Complex coronary angioplasty in the era of intracoronary imaging: Why it makes a difference

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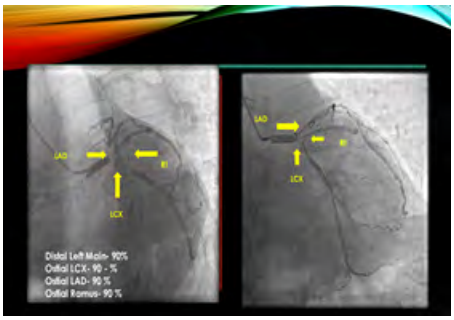
This is a case of a 65/male, Filipino, who came in due to chest discomfort and shortness of breath. He is a known hypertensive, dyslipidemic, diabetic (non-insulin dependent), previous smoker (45 pack years). He was admitted from our Emergency Department as a case of Acute Coronary Syndrome Non-ST segment elevation myocardial infarction (NSTEMI). He was transferred from another institution after an emergent coronary angiography which showed coronary artery disease, Severe 3 vessels which involves the distal left main coronary artery, ostial-proximal left anterior descending, ostial-proximal left circumflex, and the Ramus intermedius. (Fig.1) His right coronary artery showed insignificant lesions.

He was advised Coronary Artery Bypass surgery but refused and decided to transfer to our Institute for further management and Complex angioplasty. (Figure 1)

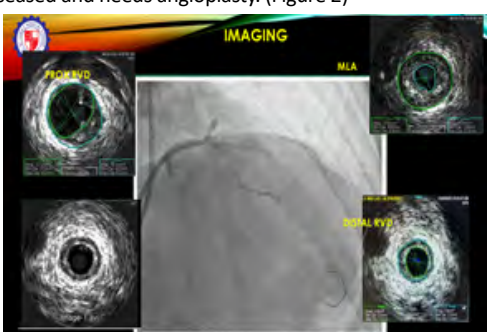


He was managed with dual antiplatelet, SQ low molecular weight heparin, nitrate drip (IV) and beta blockers and was admitted at the Coronary Care Unit. His BP range was between 110-140/70-90 mmHg. Heart rate was around 80-100 bpm sinus rhythm. His 2D echocardiography revealed an LVEF of 57% with hypokinesia of the anterior, anterolateral segment of the left ventricle.

The good, is his hemodynamics were acceptable and not in cardiogenic shock. Chest Xray showed congestive changes, no pneumonia noted. Upon evaluation with the Heart team, he was stratified to have a Syntax Score II of 28.3 (5.9% mortality rate at 4 years if PCI is done).

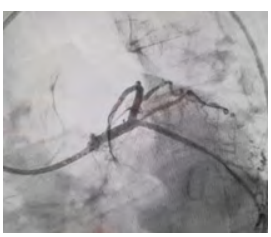
The bad, his cardiac enzymes are elevated, recent ACS-NSTEMI, refused CABG surgery, previous heavy smoker, trifurcation lesion (Severe CAD) which would render this patient to undergo complex angioplasty. So proper planning, use of intravascular imaging and team approach would **increase the procedure's rate of success and minimize complications.**

Coronary angiograph with intravascular imaging was done (IVUS) and it confirmed angiographic findings that the LMCA, LAD, LCx and Ramus Intermedius were all significantly diseased and needs angioplasty. (Figure 2)



Trifurcation angioplasty was done with "bifurcation" stenting of the Left main coronary artery to the LAD/LCx and drug-coated balloon angioplasty of the Ramus intermedius branch and post angioplasty showed TIMI 3 flow.

Stenting of LMCA to Lad/LCX and drug-coated balloon angioplasty of the Ramus Intermedius branch. (Figure 3)



My team thought the procedure is done and it was a "success". 15 minutes after the procedure, after checking patency of stents and coronary flow. The patient's BP began to drop to 80 mmHg systolic. Heart rate increased to 120's sinus. We were thinking of coronary angioplasty complications (coronary artery dissection, perforation, cardiac tamponade, contrast-induced hypersensitivity reaction or unknown source of bleeding). Upon checking coronaries multiple times and observing hemodynamics despite fluid resuscitation, BP remained low at 80-90mmHg systolic.

The ugly, we found out the source of hypotension, not from the coronaries but was at the puncture site on the left femoral artery. (Figure 4)

Figure 4: Left femoral artery leak on the puncture site

Manual pressure on left groin was done for more than 60 minutes, sent back to the CCU for closer observation. Hemoglobin dropped to 8.0 so we transfused two units PRBC. CT angiography of the femoral arteries showed no aneurysm/ dissection or further leak. He was discharged stable and ambulatory after four days.

This case just show that in clinical practice iatrogenic complications can happen despite meticulous preparation and careful, planned strategy is a must as well as proper, comprehensive explanation/education to the patient before and after the procedure. Such complex cases that we are able to do and with successful outcome make our practice worth it.

Speaker Biography

Ryan D Buendia has completed his medical school in De la Salle University in the Philippines. He finished his Adult Cardiology training and Interventional Cardiology training in St. Luke's Medical Center Global City. He further trained in Cardiovascular Institute, Tokyo, Japan and in Chang Gung Memorial Hospital, Kaohsiung, Taiwan for peripheral interventions. He also had training in Extracorporeal Membrane Oxygenator (ECMO) management in La Pitie'-Salpetriere University hospital in Paris, France. He is currently an assistant training officer in Interventional Cardiology and his Institution. He is a member of the STEMI Committee of the Philippine Society of Cardiac Catheterizations and Interventions.

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