PDA STENTING IN FUNCTIONALLY CLOSED PATENT DUCTUS ARTERIOSUS IN BABY WITH TGA IVS: IS IT WORTH IT?

Lowry Yunita,[1], Damba Aulia Sakti,[1], Aditya Agita Sembiring,[1], Radityo Prakoso,[1], Oktavia Lilyasari,[1]

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

Correspondence: Lowry Yunita, lowryyunita@yahoo.com

History and physical:

35 days old baby boy was referred from hospital district with complaints of cyanosis since he was born. He already diagnosed as TGA IVS and have experienced BAS when he was 10 days old. Physical examination revealed HR 162 x/m, RR 45 x/m, body weight 3.2 kg, height 49 cm, looks cyanotic (+), saturation about 40-60%. Laboratory examination abnormality was lactate 7.6 mmol/L.

Imaging:

The chest x-ray showed RVH dan plethora. Bedside echocardiography revealed TGA IVS with secundum ASD with diameter 5 mm left to right shunt and pressure gradient 4 mmHg, tiny PDA, dilatation of RA and RV, smallish LV with EF 91%, LVMI was 29 g/m2 and LVPWd was 3 mm.

Indication for intervention:

The patient was suffered from severe desaturation during observation even with infusion of prostaglandin 10 ng/kgBW/min, his saturation about 40%. So the team decided to perform emergent stenting PDA because the mixing from BAS was not enough.

Intervention:

The access was obtained via the right femoral artery. A 3.5/5F JR guiding catheter was advanced through aorta descenden (AoD) and descending aortography revealed that the PDA was fully constricted, and no contrast entered the pulmonary artery (PA) at all. The team used 0.0014" run through coronary wire and succeed crossing from AOD to PA, and then the wire was parked at the distal of RPA. Next step was perform the predilatation using Ryujin 2.00 x 15 mm coronary balloon which was inflated up to 8 atm twice. After evaluate the PDA, we

continued to put 3.5 x 18 mm xience Xpedition coronary stent and inflated up to 10 atm, followed by a flarring technique. As the result, patient saturation was increased to 89%.

Learning points of the procedure:

In a case of emergency, we performed PDA stenting in a baby with functionally closed PDA with TGA IVS, with status previous BAS but without adequate oxygen saturation. The procedure of ductal stenting was started with balloon predilatation technique in order to prepare for optimal stent placement and stent expansion. Doesn't matter the type of the stent, whether bare metal (BMS) or drug eluting stent (DES), because the benefit of DES was not necessary for ductal stenting. In most ductus, the stent was implanted so that 2-3 mm of the stent protruded into the MPA and the whole length of the ductus was covered up to the ductal–aortic junction. About 15 to 20% shortening will occur upon full expansion. In this case, we use 18 mm length covering full length of duct including both ends adequately. The aim of this procedure was to provide pressure and volume overload to the regressing LV, without adding some potential risk associated with the surgical approach. So that combined with previous BAS, the patient would gain adequate interatrial mixing for effective systemic and pulmonary blood flows, and prepared for arterial switch operation.

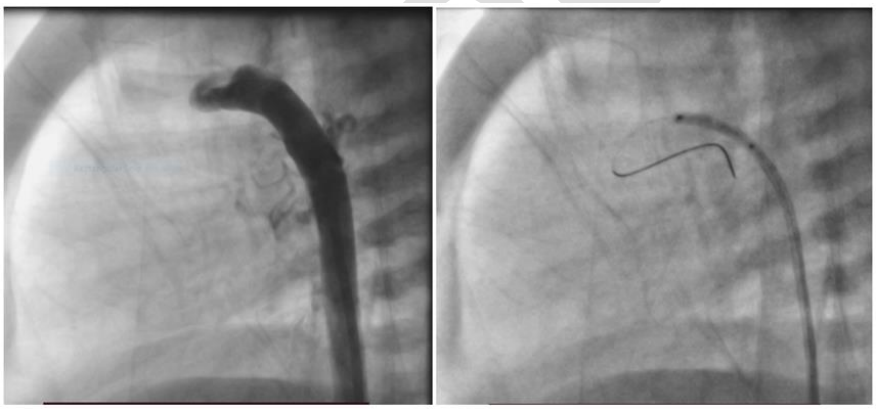

Fig 1a. Baseline Angiogram 1b. Predilatation technique

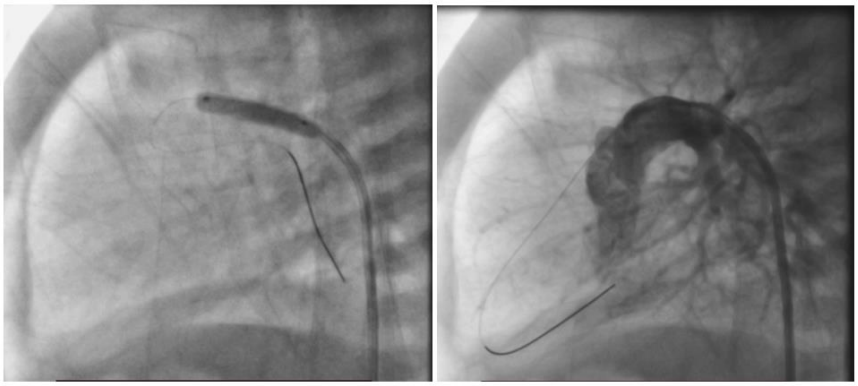

Fig 2a. Placement the ductal stent 2b. Final result