TREATING TRIFURCATION STENOSIS (MEDINA 1-1-1) DURING PATENT DUCTUS ARTERIOSUS STENTING IN COMPLEX DUCTUS ANATOMY

Monique Rotty[1], Radityo Prakoso[1]

[1] National Cardiovascular Center Harapan Kita; Division of Pediatric Cardiology and Congenital Heart Disease

Correspondence: Monique Rotty, moniquerotty@yahoo.com

History and physical:

A 6-month-old baby boy, 5.3 kgs, was presented with history of cyanosis since birth and severe desaturation of 70%. The baby also had features of pneumonia, anemia and metabolic acidosis.

Imaging:

Transthoracic echocardiography showed tricuspid atresia, pulmonary atresia, inlet ventricular septal defect (VSD), secundum atrial septal defect (ASD), hypoplastic right ventricle, and vertical type of patent ductus arteriosus (PDA).

Indication for intervention:

It was thought that PDA stenting would be a safer option considering the clinical findings and the diagnosis.

Intervention:

Right carotid artery access was decided according to anatomical finding of vertical duct. The 3.5/5F JR guiding catheter was placed into the PDA. Peripheral saturation was 70%. Angiography showed vertical PDA and trifurcation stenosis (medina 1-1-1). The 0.014" floppy coronary wire was passed through the ductus and parked in the distal right pulmonary artery (RPA). The proximal RPA was predilated with 2.0 x 20 mm semi-compliant balloon inflated up to 14 atm. A 4.0 x 18 mm coronary stent was implanted to the PDA extending into the proximal RPA and inflated up to 18 atm. Oxygen saturation was increased, but the angiography evaluation showed patent stent and significant ostial left pulmonary artery (LPA) stenosis. We decided to dilate this segment. After several attempts, LPA was successfully crossed with the same coronary wire. Sequential dilatations of the LPA were performed with 2.0 x 12 mm non-compliant balloon inflated up to 14 atm and followed by 4.0 x 15 mm non-compliant balloon inflated up to 18 atm, with a good angiographic outcome. Patients saturation was increased to 97%.

Learning points of the procedure:

Trifurcation stenosis (medina 1-1-1) can be treated percutaneously utilizing stent implantation and balloon dilatation in patient with duct dependent congenital heart disease. Also for vertical PDA stenting, the angle of approach from carotid artery is much straighter than femoral access and this encourages wire and stent passage across the stenotic segment. It is important to keep in mind that this is a palliative procedure, so complications like restenosis and difficulty in pulmonary artery repair during definitive surgery are always anticipated.

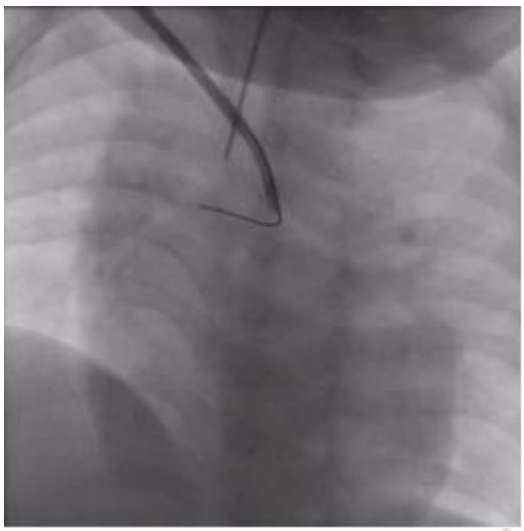

Image 1: Angiography showed vertical PDA and trifurcation stenosis (medina 1-1-1).

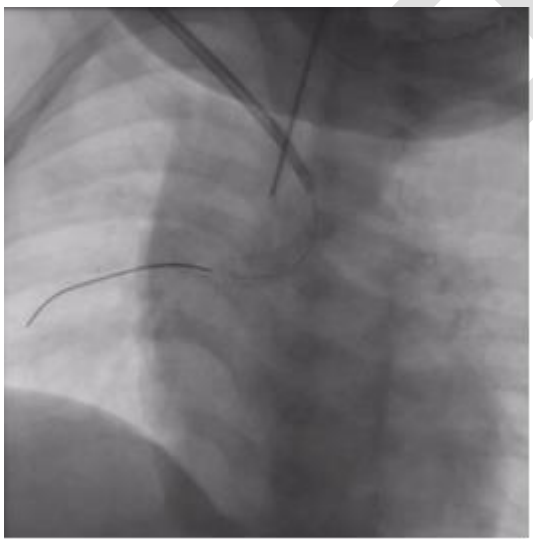

Image 2: Angiography evaluation showed patent stent and significant ostial LPA stenosis.