triad was found (hypotension, muffled heart sound, and jugular venous distention). From echocardiography showing dilatation in RA and RV, Tricuspid regurgitation with high probability of pulmonary hypertension, and cardiac tamponade (MV Variant 38%, TV Variant 51%). Pericardiocentesis was done and hemorrhagic fluid was obtained with volume of 320mL. Patient then tested for Anti- Nuclear Antibody Indirect Immunofluorescence (ANA-IF) showing positive. Patient then consulted to Rheumatology Division from Internal Medicine Department.

Conclusion: Cardiovascular disease in women is usually associated with labor (peripartum cardiomyopathy) or autoimmune disease (SLE). Cardiovascular complication in women with SLE is often missed because of the atypical symptoms that present with SLE. Cardiac tamponade is one of the rare complications, but has a high mortality rate. The presence of inflammation that lasts chronically can cause a continuous accumulation of pericardial fluid, which can lead to further complications in the form of cardiac tamponade.

KEYWORD: *Systemic Lupus Erythematous, Autoimmune, Cardiac Tamponade*



Picture 1. Echocardiographic figure that shows the patient with severe pericardial effusion with echo sign of tamponade

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CASE REPORT / CASE SERIES

Ventricular Septal Rupture: A Fatal Complication of Late Onset ST Elevation Myocardial Infarct

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Background: Ventricular septal rupture (VSR) is a rare but fatal mechanical complication of acute myocardial infarct. Since the reperfusion era, its incidence has decreased from 1-2% to 0.17 – 0.31% of all myocardial infarct cases. Despite the decreasing incidence, patients presenting with VSR still have a high mortality rate with a 45% in hospital mortality rate in the pre thrombolytic era.

Case Illustration: We report a 79-year-old male who presented with a late onset STEMI with typical chest pain 4 days prior to admission. He was suspected with COVID-19 infection from the referring hospital and was treated in isolation ward for 2 days. Upon presentation the patient was alert but slightly distress and complained shortness of breath with persistent chest pain. His vital signs were stable with inotropic and vasoconstrictor support. He had a grade 4/VI blowing systolic murmur at intercostal space IV and left parasternal line, increased jugular venous pressure and a bilateral soft rhonchi. His EKG was consistent for sinus tachycardia and anterior extensive STEMI. Trans thoracal Echocardiography showed normal cardiac chambers, decreased LV systolic function, regional wall motion abnormalities and a discontinuity on the anteroseptal segment of ventricular septum consistent for VSR. Patient was treated with standard acute coronary syndrome therapy, prepared for Intra Aortic Baloon Pump Insertion and urgent Cardio Thoracic Surgery consultation. He was planned for emergency coronary artery bypass graft and VSR repair operation but unfortunately, the patient's condition deteriorated before operation and subsequently passed away.

Conclusions:
Late presenting STEMI is often unavoidable in our current clinical setting. A high clinical suspicion is needed to promptly recognize and treat VSR. Surgical repair remains to be the mainstay therapy in most cases.

KEYWORD: *Ventricular Septal Rupture, Late onset STEMI, Mechanical complication*

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CASE REPORT / CASE SERIES

Nightmare Case Of Coronary Stent Dislodgement : When You Got Nothing, Build Something!

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Background: Stent loss (or dislodgement) during percutaneous coronary intervention (PCI) is an infrequent coronary event with a reported incidence of 1.3%. and yet it is associated with an increased risk of complications. Predisposing angiographic characteristics include heavy calcification, with or without substantial angulation, and tortuosity. Potential complications of stent loss include coronary occlusion, thrombosis, myocardial infarction, bleeding requiring transfusion, and emergency coronary artery bypass grafting (CABG). Most dislodged coronary stents were lost and retrieved within the coronary artery. Successful retrieval of a lost coronary stent from a renal artery has rarely reported. In this report, we report the revival of a dislodged during attempt of implantation at the mid right coronary artery (RCA) after removal off the guide-wire. The lost stent was successfully retrieved by a homemade loop snare at left renal artery after attempts with multiple conventional techniques had failed.

Case Illustration: A male patient, 54 years old was admitted to the Wahidin General Hospital (RSUP) who underwent coronary angiography with 95% Mid Stesnosis results in RCA. Percutaneous coronary intervention was performed, but at the time of insertion of a stent in the RCA, the stent was damaged and migrated to the left renal artery. The detached stent was successfully retrieved using a homemade loop snare technique

Conclusion: Stent dislodgement during PCI can be life-threatening. Interventional cardiologists must be skilled with a variety of common stent extraction techniques. If this fails, operators must think creatively and be prepared to use all the equipment and expertise available to them in the catheterization laboratory to maximize the chances of a successful outcome.

KEYWORD: *stent loss or dislodgement, coronary angiography, percutaneous coronary intervention, complications, RCA*

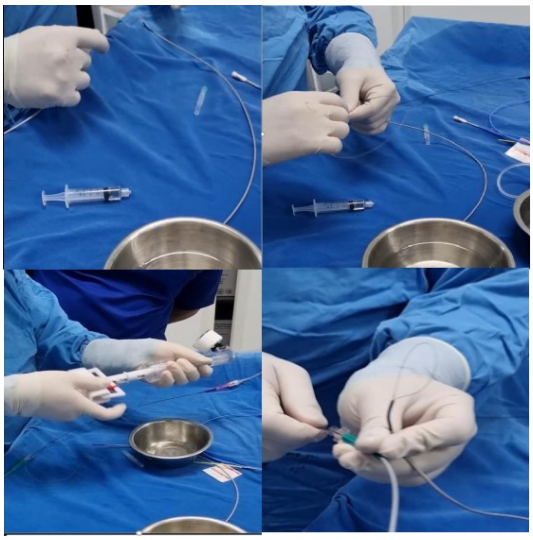

Figure 1. Homemade Loop Snare.

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CASE REPORT / CASE SERIES

Management of Coronary Artery Fistula with Coronary Artery Disease: Closure-Stenting, Stenting-Closure, or Simultan?

Background: Coronary artery fistula (CAF) is an anomalous connection between a coronary artery and a cardiac chamber, or systemic vasculature, or pulmonary vasculature, and combination of severe coronary artery disease (CAD) and a CAF was reported rarely that are often found incidentally. There is no specific guideline about CAF with CAD management and recommendations are based on expert opinion. In this report, we present a patient with CAF and significant stenotic coronary lesion.

Case illustration: We reported a 62-year-old man with complaints of typical angina with dizziness and dyspnea that has worsened with exercise for the past 2 years. Treadmill test results showed positive ischemic response and coronary angiography showed a subtotal occlusion distal to the left circumflex (LCx) coronary artery and a fistula from the LAD to the pulmonary artery. Fractional flow ratio (FFR) and right heart catheterization (RHC) showed normal results, but the size of the fistula exceeded the distal coronary diameter. It was decided to transcatheter close with coiling and staging for stenting at the distal LCx for effective coiling embolization related to antiplatelet use. Coronary angiography evaluation after 3 months showed complete embolization at the fistula and the patient was subsequently stented at LCx. After the procedure, the patient has no complaints.

Conclusions: In conclusion, we described patients with coronary fistula and coronary artery disease. In this patient, we performed the closure procedure first and then continued with stenting with consideration of the use of antiplatelet. Further studies are needed to evaluate the efficacy and safety of this procedure.

KEYWORD: *Coronary artery fistula (CAF), coronary artery disease (CAD*).

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CASE REPORT / CASE SERIES

Localized Distal Gangrene on the Lower Extremity as Rare Manifestation of CLTI on Proximal CFA: A Case Report

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Background: Chronic Limb Threatening Ischemia (CLTI) is one of several spectrum of peripheral arterial disease that can cause approximately 20% of deaths within 6 months after established diagnosis to as high as 50% in the next 5 years and is associated with the incidence of acute myocardial infarction. CLTI is usually manifested as gangrene which can occur in any part of the leg depending on the location of the occlusion. Gangrene in the distal region is rarely caused by stenosis in the proximal vessels and is often mistaken for Buerger's disease.

Case illustration: A 60-year-old man was reported with gangrene on the big toe and little toe of the right foot for 6 months. He also felt pain that may feel like burning or tingling. He is an active smoker without history of hypertension or diabetes mellitus. On physical examination, apart from gangrene, the calf was pale and cold, and the ankle-brachial index was 0.8. The movement of the lower limb was slightly limited. From Doppler Ultrasound we found biphasic wave from right common femoral artery (CFA) to right dorsalis pedis artery, normal veins and no thrombus was found. From arteriography we found total occlusion on the right CFA, there was a collateral artery that empties into the right popliteal artery and thrombus was not found.

Conclusions: The manifestations of CLTI are highly variable and can mimic many other arterial diseases. Enforcement of the right diagnosis is needed to determine the best management strategy. For this patient, we suggested amputation, rehabilitation, and prevention for any cardiac risk factor.

KEYWORD: *chronic limb threatening ischemia, arteriography, artery disease*

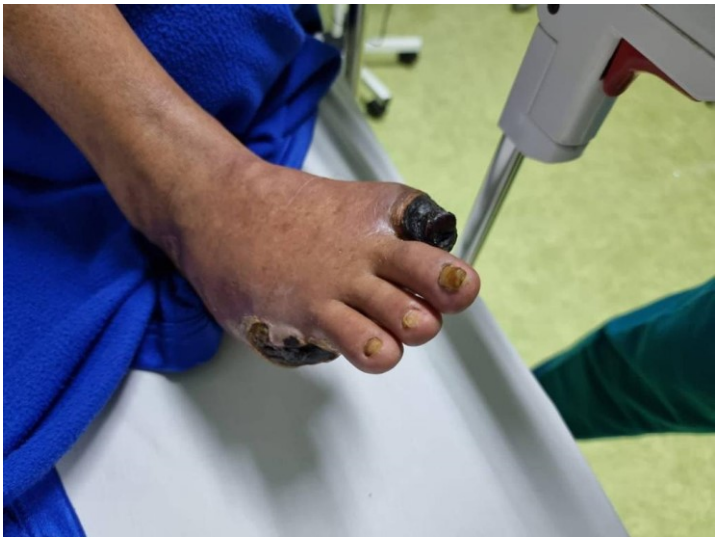

Figure 1 Gangrene on the thumb and little finger of the right foot

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CASE REPORT / CASE SERIES

Early Continous Renal Replacement Therapy In Cardiogenic Shock

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Background: Acute myocardial infarction with cardiogenic shock (AMI-CS) is associated with high mortality and morbidity despite advancements in cardiovascular care. Acute kidney injury (AKI) is frequently seen in patients with AMI-CS and is associated with worse mortality and outcomes. Early use of renal replacement therapies, management of comorbid conditions and judicious fluid administration may help improve outcomes.

Case Illustration: A 46 year old male complained of typical chest pain, shortness of breath and he came to district hospital. He was diagnosed with anterior STEMI (Figure 1). Coronary angiography was performed and revealed coronary artery disease three vessel disease (CAD3VD) POBA in LAD (Figure 2). During treatment at the ICU, blood pressure fell into 70/40 mmHg. He was given additional support for norepinephrine titration up to 0.15 mcg/kg/minute and dobutamine 20 mcg/kg/minute. Urine evaluation on the first day of treatment showed an urine output (UOP) 0.08 cc/kg/hour and on the second day an UOP 0.1cc/kg/hour. Evaluation of urea increased with BUN 40 to 90, creatinine 1.5 to 3.9. The patient was diagnosed with cardiogenic shock, anterior STEMI, acute kidney injury, diabetes mellitus with problem oliguria. He was referred to Sardjito General Hospital for further treatment. He was hospitalized in intensive cardiac care unit (ICCU) and due to oliguria, continuous renal replacement therapy (CRRT) was performed in 24 hour. We chose *Continuous Veno-Venous Hemodiafiltration* (CVVHDF) as mode of CRRT. The day after, patient condition was improved and urin output was increased 0.89cc/kg/hour and also creatinine decreased. After his condition was stable, he was moved to cardiology ward.

Conclusion
Acute kidney injury is a common sequelae of cardiogenic shock, because the kidney is exquisitely sensitive to poor perfusion. Recognizing AKI in critically ill patient is important. Continuous renal replacement therapy has become a mainstay in the management of AKI in critically ill patients.

KEYWORD: *Cardiogenic shock, acute kidney injury, continuous renal replacement therapy*

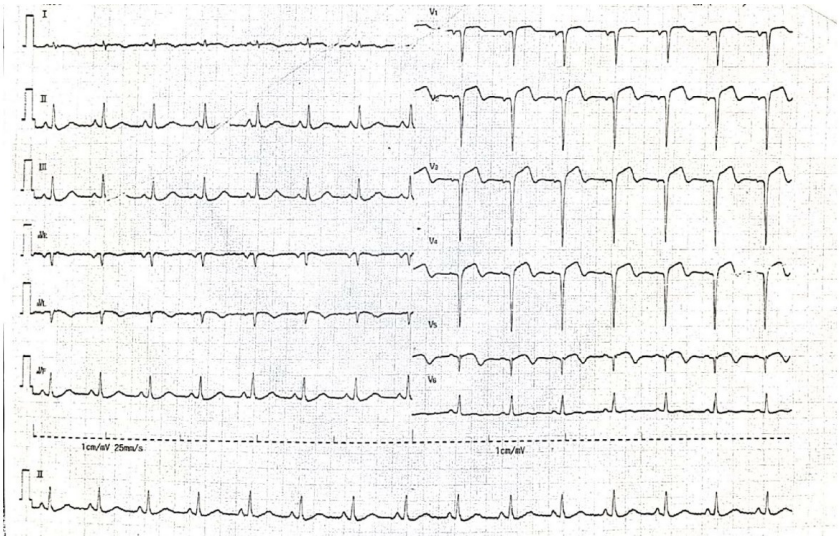

Figure 1. ECG STEMI Anterior

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CASE REPORT / CASE SERIES

Percutaneous Transcatheter Closure On A 68 Years Old Man With Ventricular Septal Rupture Post Myocardial Infarct : A Case Report.

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Background. Ventricular septal rupture (VSR) is a rare but lethal complication of acute myocardial infarction (AMI). Although surgical repair has been the gold standard for intervention, percutaneous closure of the defect may represent a valuable therapeutic alternative, with the advantage of immediate shunt reduction to prevent further hemodynamic deterioration in patients with prohibitive surgical risk.

Case illustration. A 68-year-old man refers to hospital with chief complain of chest pain and dyspnea in the past two weeks. On admission, his blood pressure was 100/60 mmHg, heart rate was 99 bpm and respiratory rate was 24 times per minute. Cardiopulmonary examination revealed a harsh grade 3/6 holosystolic murmur loudest over the apex and *bilateral basilar rales*. ECG showed ST elevation with pathological Q wave on V1-V4 consistent with anteroseptal STEMI. Echocardiography showed reduced LVEF (33%) and VSR with left to right shunt was found in apical LV with Ø 3 mm. After one month, a transcatheter closure was performed, guided by fluoroscopy and transthoracal echocardiography. Procedure was preceded with left ventriculography to evaluate size of the defect and determine size of the device. We decided to use the Lifetech MFO no. 10/8 mm. After device was deployed, transthoracal echocardiography and ventriculography confirmed appropriate and stable device positioning and central residual was found. Procedure done without any complication. Device closure of post-infarct VSR has emerged as an alternative to surgical repair. The current indications for percutaneous closure mainly include the following: patients who are too old and in poor general condition and so are unsuitable for surgery or who refuse surgical repair; VSR edges have sufficient width to facilitate fixation of the occluder VSR diameter <15mm, although a new type of occluder that can seal post-infarct septal rupture with a diameter of 17 mm has been reported.

Conclusion. The role of transcatheter device closure as an alternative to surgery for the post-infarct VSR is expanding. Although cardiac surgery remains the gold standard, a significant proportion of patients are at high risk for surgery. Transcatheter closure of post-infarct VSR can be performed with high technical success and relatively low procedural complication rates.

KEYWORD: *Post Infarction Ventricular Septal Rupture, Acute Myocardial Infarct, Percutaneous Transcatheter Closure, Occluder Device*

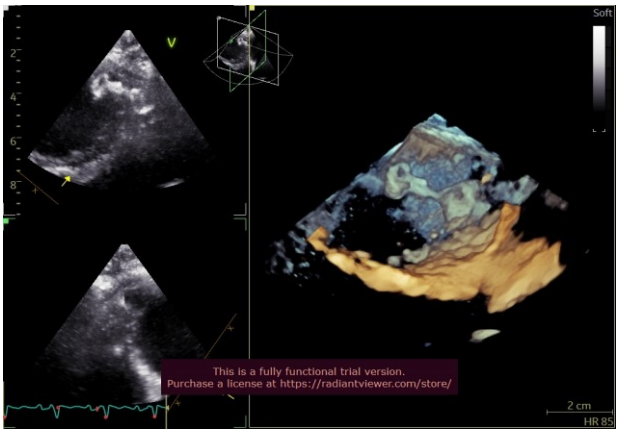

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Figure 1. 3D transthoracal echocardiography after percutaneous transcatheter closure of VSR with lifetech MFO 8/10 mm

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CASE REPORT / CASE SERIES

May Thurner-Syndrome : Think It Earlier in Left Lower Extremity DVT

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Background: May-Thurner syndrome (MTS) is a venous disorder of the lower extremity that can present as deep vein thrombosis. This disorder results from compression and/or irritation from adjacent crossing the right common iliac artery to the left iliac venous. In this report, we present a patient with left lower DVT with consideration of MTS.

Case illustration: A 49-year-old man soldier was admitted to the hospital because of left leg swelling. The symptom happened for a week. He had high cholesterol, but no history of cardiac events. He did moderate to high degree daily activity, did not smoke nor having alcohol. Doppler ultrasound (DUS) was performed and thrombus at left venous femoralis was found with normal flow of artery and vein of right lower extremities. He had been assessed as DVT. He got rivaroxaban for 21 days and continued for 3 months. After 3 months of anticoagulant, DUS evaluation still showed thrombus at left venous femoralis. Six months after the first presentation, CT venography was performed with result : thrombus at vena communis femoralis sinistra +/- 2.4 cm that cause severe stenosis (+/- 60%). Patient still complained of leg swelling and heaviness of left leg. He was suspected of having MTS. Venography was performed with result of total occlusion of left common femoral vein and left iliac vein with adequate collateral flow. PTV was performed on CTO but failed. Anticoagulant was continued after procedure. Three months later, he came again with symptom of leg swelling. PTV had tried again with anterograde and retrograde access. It successfully penetrated the occlusion in the left iliac vein but failed to penetrate the left femoral vein. Rivaroxaban was suggested to continue and had stocking compression frequently.

Conclusion:
This case emphasizes that late recognition of May-Thurner syndrome in left lower extremity DVT was related to high sources of burden and poorer quality of life.

KEYWORD: *May-Thurner syndrome, Percutaneous transluminal venoplasty, Anticoagulant*

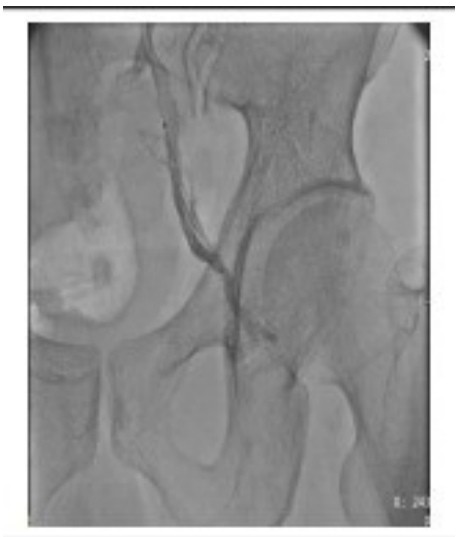

Figure 1. Clinical Presentation after PTV

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CASE REPORT / CASE SERIES

Massive Pericardial Effusion in Young Patient Post Ventricle Septal Defect (VSD) Closure

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Background: The epidemiology of Congenital Heart Disease (CHD) is about 12–14 per 1000 live births and is still an important cause of pediatric mortality. Due to improvements in detection of CHD, medical and surgical interventions, postoperative and long-term survival has increased. Yet, post-operative pericardial effusion (PE) remains a serious and frequent complication that occurs in approximately 20% of children undergoing cardiac surgery and is mostly develops within 1 month after surgery.

Case Illustration: A 9-years old boy presented to emergency room (ER) with complaint of chest discomfort and sub-febrile since 2 days before admission. Chest discomfort was worsening while patient coughing. Dyspnea was denied. Patient had been performed Ventricle Septal Defect (VSC) Closure 3 weeks ago. Patient's vital signs were measured with the BP 110/65 mmHg, HR 130 beats/minute, RR 22 breath/minute, temperature 37.8 C, and SpO2 95%. In physical examination found muffled heart sound. ECG showed sinus tachycardia with complete RBBB. Echocardiograpy showed massive pericardial effusion that was measured in apical LV Ø 22 mm, lateral LV Ø 27 mm, lateral RV Ø 20 mm and lateral RA 22 mm. Then patient went to subxiphoid pericardial window procedure and successfully drained 600 ml of pericardial fluid volume. Patient then discharged 4 days after the procedure with medication of azythormicyn 250 mg, b.i.d, ramipril 2.5 mg o.d, cetirizine 10 mg o.d, ibuprofen 400 mg t.i.d, and ambroxol 15 mg t.i.d.

Conclusion: Pericardial effusion (PE) after pediatric cardiac surgery is common. It follows a relatively mild course that does not require intervention. Treatment options are fluid restriction, diuretic use, corticosteroid therapy and nonsteroidal anti-inflammatory drugs. However in severe cases, it can lead to massive PE, pre-cardiac tamponade, or cardiac tamponade and necessitating pericardiocentesis.

KEYWORD: *pericardial effusion, ventricle septal defect, post-operative*

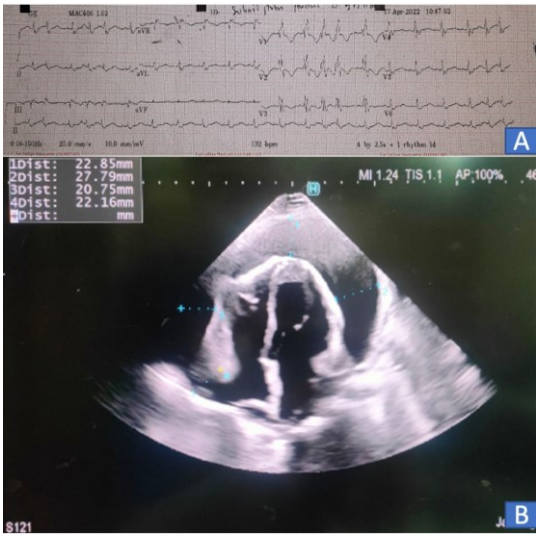

Figure 1. A. ECG showed sinus tachycardia with complete RBBB. B. Echocardiograpy showed massive pericardial effusion

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CASE REPORT / CASE SERIES

Succesfull Transcatheter Closure of Large PDA with Severe Pulmonary Hypertension: A Case Report

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Background: Patent ductus arteriosus (PDA) is the failure of ductus arteriosus to close after birth. PDA may result in wide array of condition ranges from asymptomatic, LV volume overload, Pulmonary Hypertension (PH), and eisenmenger physiology as the most severe form. Eisenmenger is more likely to occur considering that the shunt occurs during systole and diastole phases. In small PDA, PH is a condition that can be found in adult but the disease course may be different depend on the PDA size. Closing of large PDA complicated by PH with percutaneous device is challenging. Careful individual decision is needed.

Case illustration: Ms. FS, 19 years old women, came to our department with chief complain was previous history of shortness of breath. On auscultation we found continuous murmur on the left subclavia region. Normal sinus rhythm and RVH were found from ECG. Chest X-ray shows cardiomegaly with prominence of pulmonary segment. On echocardiography PDA with diameter 12 mm left to right shunt, LV and RV dilatation (1.5:1), and TR moderate were found. From right heart catheterization there were large PDA type A with isthmus diameter 15 mm, ampulla diameter 41 mm, FR : 2.09, PVR: 10.79 WU, and PARi : 7.85 WU/m2 (high flow, high resistance). PA and Ao pressure were 109/54 (79) and 137/62(92). The duct were closed by transcatheter device closure. There were no central residual flow seen and murmur heard. Ao pressure was 122/80 (98) and PA pressure fell to 51/31(40). After three days the patient discharged then followed up in outpatient clinic. Echocardiography showed ductal occluder still in a good place and patent, no residual PDA, and no murmur in physical examination. The patient continued treatment with sildenafil 20 mg three times daily.

Conclusions:
Percutaneous PDA closure in patient with large PDA and PH were described in this case. Large PDA with PH can be closed by device based on consideration of flow ratio and left ventricular dimension.

KEYWORD: *Patent ductus arteriosus, Pulmonary hypertension, percutaneous device closure*

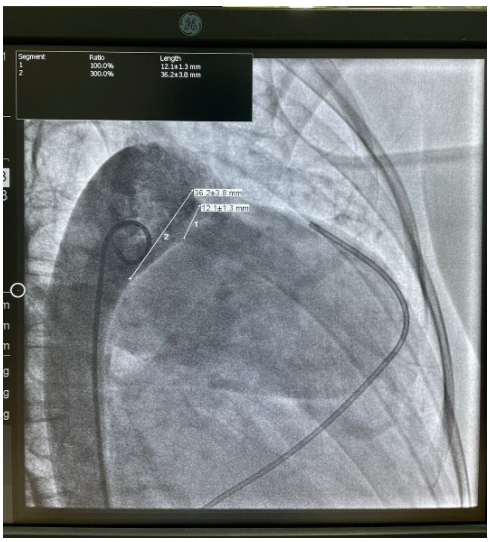

Figure 1. PDA diameter 36.2 ± 3.8 x 12.1 ± 1.3