



**Indonesian Journal of
Cardiology**

Indonesian J Cardiol 2021:42:suppl_B
pISSN: 0126-3773 / eISSN: 2620-4762
doi: 10.30701/ijc.1238

Indonesian Society of Interventional Cardiology Annual Meeting 2021

Abstracts: Case Reports



How to Deal with In-Stent Restenosis Based on Guideline: Drug-Eluting Stent or Drug-Eluting Balloon?

S. Setiawan¹, A. Yasa²

¹Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia

²Dr.Moewardi General Hospital, Surakarta, Indonesia

Background: In-Stent Restenosis (ISR) is a common complication after stent implantation in percutaneous coronary intervention (PCI) and require re-intervention. Repeat stenting with Drug-Eluting Stent (DES) and angioplasty with Drug-Eluting Balloon are the most effective treatment for ISR.

Case Illustration: First patient, a 57-year-old male with typical chest pain since 12 hours ago. He had BMS implantation 10 years ago. Vital sign and physical examination were normal. The electrocardiography and cardiac marker were normal. The patient was diagnosed with Unstable Angina Pectoris suspect ISR. Coronary angiography showed significant ISR in LAD and LCx. Repeat stenting with DES was performed in both LAD and LCx. Second patient, a 59-year old male with chest pain since 3 hours ago. He had DES implantation 1 year ago. Vital sign and physical examination were normal. Electrocardiography showed old anteroseptal MI with anterior ischemia with increased cardiac marker. The patient was diagnosed with NSTEMI. Coronary angiography showed ISR 70% from LM-proximal LAD and treated with angioplasty using DEB.

Conclusion: Repeat stenting with DES or angioplasty with DEB are treatment of choice in European guideline with class recommendation 1A. The choice of ISR treatment is still not well understood. From DAEDALUS study, repeat stenting with DES and angioplasty with DEB are similarly effective and safe in the treatment of BMS-ISR, whereas DCB angioplasty is significantly less effective than repeat DES implantation in the treatment DES-ISR. The incidence of a composite of all-cause death, myocardial infarction, or target lesion thrombosis was similar between groups in 3 years follow up.

Keywords: In-Stent Restenosis, Drug-Eluting Stent, Drug-Eluting Balloon



Successful Bifurcation Stenting in Unprotected Left Main Coronary Artery Disease: A Challenging Case Report

Y. P. Apriditya¹, S. Widito²

¹Resident of Cardiology and Vascular Medicine, Faculty of Medicine Universitas Brawijaya – dr. Saiful Anwar General Hospital Malang, Indonesia

²Cardiologist-Interventionist of Cardiology and Vascular Medicine, Faculty of Medicine Universitas Brawijaya – dr. Saiful Anwar General Hospital Malang, Indonesia

Background: Unprotected obstructive left main coronary artery disease (LMCA) has been identified as a high-risk condition. Unprotected LMCA stenosis occurs when there are no previous patent grafts in the left coronary artery and left circumflex artery. Theoretically, coronary bifurcation lesions are more difficult to treat and are linked to poorer clinical outcomes than non-bifurcation lesions. Although provisional stenting is the ideal way, in some cases, a two-stent technique is unavoidable. As a result, improving two-stent therapy techniques for complex bifurcation lesions including the side branch (SB) is still critical. Even with complex and difficult anatomies, the adoption of specific bifurcation stents may make the procedure easier.

Case Illustration: We report a case of a Left Main Bifurcation Lesion (Medina 1-1-1) underwent successful elective bifurcation stenting. A 73-year-old man with chief complaint of chest pain. The risk factor was Heavy Smoker. He had history of STEMI in 2019 and performed Primary PCI at mid LAD. But in the last month, he got heart attack and hospitalized for 7 days, then referred to our hospital to performed PCI procedure. The CAG was performed and the result revealed 90% stenosis in distal LM, 95% stenosis in ostial-proximal LAD and 90% stenosis in ostial-proximal LCx. That was a Medina class 111 bifurcation. An IABP procedure was performed before PCI because patient in very high risk coronary stenosis. PCI was performed using a right femoral artery approach. We use Culotte Stenting Technique in coronary bifurcation disease. With a 7 Fr EBU 3.5 guiding catheter the left main coronary artery was engaged. A Runthrough NS guidewire was placed in the LCx and another Runthrough NS Hypercoat guidewire was wired into the LAD. Predilation of Side Branches with Emerge 2.5x15 mm in LCx. Side branch stent deployment with a Promus 3.0x24 mm from LCx to LM. PCI assist (StentViz™) is then used to assess the position of the POT balloon vs. the carina the LM/LAD bifurcation. POT is performed using a 3.5x15 mm NC Sapphire balloon. Recross into main branch with 3rd guide wire Runthrough NS to cross the struts stent LM-LCx. A 3.5x15 mm NC Emerge balloon cross into the struts and dilate to open the struts. Aggressive predilation of main branches with NC Sapphire 3.5x15 mm in LM-Proximal LAD. Main branch stenting with Promus 3.5x24 mm. PCI Assist is used to accurately position the LM stent, ensuring coverage of the ostium. Once the stent is in position we remove the jailed wire before deployment. We then post dilate the LAD stent with a 3.5x10 mm NC Sapphire balloon. Recross into side Stent. Final kissing balloon inflation is performed with two 3.5x10 mm NC Sapphire balloons at 14 atm (LCx) and 16 atm (LAD). PCI assist is used to position the POT balloon (4.0x15 mm NC Sapphire). PCI assist can be used to position the POT balloon accurately in the carina and assess the stent expansion. Final POT inflation at 16 atm.

Conclusion: Treatment of LM coronary disease by PCI has always been a challenge for operators, in part due to the size of the vessel and its branches into main coronary arteries, the left anterior descending (LAD) and circumflex (LCx), supplying large territories of myocardium.

Despite its complexity, the Culotte Technique approach provided great coverage of this left main bifurcation lesion. The advantages include: good radial strength, Complete coverage, Best immediate angiographic result, It may guarantee a more homogeneous distribution of struts and drug, Can be used for a wide variety of bifurcation angles. The disadvantages were: Complex, time-consuming, Rewiring of both branches through the stent struts can be challenging, and more overlapping metal in main branch. **Keyword:** bifurcation stenting, culotte technique, pci, Unprotected LMCA



Prediction, Early Detection And Immediate Management of Spinal Cord Injury After Tevar

S. D. Putra¹, Taofan²

¹ Cardiology Resident, National Cardiovascular Center Harapan Kita

²Cardiologist, National Cardiovascular Center Harapan Kita

Background: Recently, Thoracic endovascular aortic repair (TEVAR) has revolutionized the management of thoracic aortic diseases, especially for type B aortic dissection or descending aortic aneurysm. TEVAR was associated with rare disastrous and challenging clinical situations, such as retrograde type A dissection, paraplegia, and infection. Spinal cord injury (SCI) is one the most devastating and dreaded complications associated with TEVAR. SCI occurs after TEVAR in 2% to 10% of patients.

Case Illustration: The first case is 46 year old man with elective extended TEVAR with indication of endoleak type I B after fenestrated TEVAR (f-TEVAR) procedure and occluded left subclavian artery (LSA) due to in stent thrombosis. The risk factors of this patient were uncontrolled hypertension and obesity. SCI occurred in 3 days after the procedure with the presentation monoparesis of left leg and abdominal pain. The second case is 43 year old man with emergent TEVAR with indication of aneurism of descending aorta with concealed ruptured and prolonged pain. The risk factor of this patient were smoker and hypertension. SCI occurred in 2 hours after the procedure, with manifestation of monoparesis of left leg and pain from left gluteus until left ankle with numbness. The total diameter and total of stent graft in the first case was 38 x 240 mm and the second case was 36 x 230 mm. In the first case, there was no prediction and prevention of SCI, but early detection has been done. The late management of this case due to unavailability of cerebrospinal fluid drainage (CSFD) device. In the second case, there were prediction, early detection and immediate management for SCI, thus the outcome of second case was good without sequel.

Conclusion: The prediction, early detection and immediate management for SCI after TEVAR procedure is mandatory to get a good outcome and improve patient safety.

Keywords: TEVAR, Type B aortic dissection, Descending aortic aneurism, Spinal Cord Injury



Pulmonary valvulotomy on pulmonary atresia with intact ventricular septum: not as simple as it seems

A.M. Zahidin¹, R. Prakoso², A.A Sembiring², O. Lilyasari²

1 Department of Cardiology and Vascular Medicine Faculty of Medicine Universitas Indonesia/National Cardiovascular Centre Harapan Kita, Jakarta, Indonesia;

2 Division of Paediatric Cardiology and Congenital Heart Disease, Faculty of Medicine Universitas Indonesia/National Cardiovascular Centre Harapan Kita, Jakarta, Indonesia

Background: Pulmonary atresia with intact ventricular septum (PA-IVS) is a group of critical congenital heart disease (CCHD) that are present at birth and require intervention in the first year of life. Percutaneous balloon valvulotomy (BPV) has become a reasonable alternative to surgical right ventricle decompression. It is an effective treatment strategy for patients with PA-IVS provided that there is a patent infundibulum.

Case Illustration: The 4 months old female baby with PA-IVS, small PDA and PFO consulted from ICU due to severe desaturation. Echocardiography showed PA-IVS, small PDA, PFO, with PV annulus of 8.2-9mm. Patient was planned for BPV, with transpulmonary approach through PDA. The 4/5F slender sheath was inserted, and 3.5/5F JR guiding catheter was placed at descending aorta with contrast injected into the PDA. The 3.5/5F JR guiding catheter was placed inside the MPA via PDA. Patient experience desaturation and bradycardia during crossing of guiding catheter to PA through PDA. Dilatation of PDA was performed, patient condition was stable. The BPV procedure was continued by inflating 3.0x15 mm balloon up to 14 atm inside the PDA. The 3.5/5F JR guiding catheter was placed at MPA and positioned just above the pulmonary valve. Bottom end Runthrough coronary wire was placed just above the PV. The 3.0 x 15 mm balloon was placed at the orificium of the PA and inflated up to 14 atm twice. Procedure then continued with placing the mini Thysak 10.00 X 4.0 x 65 cm balloon at the orificium of the PA and inflated up to 4 atm for 10 seconds. Patients' saturation was increased from 59% to 97%.

Conclusion: We have reported a case of BPV in PA-IVS, small PDA and PFO with satisfactory result. Measure and identified the PDA size in no hurry. If the PDA was restricted, dilatation of the PDA should be done first to prevent desaturation and bradycardia.

Keywords: BPV, patent ductus arteriosus, pulmonary atresia, transpulmonary approach



Mother-Child Technique in Complex Ductus Anatomy (Vertical Duct)

PDA Stent Procedure: making the impossible possible

D.D.A. Sakti¹, R. Prakoso¹, N. Iryuza², O. Lilyasari¹

¹Division of Pediatric Cardiology and Congenital Heart Disease, Department of Cardiology and Vascular Medicine, Faculty of Medicine, Universitas Indonesia

National Cardiovascular Center Harapan Kita, Jakarta, Indonesia

²Interventional Cardiology Division, Department of Cardiology and Vascular Medicine, Faculty of Medicine, Universitas Indonesia

National Cardiovascular Center Harapan Kita, Jakarta, Indonesia

Background: Ductal stenting is an alternative to conventional shunt surgery as it avoids the complications from thoracotomy. The ductus in cyanotic heart disease patients tends to arise more proximally under the aortic arch, giving rise to a vertical ductus. This type of 'vertical' ductus generally is difficult to stent via the retrograde femoral artery route as it is very difficult to engage the ampulla, and even more so, securing a stable guidewire position for tracking of balloon-stent ensemble. In coronary intervention, mother-child technique was introduced using Guide liner for a complex anatomy that has a technical challenge for the release of stents. This Mother-child technique has never been applied in PDA stenting procedure.

Case illustration: 11 month old girl, 6,3 Kg, with bluish discoloration, desaturation, SA, RA isomerism, DORV-CAVSD, PS valvar-subvalvar severe, PDA. Angiography showed stenotic vertical PDA, small PA size with RPA diameter 7.54 mm, LPA diameter 5.93 mm, (McGoon ratio 1.20). We decided to do PDA stenting. After balloon dilation of PDA, the catheter did not engage to the PDA due to difficult anatomy of the PDA, we decided to use Mother-Child technique using Guideliner 6F and directed to distal PDA. Xience Prime 4.0 mm x 23 mm (Abbott) stent inserted to PDA and deployed until 20 atm for 10 seconds. Ductal stenting is an attractive alternative to conventional shunt surgery as it avoids thoracotomy and its related problems. In complex ductus anatomy (vertical duct), antegrade transvenous femoral approach (unless one is familiar with axillary artery cannulation or carotid artery cut-down) using mother and child technique can be done with good result.

Conclusion: PDA stenting procedure using Mother-Child technique with antegrade transvenous femoral approach can be used as a safe and efficient alternative in managing a baby with duct dependent circulation and complex ductus anatomy.

Keywords: PDA stenting, Mother-Child technique



Successful Percutaneous Transluminal Angioplasty (PTA) of Critical Limb Ischemia (CLI) in Adult Men Infected with Human Immunodeficiency Virus (HIV)

F. N. Hidayatullah¹, R. M. R. J. Pasciolly^{1,2}

¹Department of Cardiology and Vascular Medicine, RSUD Al-Ihsan, West Java Province, Bandung, Indonesia.

²Faculty of Medicine, University of Islam Bandung, Bandung, Indonesia.

Background: Cardiovascular diseases (CVD), both atherosclerosis and atherosclerosis-associated complications, including myocardial infarction (MI), peripheral arterial diseases (PAD), and stroke, is an increasing cause of morbidity and mortality in patients infected with the human immunodeficiency virus (HIV). There is emerging evidence to indicate that HIV infection and subsequent inflammatory processes in humans accelerate atherogenesis. Critical limb ischemia (CLI) is one of the manifestations of PAD caused by the formation of atherosclerosis in the arteries of the limbs, which can occur due to in situ thrombus or embolus, resulting in hypoperfusion of the limbs. CLI is characterized by chronic ischemic rest (exceeding two weeks or longer), pain, tissue loss, non-healing wound, or gangrene in one or both legs.

Case Illustration: We present a case report and conduct a literature review on a patient presenting with pain, pallor, poikilothermia, paresthesias, and paralysis in the right leg since two months before admission. Intermittent claudication was also found. A blood test was positive for HIV and a decreased CD4 count. Computed tomography (CT) angiography confirmed a thrombus at the right common iliac artery until the right tibialis artery. CT's finding was confirmed using peripheral angiography; there is a chronic total occlusion (CTO) from an ostial right common iliac artery until proximal posterior tibialis artery caused by thrombus.

Conclusions:

This study highlights the importance of considering a cardiovascular complication in chronic infection of HIV and successful endovascular treatment, that is, percutaneous transluminal angioplasty (PTA) in these patients.

KEYWORD: Cardiovascular Disease (CVD), Peripheral Arterial Disease (PDA), Critical Limb Ischemia (CLI), Human Immunodeficiency Virus (HIV), Percutaneous Transluminal Angioplasty (PTA).



**Transcatheter device closure of Patent Ductus Arteriosus with bizarre position.
How to cross the wire**

M. Y. Fathoni¹, R. Prakoso¹, B.R.M.A.S. Kuncoro¹

¹Department of Cardiology and Vascular Medicine, Faculty of Medicine Universitas Indonesia,
National Cardiovascular Center Harapan Kita, Indonesian Heart Association, Jakarta, Indonesia

Background: Ductus Arteriosus is a physiological structure if not closed after birth, may lead to many complications. PDA device closure in complex congenital heart disease (CHD) is challenging especially when the PDA size is large, and the position is difficult to cross the wire from Pulmonary Artery (PA) to Aorta

Case Illustration: A 9-year-old boy with Double Outlet Right Ventricle (DORV), large muscular Ventricular Septal Defect (VSD) non committed R-L shunt, malposed Great Arteries (GA), PDA L-R shunt, pulmonary Hypertension s/p PA banding April 2014. The Surgeon left the PDA alone during PA banding due to desaturation. During outpatient follow up the patient was planned for definitive surgeries however the latest catheterization shows large type A PDA with low resistance. We planned to close the PDA with device using transvenous antegrade approach. Intraprocedural imaging show type A PDA with largest diameter 9 mm. The challenge is how to get PA and Aorta connection since the PA is distorting the PDA position the wire couldn't cross the PDA from the MPA. We did a snaring technique from aortic side to the MPA and then we pull the MP catheter from MPA to the descending aorta. Classical PDA device put in classical way under TEE guidance. The procedure was uneventful, PA pressure fell from 42 mmHg to 18 mmHg, Aorta pressure raised from 51 mmHg to 76 mmHg. Post procedural echocardiography showed the device stowed in place, there are no residual PDA, and the patient is ready for the next operation.

Conclusion: We have reported a case of transcatheter PDA closure in DORV VSD inlet malposed GA, pulmonary hypertension s/p PA banding with satisfactory result. Wire snaring is an efficient solution in case it's difficult for wire to cross the PDA

Keywords: Patent Ductus Arteriosus, PDA device closure, Treatment, snaring technique



Percutaneous Balloon Mitral Valvotomy in Juvenile Rheumatic Heart Disease: an alternative to surgery

C.N. Sinaga¹, R. Prakoso¹

¹Department of Cardiology and Vascular Medicine, Faculty of Medicine Universitas Indonesia, National Cardiovascular Center Harapan Kita, Indonesian Heart Association, Jakarta, Indonesia

Background: Mitral stenosis of rheumatic origin is rare in children because it requires 5 to 10 years from the initial attack to develop the condition. Since the introduction of the balloon dilation technique of the stenotic mitral valve in 1984, percutaneous balloon mitral valvotomy (PBMV) has gained increasing acceptance worldwide as an alternative to surgical mitral commissurotomy.

Case Illustration: A 13-year-old boy referred to NCCHK with chief complaint of shortness of breath, abdominal distension, and low extremities swelling for the past 3 month. The physical examination showed increased of respiratory rate, mid diastolic murmur grade 2/4 at apex, minimal rales at the lower bases, ascites and bilateral leg pitting oedema. Chest X-ray showed cardiomegaly with ECG findings revealed normal sinus rhythm with sign of left atrial enlargement and right ventricular hypertrophy. Echocardiographic findings showed severe mitral stenosis with thickening of leaflet and hockey stick appearance (mitral valve area (MVA) 0.3 cm²); severe tricuspid and pulmonic regurgitation with the appearance of LV D-shaped; dilation of left atrium, right ventricle and right atrium. The diagnosis of right heart failure with severe mitral stenosis due to rheumatic heart disease was therefore established. During the prolong hospital treatment, despite the optimal guideline directed medical therapy for heart failure, the patient remain in intractable heart failure condition with persistent ascites. Echocardiography evaluation also did not show significant improvement of the mitral stenosis condition. The decision to perform percutaneous balloon mitral valvotomy (PBMV) was taken. Upon the successful PBMV the MVA from angiography increased from 0.6 to 1.2 cm². The patient gradually improving in signs and symptoms of intractable heart failure. The patient then was discharged in the following week. Further one year follow up after the procedure showed good condition of the patient that could normally active in school without any sign and symptoms of heart failure.

Conclusion: PBMV provides excellent palliation in symptomatic young patient with rheumatic mitral stenosis. It is safe and effective in juvenile rheumatic MS and provides greater hemodynamic benefit. PBMV may be a preferable alternative to surgery.

Keywords: Mitral Stenosis, Percutaneous Balloon Mitral Valvuloplasty, Rheumatic Heart Disease, Treatment



A Transcatheter Closure With Transesophageal Echocardiography Guidance Without Fluoroscopy on A 34-Year-Old Woman With Multihole Secundum Atrial Septal Defects: a Case Report

T. T. Syamsul¹, A. N. Nasution¹, T. W. Ardhini¹, A. A. Siregar¹, H. Hasan¹

¹Cardiology and Vascular Medicine Department Faculty of Medicine Universitas Sumatera Utara, H. Adam Malik Hospital and USU General Hospital, Medan, Indonesia

Background: Atrial septal defect (ASD) is one of acyanotic types of congenital heart disease (CHD) that accounts for 5-10% of the CHDs. ASD is relatively common, the incidence is about 1 in 1.500 live births. There are four major types of ASDs and these include ostium secundum, ostium primum, sinus venosus and coronary sinus defects. Ostium secundum defect is the most common type of ASD and it is about 50-70% cases of all ASDs.

Case Summary: A 34-year-old woman came to RSUP H. Adam Malik Medan with easily fatigue for the past 6 months. The patient had history of shortness of breath and paroxysmal nocturnal dyspnoea. From the ECG we found the patient had sinus rhythm, right axis deviation, biatrial enlargement, and incomplit RBBB. From the chest x-ray we found cardiomegaly with pulmonal prominence. Patients had normal laboratory findings. From the echocardiography we found ASD secundum type with left to right shunt, the size was 22 mm. Patients also underwent transesophageal echocardiography that later showed multihole secundum atrial defect, sized 18 mm, 2-4 mm and 2 mm each. Later we performed ASD closure using Memopart™ series ASD Occluder device no. 24 on the largest diameter ASD. On evaluation with transthoracal echocardiography, we found that the device was sat properly on the defect, and there was no residual shunt, and good RV contractility. Patient then discharged and continued the treatment in outpatient clinic by taking aspirin for 6 months.

Discussion: Ostium secundum defect is the most common type of ASD and it is about 50-70% cases of all ASDs. Clinical presentations may vary widely, from asymptomatic, mild fatigue, dyspnea, right ventricular failure, or atrial arrhythmias. The management of ASD patients is largely dependent of the age at presentation and presence of symptoms.

Conclusion: It has been reported a 34 YEAR OLD WOMAN WITH MULTIHOLE SECUNDUM ATRIAL SEPTAL DEFECTS and was successfully closed with transesophageal echocardiography guidance without fluoroscopy and leave two-holed ASD are not fully covered. The device was sat properly on the defect, and there is no residual shunt on central defect.

There are few reports of multiple/ multi-hole secundum atrial septal defect (MHASD) and its incidence is 4 to 10%. The devices made for septal closure are designed for larger defects or nearby multi-hole defects, but when the defects extend beyond the radius of the closure device or there are not all covered, a complete closure is not achieved. However, multi-hole secundum atrial septal defect (MHASD), which accounts for 10% of all ASDs is still challenging in percutaneous closure especially those in big size and complex layouts

Keyword: Atrial septal defect, multiple secundum ASD, ASD closure



Acute Myocardial Infarction with High Thrombus Burden as a Complication of COVID-19 : a Case Series

R. A. Anzali¹, D. A. Juzar²

¹Cardiology Resident NCC Harapan Kita

²Senior Consultant Division Of Cardiovascular Intensive Care And Emergency NCC Harapan Kita

Background: COVID-19 and other coronavirus infections have been associated with cardiovascular complications as a result of the pro-inflammatory response and potential for vascular endothelial damage which can result in acute cardiac injury (myocarditis, acute myocardial infarction), heart failure and arrhythmia. There have been several publications showing an increased thrombus burden in STEMI patients infected with COVID-19 compared to uninfected STEMI patients.

Case Illustration: We describe 2 cases of STEMI events in patients with COVID-19. The first patient admitted to the emergency department with STEMI presentation, while the second patient admitted to the emergency department with ARDS presentation and had STEMI while in the CVCU isolation room. We hypothesized this STEMI as a thrombotic complication of COVID-19 because the onset of STEMI occurs in the hyperinflammatory phase of COVID-19, characterized by high inflammatory parameters, coagulation, cardiac enzymes, and high thrombus burden from diagnostic angiography and PCI. Both patients were treated for PCI of the RCA lesion by performing procedures according to the high thrombus burden strategy, such as thrombectomy, balloon angioplasty, intracoronary vasodilators, use of glycoprotein IIb/IIIa inhibitors and deferred stenting strategy. Post procedure was maintained with drip infusion of glycoprotein IIb/IIIa inhibitors and continued with heparinization using LMWH. Both clinical outcomes were good, LVEF evaluation 70% and 42% respectively. Planning for re-invasive coronary angiography was scheduled during outpatient control at the polyclinic due to limited government insurance regulations.

Conclusion: The aim of this case presentation is to describe and discuss presenting features, clinical findings, and outcomes of patients with COVID-19 who complicated with acute myocardial infarction

Keywords: COVID-19, Cytokine Storm, Acute Cardiac Injury, STEMI, High Thrombus Burden



Anomalous Dual Circumflex Artery: A Case Report

R. Fernandes¹, A.A Lukito¹, S. Chandra¹, H. Hutabarat¹

¹Department of Cardiology Faculty of Medicine Pelita Harapan University, Siloam Hospital Lippo Village, Tangerang, Indonesia

Background: Coronary artery anomalies are a rare occurrence in a general population in which discovered just about 0.24-1.3% on the angiography series. This finding often diagnosed incidentally at the time of cardiac CT scan, coronary angiography or autopsy. Knowing different anatomic variants of the coronary artery is important for those who undergoing coronary angioplasty or surgical myocardial revascularization.^{1,2,3} We presented a very rare case of double left circumflex artery; one raising from the left main coronary artery and the other originating from the RCC side by side with the RCA ostial.

Case Illustration: A 50-year-old man, hypertensive, non-diabetic, and a history of PCI 5 years ago presented with chest discomfort on exertion for 1 months. Physical examination revealed blood pressure of 130/80 mmHg, heart beats of 80 bpm and SpO₂ of 99% room air, other examinations were in normal limits. His electrocardiogram showed a sinus rhythm and LV strain. Echocardiography revealed mild LV hypertrophy with normal left ventricular ejection fraction without any regional wall abnormalities. Stress treadmill test showed a positive result for an inducible ischemia. Therefore, a coronary angiography was performed. Coronary angiography revealed a normal left main coronary artery (LMCA) that divided into dominant left anterior descending (LAD) artery with a patent DES in the proximal and mid LAD, and a branch of rudimentary left circumflex artery (LCX). The second anomalous circumflex artery originating from RCC side by side with the RCA ostial. In consequence, the patient was diagnosed with a twin LCX with a evidence of distal vessel disease. The patient was discharged the following day and advised for a therapeutic lifestyle change and a regular follow up.

Conclusion: Dual circumflex artery raising from a different origin is a rare anomalous coronary finding in which operator should be familiar and beware with. Precise documentation and recognition of these anomaly is essentially needed to provide an accurate therapeutic judgement.

Keywords: Dual Circumflex Artery; Coronary Artery Anomaly; LCX



Biarterial Total Occlusion as Simultaneous Double Culprit Lesion Causing Acute Myocardial Infarction With Cardiogenic Shock and Total Atrio Ventricular Block

M. S. Dinihar¹, D. A. Sinaga¹

¹Awal Bros Pekanbaru Hospital, Riau, Indonesia

Background: Acute myocardial infarction involving 2 or 3 coronary arteries simultaneously is rare and usually has poor clinical outcomes. Management of this complicated condition is challenging and time constrained. We report patient with total occlusion left anterior descending (LAD) and right coronary arteries (RCA), presenting with Chest pain, and unstable hemodynamic (Cardiogenic shock (CS), Total Atrio Ventricular Block (TAVB), Ventricular fibrillation (VF) and cardiac arrest.

Case Illustration: A 66 year old man was referred from other hospital with acute inferior and anterior myocardial infarction onset 5 hours with CS and TAVB. He arrived with Blood pressure 67/51 mmHg, Heart rate 45 bpm, despite support of norepinephrine and dopamine infusions. Laboratory data showed troponin I 9,633 ng/ml and creatinine 1,45 mg/dl. Emergency coronary angiograms revealed total occlusion of proximal RCA and proximal LAD and insignificant stenosis of left circumflex artery. Primary angioplasty was performed with 1 drug eluting stent (DES) implanted at the proximal RCA, notably as culprit lesions of the TAVB. Immediately after RCA stenting, the patient developed VF, hence cardiac defibrillation 200 J was administered and CPR was performed resulting in return of spontaneous circulation. LAD angioplasty was deferred in regards with the hemodynamic instability. On day-2 following Primary angioplasty, the LAD was intervened with 1 DES implantation. Patient was discharged on day- with stable hemodynamic. Dual antiplatelet, ACE-inhibitor and beta blocker commenced. Culprit of our case presented were due to the rupture of multiple plaques. Multiple ruptured plaques with thrombus formation causing ACS has been reported in more than 10% autopsied case, but usually not recognized clinically because of its rapid and fatal course.

Conclusion: Multi vessel myocardial infarctions are associated with high mortality. An effective informed consent, primary PCI and precise medical treatment have important role to improve survival rate of such disease.



Provisional One-Stent Technique for Management Left Main Bifurcation Lesion

D.D. Utomo¹, D. Wardhani¹, M. Rahmawati^{1,2}, R.H. Wibowo¹, P. Utomo¹

¹Department of Cardiology and Vascular Medicine, Cibabat General Hospital, Cimahi, Indonesia

²Department of Cardiology and Vascular Medicine, Siloam Hospital Purwakarta, Purwakarta,
Indonesia

Background: Coronary bifurcations remain one of the most fascinating and challenging lesion subsets in interventional cardiology, with a lower procedural success rate. The best left main bifurcation lesion treatment remains controversial in the literature. However, if PCI is indicated, there are some techniques to manage coronary bifurcations lesion based on lesion characteristics. One of them is a provisional one-stent technique.

Case Illustration: We reported a case of acute coronary syndrome in 63-year-old female with left main bifurcation lesion. She initially complained of chest pain with ST elevation at anterior extended leads and high cardiac enzyme thus we diagnosed as anterior extensive ST elevation myocardial infarction (STEMI). Coronary angiography shown Medina 1-1-0 lesion at left main to the left anterior descending (LAD) with critical stenosis of distal left main coronary artery, ostial LAD, mid LAD, and mild stenosis of left circumflex (LCx) artery. Patient also had critical stenosis of proximal right coronary artery. Provisional stenting strategy was performed at distal LAD and LCx artery. Two wires advanced to distal LAD and LCx artery. Balloon with 2.5 x15 mm size inflated to predilate those arteries, except LCx artery. A 3.0 x 36 mm size DES deployed at distal left main coronary artery to mid LAD and inflated until 16 atm. Lastly, proximal optimization technique (POT) was done by inflating a 3.5 x 8 mm balloon at distal left main coronary artery until 14 atm. Final angiography shown no occlusion.

Conclusions: Provisional one-stent technique is more preferred because the patient has a non-true bifurcation lesion with Medina 1-1-0. The technique is associated with a low risk of failure and complications. The suitable decision to perform one or two-stent technique in this case is very important to minimize the risk of complications.

Keywords: Provisional One-Stent Technique, Left Main Bifurcation Lesion



Case Series of Left Main Total Occlusion with Different Outcomes

K. Karim¹; E. Kurniawan¹; D.P. Wahyudi¹

¹Department of Cardiology and Vascular Medicine, Faculty of Medicine, Universitas Padjadjaran -
Hasan Sadikin General Hospital, Bandung, Indonesia

Background: The left main coronary artery (LMCA) disease is commonly associated with multivessel disease and manifests as an acute coronary syndrome. Patients with acute LMCA occlusion may present with sudden death or profound cardiogenic shock, meanwhile the more insidious clinical picture, consisting of stable angina, unstable angina, and dyspnea, predominates in the presence of chronic total occlusion (CTO) of the LMCA. The data on acute total occlusion of the LMCA with ST-elevation myocardial infarction (STEMI) and CS are limited, and CTO of the LMCA is considered a rare occurrence. Here, we present two cases of LMCA disease with different settings and outcomes.

Case Illustration: The first patient, a 78-year-old male with STEMI, presented within 18 hours from the onset of chest pain. Physical examination revealed signs of congestive heart failure, and laboratory testing revealed leukocytosis and elevated cardiac troponin I. His angiography revealed total occlusion of the distal LMCA, and the patient died during the procedure due to cardiac arrest. The second patient was a 75-year-old male with typical presentation of stable coronary artery disease and CCS grade II angina. In 2010, the patient had a history of ACS and two bare metal stents were implanted at his RCA. Physical and laboratory examinations revealed no remarkable findings. The patient underwent angiography, which revealed a patent RCA stent and total occlusion of the distal LM with collateral from the ramus posterolateral of the RCA to the distal LAD. The patient was advised to have a Coronary Artery Bypass Graft (CABG). He was followed up on after the procedure and was doing well when we wrote this paper.

Conclusion: Although both patients had total occlusion of the LMCA with good RCA, the clinical settings were different, with the first patient having minimal collaterals and the second patient having good collaterals, explaining why the two cases had different outcomes. Therefore, coronary collateral circulation (CCC) remains an important predictor of prognosis for LMCA disease, particularly in total occlusion. Furthermore, this report supports the evidence that unprotected LMCA can be catastrophic, whereas protected LMCA has a better prognosis.

Keywords: acute coronary syndrome; angiography; chronic total occlusion; coronary collateral circulation; left main coronary artery disease



Combination of Intravascular Imaging and Physiology Study in PCI.

“Let’s make it better”

F. I. Shahab¹, D. Firman¹, A. S. Mangkuanom¹

¹National Cardiovascular Center Harapan Kita Jakarta, Indonesia

Background: Identifying stenoses that cause ischemia can be done in variety of ways. One of the alternative tests that can be performed at the time of angiography is instantaneous wave-free ratio (iFR). This measurement can be done without the need for pharmacological agent and compares well to other invasive testing. The characteristic of the coronary artery can be done with intravascular imaging, which is a great tool to guide our PCI (percutaneous coronary intervention) strategy. Combination of intravascular imaging and physiology study will guide the interventionist to achieve optimal results.

Case illustrations: Fifty-one years old male with stable angina pectoris come our center. He underwent a PCI at the LAD with 1 stent 5 years ago. The cardiovascular risk factor that he have is a hypertension. We performed a coroangiography that reveal a significant stenoses at the proximal LAD (ISR type IB). We performed the iFR measurement at distal LAD, and we pullback the pressure wire to determine the significant lesions. The iFR was 0.57 at distal LAD, and we had a pressure drop at the proximal of the LAD. After that, we performed intravascular ultrasound (IVUS). The characteristic of the coronary vessel was fibrous calcified plaques with calcium arc 90 until 150 degree and we also found the under-expanded of the previous stent. We prepared the lesion with NC balloon 3.25x15 mm and put DES 3.5x28 mm at di proximal LAD. The angiography result post stenting looks good. We performed the IVUS to evaluate the PCI result. We found that our stent was well apposed but under-expanded. So, we decided to optimize the lesions with another dilatation with NC balloon 3.5x15 mm at high pressure. After that we did another IVUS evaluation. There was no medial dissection, the stent well apposed and the expansion was good.

Conclusion: The combination of intravascular coronary imaging and physiology study will guide us to achieve the optimal PCI results.

Keywords: intravascular coronary imaging, instantaneous wave-free ratio, percutaneous coronary interventions



Combination Of Kissing Catheter And Snaring Techniques To Evacuate A Broken And Dislodged Stent On Primary Pci

D. Puspitasari¹, MT. Nugraha²

¹Faculty of Medicine, Sebelas Maret University, Surakarta, Indonesia, ² Department of Cardiology and Vascular Medicine Dr. Moewardi Hospital, Surakarta, Indonesia

Background : Stent dislodgement is a serious complication during PCI and potentially responsible for cardiac arrest, a condition requiring a rapid intervention and restoring of coronary and systemic blood flow. The incidence of stent dislodgement and loss during PCI has significantly decreased over the last twenty years (0.32-0.02%), probably due to the improved stent design, adjunctive equipment, and stenting technique. However, considering the increasing complexity of procedures, this severe complication remains an important issue in interventional cardiology.

Case illustration: A 60-year-old man with complaints of chest pain since 28 hours was referred to the ER Dr Moewardi Hospital. ECG examination showed junctional rhythm 50 bpm normal ST segment elevation II III aVF, ST depression in I aVL. The patient was diagnosed with inferior MI and planned for primary PCI. DCA showed mild stenosis distal LAD and LCx, total occlusion proximal RCA. After lesion preparation, we tried to insert the stent in the proximal RCA, but the stent is trapped in the lesion. The damage stent with the guide wire was remained in the ascending thoracic aorta. The stent was unable to be retrieved into the guide catheter, as it was distorted. In this case, the stent distortion was likely secondary to the calcified RCA. A snare loop appeared to be the best method of retrieval, because our lost stent had not been deployed and rode on a guide wire in the ascending thoracic aorta. The two-catheter kissing technique aims to keep the stent in the wire and as close to the sheath as possible before snaring. And single loop snare was used successfully to catch the stent in the femoral artery and retrieved the stent externally via the arterial sheath.

Conclusion: The management of PCI complications such as damage and stent detachment must be fast and precise to avoid further complications such as embolization. The choice of stent retrieval technique must adapt to the patient's condition and the available facilities. In this case a combination of two-catheter kissing and snare technique was successful in evacuating the stent.

Keyword : stent dislodgement, stent retrieval, snare



Evolution Of Congenital Heart Diseases Intervention In Tertiary Academic Hospital In East Java

I. Kamelia¹, A.G.A Lukitasari¹, V. Yogibuana², H. Martini²

¹ Cardiology Residence of Faculty of Medicine Universitas Brawijaya-Saiful Anwar Hospital, Malang, Indonesia

¹Staff of Cardiovascular Department Faculty of Medicine Universitas Brawijaya-Saiful Anwar Hospital, Malang, Indonesia

Background and aims: To describe the evolution of congenital heart diseases (CHD) intervention in tertiary academic hospital in East Java.

Materials and methods: We analyzed the registry of CHD in Saiful Anwar General Hospital Malang Indonesia from 2017 to 2021. We stratify all procedure based on the types for each year. All data were performed descriptively.

Results: A total of 382 structural and congenital cardiology procedural were performed in catheterization laboratory. There are nine type of procedures performed in catheterization lab for structural and congenital heart diseases. The most frequent procedure performed was diagnostic catheterization for the Right and Left Heart Catheterization with total 258 procedures over 5 years (67.5%), and the least procedure performed was Patent Ductus Arteriosus stenting that had been done once in the last five years. Clinical concerns was in diagnostic catheterization in patient with structural heart diseases to determine the next step of treatment. Some patient underwent defect closure, comprises 54 procedures for PDA closure (14.1%), 28 patient had ASD closure (7%) and 16 patient had VSD closure (4%). Most of the procedure was done by percutaneous technique under fluoroscopy guiding. Meanwhile 2 patient underwent surgical closure for ASD in 2019. Along with the developmental of operational techniques, since 2020 there are 3 procedure for defect closure done under zero fluoroscopy. All of them was procedure for ASD closure.

Conclusions: The congenital heart diseases service in our center has been developed in the last five years. There is shifting phenomenon from the conventional fluoroscopy to the zero fluoroscopy procedure.

Keywords: Interventional cardiology, congenital heart diseases, zero fluoroscopy

Unusual Covid-19 Presentation, Severe Acute Limb Ischemia: A Case Report

D. Wardhani¹, D. Fathul¹, P. P. Prakoso¹, H. H. Najiyah¹, D. D. Utomo¹, R. H. Wibowo¹

¹Department of Cardiology and Vascular Medicine, Cibabat General Hospital, Cimahi, Indonesia

¹Department of Cardiology and Vascular Medicine, Hermina Pasteur Hospital, Bandung, Indonesia

Background: Covid-19 may presents with thromboembolic event. Some meta-analysis showed that arterial thromboembolic events (ATE) in Covid-19 were less common. Acute Limb Ischemia (ALI) contributed 0.4% from overall ATE. However, recent studies also reported ALI start to increase throughout this pandemic, but diagnostic and management procedure might be challenging. Nevertheless, ALI is emergency condition and need prompt definitive management.

Case Summary:

A 61-year-old man with fever and dyspnea 7 days earlier, was presented to hospital due to resting pain, paresthesia and mottled skin appearance on lower extremities since 2 days ago. His oxygen saturation was 80% at left and 91% at right toe. Distal extremities were cool and diminished pulses. ECG showed sinus rhythm with V1-V4 pathological q-wave. Bronchopneumonia has shown at Thorax X-ray, with D-dimer and CRP were elevated, and positive SARS-CoV-2 PCR. ALI Rutherford class II-b and III was established, followed with immediate anticoagulation. He was hospitalized at isolated ICU ward, managed with subcutaneous Enoxaparin 60mg bid, comorbidities and infection medication. Covid-19 symptoms were improved gradually followed by negative SARS-CoV-2 PCR at day 14. DUS consistent with ALI. Echocardiography consistent with CAD with reduced LVEF. At day 17, he underwent right below knee amputation and open thrombectomy. Subsequent abdominal and lower extremity CT-Angiography showed moderate to severe stenosis of the right popliteal artery, severe stenosis of the left dorsal pedis artery and plantar artery. He underwent second amputation, at the left big toe afterward.

Conclusion: Covid-19 presentations are diverse, including ALI. Despite Covid-19 burdens, ALI guideline based management still recommended. But due to critical ill and limitation of isolated radiology and operating room, our patient's irreversible limb amputation and CT-A were delayed. Optimizing therapeutic dosage of anticoagulant before open revascularization was our justifiably choice.

Keyword: Acute Limb Ischemia, Covid-19, Thromboembolic, Anticoagulant

Figure Legend



Figure 1. Lower Extremities CT-Angiography



Extensive Anterior-Inferior St-Segment Elevation Myocardial Infarction (Stemi) In Young Patient With Long Covid-19 : Pure Thrombosis Or Multiple Mechanism?

R. Muliawan¹, W. Dwijanarko¹, N. Taufiq¹

¹Department of Cardiology and Vascular Medicine, Faculty of Medicine, Public Health and Nursing, Gadjah Mada University, Yogyakarta, Indonesia

Background: One of the complications by Coronavirus Disease 2019 (COVID-19) in the cardiovascular system is acute coronary syndrome (ACS). The several potential mechanisms have been hypothesized, including oxygen supply/demand imbalance, direct viral cellular damage, systemic inflammatory response with cytokine-mediated injury, microvascular thrombosis, and endothelial dysfunction. The aim of this case report its to understand the ACS pathogenesis in the young COVID-19 patient.

Case Illustration: A 31 years old male came to emergency department due to sudden onset of progressive chest pain with diaphoresis 1 hour before admission, dyspneu dan cough since 1 month ago. Patient was moderate smoker. The patient has a history of being infected with COVID-19 in August 2021 and has completed self-isolation. Physical examination showed normal vital sign. Further investigation revealed an extensive anterior-inferior STEMI on electrocardiography and an increased in high-sensitivity troponin-I (428.70 ng/L). Chest x-ray showed bilateral pneumonia due to ground glass appearance at periphery. The patient was planned for facilitated percutaneous coronary intervention (PCI). It demonstrated total occlusion on proximal LAD with high burden thrombus from proximal to distal, thrombolysis in myocardial infarction (TIMI) Flow 0. We performed successful thromboaspiration and found stenosis at proximal LAD then performed PCI with 1 DES implantation at there.

Discussion: The potential underlying mechanisms of ACS in COVID-19 may be multiple. The spectrum of pathophysiological mechanisms reflects the clinical features of patients with confirmed MI diagnosis, such as the angiographic evidence of non-obstructed coronary arteries, multiple thrombotic culprit lesions, and high thrombus burden. However, we can also find a picture of atherosclerosis from coroangiography which makes it easier for coronary occlusion to occur.

Conclusions: ACS can result as COVID-19 cardiovascular complication from multiple mechanism. So that the progressive understanding of COVID-19 pathophysiology provides us a conceptual framework for better patient treatment.

Keyword: STEMI, ACS, COVID-19, Thrombosis

Facing the Obstacles: A Challenging Case in Dextrocardia Patient Who Undergo Percutaneous Coronary Intervention

J. Chitrahadinata¹, T.V. Yoshinta¹, L. Wongso¹, D.U. Djafar², M. Luntungan², J.A. Pangemanan²,
A.L.²

1 Cardiology Resident of Sam Ratulangi University, Faculty of Medicine

2. Department of Cardiology and Vascular Medicine, Sam Ratulangi University, Kandou General
Hospital, Manado

Background. Dextrocardia is a rare congenital anomaly that occurs in 1:10.000 live births. The incidence of coronary atherosclerosis is similar to normal populations. Anatomical variation in dextrocardia is challenging for percutaneous coronary intervention. The procedure is technically difficult and sometimes require modifications.

Case Illustration. A-66 years old man presented with chest pain which aggravated by activity in the last 7 months. His risk factor were heavy smoker, hypertension and hypercholesterolemia. Clinical examination was unremarkable. ECG demonstrated global inversion, upright P and T waves at aVR and absent R-wave progression at the chest leads. Chest radiograph showed cardiac and upper abdominal organs in inversely position. Exercise stress test showed positive ischemic response. Cardiac catheterization was performed via right transradial using CLS3.5/6F to cannulate inverted LCA and JR3.5/5f was used to cannulate inverted RCA. Mirror-image acquisition was used to depict coronary tree. Left coronary angiography showed stenosis 70% ostial to proximal and stenosis 60% distal LAD. Right Coronary Angiography showed stenosis 70% at proximal to mid RCA. Two DES were deployed at ostial to middle segment of LAD and one DES at proximal to middle segment of RCA with good result.

Conclusion. Coronary intervention procedure is challenging in situs inversus dextrocardia. Several things to consider is to determine the puncture site, type of catheter, opposite-direction catheter rotations and mirror-image angiographic. Transradial in situs inversus dextrocardia has been reported for STEMI, double, and single vessel disease using extra support, Judkins, AL2 guide catheters. To achieve optimal image, we use mirror image angiographic views with minor angle modifications. Catheters can be passed easily, except that the catheters are rotated in the opposite direction. Transradial PCI using standard catheters and “mirror-image” view can be effectively used in dextrocardia.

Keyword: Dextrocardia, mirror-image, radial access, situs inversus.



Figure 1. Pre- and Post-Coronary Angioplasty Dextrocardia Situs Inversus

Emergency Pericardiocentesis by CVC kit in Patient with Cardiac Tamponade due to Blunt Chest Trauma: A Rare Case from Remote District Hospital

B. Suhuyanly¹, U. J. A. Praing² I. G. Sumantra¹

¹Waikabubak District Hospital, West Sumba, East Nusa Tenggara, Indonesia

²Umbu Rara Meha District Hospital, East Sumba, East Nusa Tenggara, Indonesia

Background: Traumatic cardiac tamponade due to blunt chest trauma is a medical emergency and life threatening conditions that required early recognition and prompt treatment, but often unrecognized.¹⁻³ It occurs only 10 – 20% in blunt chest trauma.^{2,4} The only treatment of cardiac tamponade is to reduced intrapericardial pressure by pericardiocentesis or open thoracotomy.⁵ This case report presents an incident cardiac tamponade as a complication in blunt chest trauma and treated by emergency pericardiocentesis using CVC kit triple lumen rather than pericardiocentesis kit, due to limited resources.

Case illustration: A 39-year-old male was admitted to the emergency department with history of blunt chest trauma with dyspnea and chest pain. Examination findings were Beck's triad, pulsus paradoxus, ECG showed sinus tachycardia, and echocardiography findings showed pericardial effusion with signs of tamponade. Emergency pericardiocentesis with echocardiography guidance was done using CVC kit triple lumen (Seldinger Technique) with subxiphoid approach with no complication and continued with drainage. Drainage was minimal three days after pericardiocentesis procedure and echocardiogram evaluation showed minimal pericardial effusion with no sign of tamponade. He was then discharged from hospital 5 days after admission.

Conclusion: Cardiac tamponade is suspected clinically by Beck's triad. Echocardiography is a imaging modalities to make prompt diagnosis and treatment for guidance in pericardiocentesis. Pericardiocentesis was a definitive treatment of cardiac tamponade. In rural area with limited resources, CVC kit for emergency pericardiocentesis can be done and showed good outcome.

Keywords: Cardiac tamponade, Beck's Triad, Pericardial Effusion, Blunt Chest Trauma, Pericardiocentesis, CVC kit.

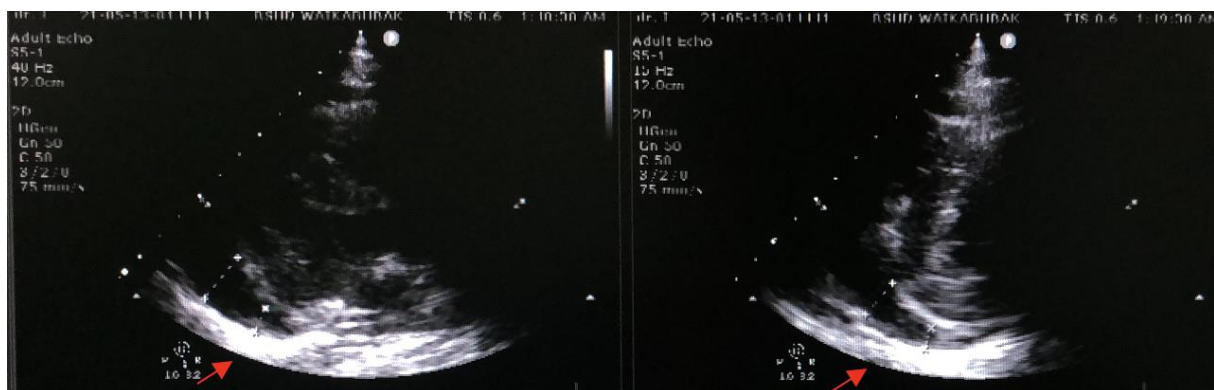


Figure 1. Echocardiography measurement of pericardial fluid (red arrow)



Interatrial Stenting in Critical Congenital Heart Disease Patients: an Evidence-Based Case Report and Systematic Review

B. Mendel¹, A.R. Sudirman², Christianto³, R. Prakoso¹, Y. Galenta², S.N. Siagian¹

¹Division of Pediatric Cardiology and Congenital Heart Disease, National Cardiovascular Centre of Harapan Kita, Jakarta, Indonesia

²Doris Sylvanus Government Hospital, Palangkaraya, Central Kalimantan, Indonesia

³Faculty of Medicine, Universitas Indonesia, Jakarta, Indonesia

Background: The decision on creating an appropriate interatrial communication become a critical aspects in managing patient with hypoplastic left heart syndrome. The unrestrictive atrial septal defect is needed to avoid pulmonary hypoperfusion, to achieve adequate atrial mixing and to maintain systemic cardiac output. Hereby we present the case of interatrial stenting induced clinical improvement in critical congenital heart disease patient.

Case Illustration: A 10-day old baby boy was referred due to recurrent episodes of desaturation of 40%. On admission, he was on high dose inotropes and mechanical ventilatory support with the peripheral saturation of 71%. On echocardiography, his trans atrial septal defect gradient was 10 mmHg. Thus, the patient was planned for interatrial stenting procedure. Based on the systematic review, six studies met the eligibility criteria and were included in this review. One study reported decreases in right atrial and left atrial pressure after interatrial stenting. Two studies reported decreased interatrial pressure and increased interatrial size after the procedures. The oxygen saturation was increased after the interatrial stenting in the included studies. Most studies reported no complication, except one study which reported two cases of interatrial stent obstruction and another study which reported a few cases of stent migration, perforation, and death.

Conclusion: Percutaneous atrial septal stenting could be performed with high success rate in patients with critical congenital heart disease. The risks and complications occurred predominantly in those with precarious cardiac function.

KEYWORDS

Hypoplastic left heart, interatrial stenting, single ventricle



Unconventional Hybrid Coronary Revascularization in Severely Left Main Disease

I. Pratanu¹, E.R Utami¹

¹Department of Cardiology and Vascular Medicine, Airlangga University, Soetomo General Hospital

Background: Hybrid Coronary Revascularization (HCR), a strategy that combines coronary artery bypass graft (CABG) surgery and percutaneous coronary intervention (PCI), is arguably projected to be the future of coronary revascularization in high-risk profile patients. The objective of this clinical case report is to highlight the magnitude of HCR in improving patients' quality of life.

Case presentation: A 65-year-old diabetic woman demonstrated sign and symptoms of dyspepsia. Physical examination showed her to be normotensive with unremarkable cardiopulmonary examination. Electrocardiography showed sinus rhythm with ST segments depression in V2-V6 and multiple ventricular extra systoles. Laboratory studies were remarkable with high blood sugar and lipid profile. The patients then treated with Glipizide, Aspirin, Ticlopidine, Nitrate and Diltiazem. Despite the adequate treatment, continued intermittent angina persisted. Patient then underwent coronary angiography which depicting triple vessel disease with severe left main involvement. Thenceforth, she was suggested for CABG due to the consideration of lesion site, diabetic condition, and her senility. Bypass surgery was reported successful in performing graft from left internal mammary artery (LIMA) to obtuse marginal (OM) and free radial graft from LIMA to left anterior descending (LAD). However, angina persisted. Beta blocker and trimetazidine were added to the regiment therapy yet the complaint was uninterrupted. Further, four months after the coronary surgery, she agreed to do coronary angiography evaluation. The subsequent angiography showed LIMA graft patent to OM branch. On the other hand, the radial graft unfortunately was totally occluded in distal anastomosis of LAD. Consequently, the angina lasted due to the unprotected LAD. At that point, left main stenting was accomplished to proximal and mid LAD using paclitaxel eluting stent. After stenting to left main, the ostial left circumflex (LCX) was widely open hence the competitive flow in LCX territories.

Discussion: CABG is considered as the gold standard treatment of unprotected left main coronary artery disease. However, unless desirable outcomes such as 10-year survival rate is achieved, one should not be satisfied. In our case, the patient is angina-free with no major adverse cardiac event (MACE) was reported after 13 years post HCR. This case report showed that PCI improves the inadequate result of CABG. Thus, increase the patients' survival rate as well as quality of life. Accordingly, HCR can be very promising in selected population patients.



Balloon Pulmonal Valvotomy in Tetralogy of Fallot Patient: is it still the right choice of palliative management?

D.D.A. Sakti¹, R. Prakoso¹, O. Lilyasari¹

¹Division of Pediatric Cardiology and Congenital Heart Disease,

Department of Cardiology and Vascular Medicine, Faculty of Medicine, Universitas Indonesia

National Cardiovascular Center Harapan Kita, Jakarta, Indonesia

Background: Balloon Pulmonal Valvotomy (BPV) is the earliest transcatheter interventions described for palliation in infants with Tetralogy of Fallot (TOF). BPV would work best when there is predominantly valvar pulmonary stenosis in a patient with an adequately sized pulmonary annulus. Often, in newborns and infants, the degree of infundibular hypertrophy is less, and hence BPV may have satisfactory results despite this multilevel obstruction in TOF.

Case illustration: First patient was 7 year old boy, 12 kgs, with severe desaturation and frequent squatting episodes, diagnosed with TOF with severe PS and maximum propranolol dose. Second patient, 22 month old boy, 9 kgs, recurrent spell, diagnosed with TOF and tight PS and hypoplastic PA. Initial angiogram showed tight valvular PS and low oxygen saturation at descending aorta in both patients. Balloon pulmonal valvuloplasty was done in both patients, and good results after procedure achieved with increased oxygen saturation from 59% to 99% in first case and 50% to 89% in second case.

Discussion:

Balloon Pulmonal Valvotomy still has a role in the present era of pediatric cardiac care. BPV has very specific indications in patients with TOF, with predominantly valvar pulmonary stenosis and can still be considered for palliation in patients presenting with severe cyanosis and/or cyanotic spells.

Conclusion:

We present 2 cases of TOF patients with predominantly valvar pulmonary stenosis undergone BPV and showing a good result after the procedure.

Keywords: balloon pulmonal valvuloplasty, tetralogy of Fallot, valvular pulmonary stenosis



Temporary Pacemaker Insertion in Complete Heart Block Infants with Congenital Heart Disease (CHD) under Transthoracic Echocardiography Guiding

D.D.A. Sakti¹, R. Prakoso¹, O. Lilyasari¹

¹Division of Pediatric Cardiology and Congenital Heart Disease, Department of Cardiology and Vascular Medicine, Faculty of Medicine, Universitas Indonesia National Cardiovascular Center Harapan Kita, Jakarta, Indonesia

Background: Congenital Complete / total AV block in patients with CHD occurs approximately 1:15,000 to 20,000 live births. The need for temporary pacemaker insertion is mandatory and require transvenous right ventricular lead placement. When used to guide transvenous pacemaker wire insertion, trans thoracic echocardiographic imaging offers advantages over blind or fluoroscopic placement, including avoidance of radiation, rapid deployment, real-time visualization of the lead in relation to the cardiac structures, and early detection of potential complications, such as tamponade.

Case illustration: Two patients with total AV block. First patient was 6 month old boy, 4,1kg, with bluish discoloration, total AV block, ccTGA, inlet VSD, SVD, PDA, supracardiac TAPVD. Second patient was 3 year old girl, 14kg, came with seizure, and total AV block was found on ECG. Both patients undergone TPM insertion under TTE guiding only, from right femoral vein approach.

Discussion: When used to guide transvenous pacemaker wire insertion, transthoracic echocardiographic imaging offers advantages over blind or fluoroscopic placement, as we did in both of our cases, including avoidance of radiation, rapid deployment, real-time visualization of the lead in relation to the cardiac structures, and early detection of potential complications, such as tamponade.

Conclusion: We present 2 cases of infants both with complete AV block in need of transvenous RV lead placement under guidance of TTE only.

Keywords: transcatheter temporary pacemaker insertion, transthoracic echocardiography, congenital heart disease

Chest Pain Associated With Coronary-To-Pulmonary Artery Fistula

Muhammad Kevin Pratama MD¹, Priyandini Wulandari MD, FIHA², Afdhalun A Hakim MD, FIHA, FAsCC²

¹General Practitioner, Cardiology Department, RSBP Batam

²Cardiologist, Cardiology Department, RSBP Batam

Background: Coronary Artery Fistula is a congenital disease, usually asymptomatic, and mostly found accidentally through angiography. Though it is seen as clinically insignificant, some patients developed remarkable symptoms that might reduce their quality of life.

Case Illustration: 50-years old male admitted to the emergency unit with continuous chest pain worsen with exertion. there was no dyspnea or limb oedema. a history of smoking and uncontrolled hypertension was found. High blood pressure was noted. However, there was not any abnormalities in physical examination, chest x-ray, and laboratory result. ECG was done, and showed a pathological Q-wave in inferior leads and presumably an elevation of ST-Segment of anterior leads. He was later diagnosed as UAP and Old Myocardium Infarct, and prepared for PCI. Catheterization exposed coronary vessel with no visualized lesion, but there was a noticeable image of connection between coronary artery and pulmonary artery, which concluded as the underlying cause of the chest pain. he was later discharged with good prognosis and improvement of general conditions.

Conclusion:

Considering possibilities involving further hemodynamic event in the future, clinical judgement has to be made carefully, before the treatment is chosen.

KEYWORDS: Coronary Artery, Fistula, Angiography, Pulmonary Artery

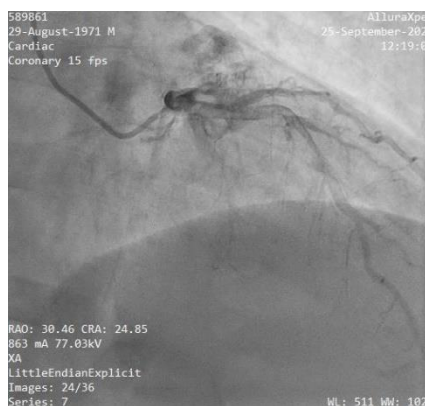


Figure 1. Visible Fistula at the Proximal part of Left Anterior Descending Artery

Unusual Coronary Artery Involvement in TAVB Following STEACS

Muhammad Kevin Pratama MD¹, Nada Putri Pranidya MD¹, Afdhalun A Hakim MD, FIHA, FAsCC²

¹General Practitioner, Cardiology Department, RSBP Batam

²Cardiologist, Cardiology Department, RSBP Batam

Background: High degree AV Block (HDAVB) is a worrisome finding in patient with acute coronary syndrome and require immediate intervention. It is found to be more common in cases related to right coronary artery occlusion.

Case Illustration: 40 years-old male was admitted to the emergency unit with chief complain an episode of syncope accompanied with chest pain and dyspnea worsen at exertion. Symptoms had been going for almost 12 hours prior to the admission, and history of hypertension and heavy-smoking were noted. he was presented with bradycardia (HR 34x/min) with declining blood pressure. ECG showed a third-degree-AV block with ST-elevation in the anterior leads. Troponin-I result was elevated, and cardiomegaly was found through the chest x-ray. he was then rushed to the Cath-lab, and underwent primary PCI followed by implantation of TPM. During catheterization, his RCA was presented with non-significant lesion while there was a total occlusion in LAD, which was recognized as unusual cause regarding presentation of TAVB. Improvements of the hemodynamic status, and return of the sinus-rhythm were noted, and the patient was discharged a few days after the intervention.

Conclusion:

Even though HDAVB may arise from the occlusion of LAD, it is still a rare event, given its anatomical relation to the conduction system of heart system. Early revascularization followed by the return of sinus-rhythm may benefit and improve survival rates.

KEYWORDS: Acute Coronary Syndrome, Total AV Block, Coronary Artery, Revascularization

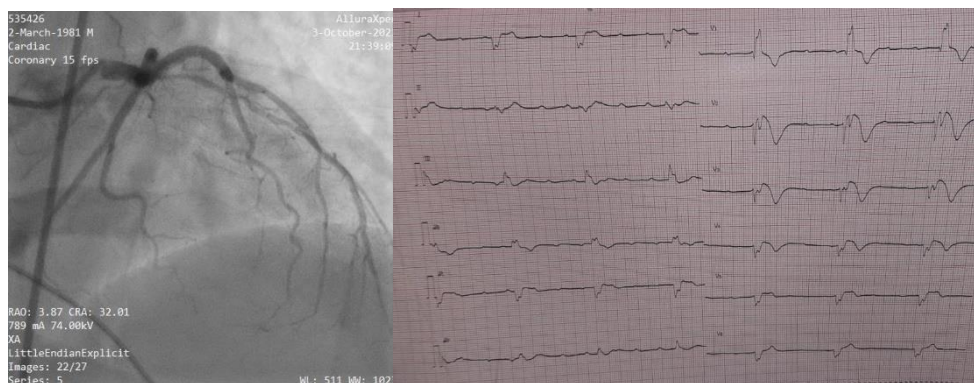


Figure 1. Total Occlusion in LAD and recorded TAVB in admission



Non Obstructive Coronary Angiography After Stemi Undergone Thrombolytic

J.K Phieter¹, J.H. Tungadi¹, A.H. Nashar²

¹Department of Cardiology and Vascular Medicine, Faculty of Medicine, Hasanuddin University,
Makassar, Indonesia

²Dr. Wahidin Sudirohusodo National General Hospital, Makassar, Indonesia

Background: Obstructive coronary artery disease is found in approximately 90% of patients presenting with ST elevation myocardial infarction, and the reperfusion is the standard therapy. ST elevation myocardial infarction in the absence of obstructive coronary artery disease is found in \approx 2,8 to 4,4% of all patients with acute infarction who are referred for coronary angiography. We reported a 30 years-old man diagnosed as STEMI Inferior Killip I with successful fibrinolytic. Coronary angiography showed no obstructive coronary artery disease, cardiac-magnetic resonance imaging performed latter showed transmural myocardial scar at inferior segment of left ventricle. It is important that patients are appropriately diagnosed and an evaluation to uncover the correct cause is performed so that, when possible, specific therapies to treat the underlying cause can be prescribed. Recent studies showed that myocardial infarction without obstructive coronary atherosclerosis is also associated with a long-term risk of adverse events.

Case illustration: 30 y.o. male came to ER with typical chest pain, onset 2 hours. No history of hypertension, diabetes mellitus, smoking, nor familial history of heart disease. ST segment elevation of inferior lead on ECG (fig 1a), elevated hsTrop I 20,120 ng/mL and normal chest X-ray (fig 2). Patient was assessed Inferior STEMI onset 2 hours Killip I. Dual antiplatelet (ASA and Clopidogrel) was loaded and patient was treated with Fondaparinux and Atorvastatin. Successful fibrinolytic with streptokinase was delivered and ECG shown resolution of ST segment (fig 1b). Echocardiography (fig 3) shown mildly abnormal LV systolic function, EF 50.2% with inferior segment hypokinetic and normal RV systolic function, TAPSE 1.9cm. Invasive coronary angiography demonstrated normal coronary angiogram (fig 4), but Cardiac MRI with contrast shown transmural type infarction on mid and basal inferior wall according to right coronary artery territories (fig 5). Patient was diagnosed as Myocardial Infarction with Nonobstructive Coronary Arteries (MINOCA) and continued treatment with optimal medical treatment.

Conclusion: A proper clinical management for further anatomical and functional assessments are recommended, so that myocardial infarctions with non-obstructive coronary arteries (MINOCAs) could be detected according to the current guidelines. Since microvascular dysfunction was shown to play a major role in the origin of the disease, intracoronary flow measurements promise to deliver new meaningful pathophysiological insights in the matter.

Keywords: Myocardial Infarctions with Non-Obstructive Coronary Arteries (MINOCAs), Acute Myocardial Infarction (AMI), ST Elevation Myocardial Infarction (STEMI), Microvascular Dysfunction

Revascularization In Elderly Patient With Acute Anteroextensive STEMI :

N. Emilda¹, E. Supriadi²

¹ General Practitioner at KH. Daud Arif Hospital, Jambi, Indonesia; ²Cardiologist, Department Cardiology and Vascular Medicine Jambi University, Raden Mattaaher General Hospital, Jambi, Indonesia.

Background : In elderly patients, cardiovascular disease is one of the leading causes of death and morbidity, and acute coronary syndrome (ACS) is a major cause of death. A percutaneous coronary intervention (PCI) is essential in treating ST-segment elevation myocardial infarctions. As results of complex coronary lesions, comorbidities, and frailty in the elderly, PCI is more challenging than in young adults and is related to lower long-term prognosis, as well as greater rates of PCI-related complications.

Case Summary : A 79-year-old man had symptoms of chest pain, history of smoking, hypertension, and type 2 diabetes. The patient presented with full consciousness, a blood pressure of 130/70 mmHg, a blood glucose level of 285, and increased troponin I and CKMB levels. An electrocardiogram revealed anteroekstensif STEMI and a decreased left ventricular contractility in echocardiography.

Conclusion : A successful outcome has been achieved in this case with PCI. As a superior strategy for elderly patients compared with fibrinolytic therapy, PCI has been proven to improve clinical outcomes as well as composite outcome measures. Compared to those undergoing PCI, elderly individuals with STEMI have decreased mortality, angina burden, quality of life, and cardiovascular well-being. Performing PCI should not be dependent solely on age but on a patient's ability for revascularization overall and their clinical circumstances.

Key Words : Elderly, ST-Segment Elevation, Percutaneous Coronary Intervention, Case Report

Figures

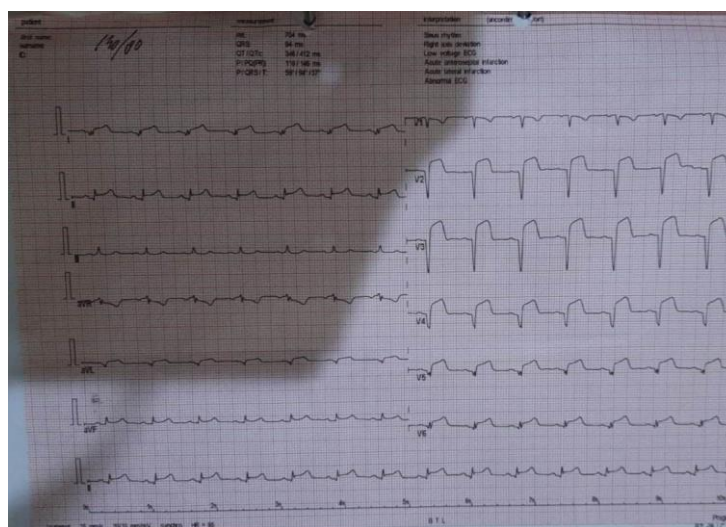


Figure 1. Patient's ECG