



## **DEALING WITH A FEARFUL STENOSIS AT RVOT IN CHILDREN WITH TRICUSPID ATRESIA, SEVERE PULMONARY STENOSIS, AND INLET VSD: DOES RE-RVOT STENTING HAVE A FAVOR?**

Alisia Putri<sup>1</sup>, Radityo Prakoso<sup>2</sup>

<sup>1</sup> National Cardiovascular Centre Harapan Kita, University of Indonesia; Division of Pediatric Cardiology and Congenital Heart Disease, Department of Cardiology and Vascular Medicine, <sup>2</sup> National Cardiovascular Center Harapan Kita; Faculty of Medicine Universitas Indonesia; Interventional

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### **History and physical:**

A 17 month-old-baby boy diagnosed with tricuspid atresia, severe pulmonary stenosis, and inlet VSD previously underwent BT-shunt and atrial septectomy procedure came to the emergency department due to severe desaturation. Right ventricle outflow tract (RVOT) stent was performed a week earlier, but suddenly the saturation dropped to 20-25% and cyanotic spell was occurred. Despite optimal management, the baby's condition was not getting better.

### **Imaging:**

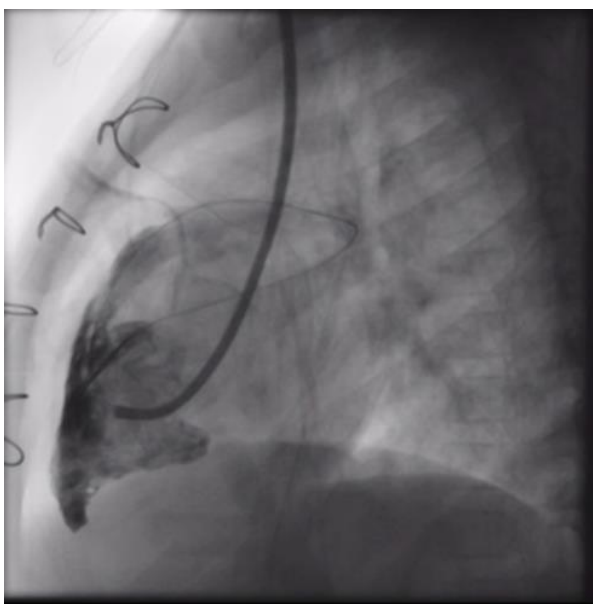
Bedside transthoracic echocardiography showed the RVOT stent was in place, but no flow seen across the stent. The patient then was sent into catheterization room. Retrograde trans-artery approach re-RVOT stenting was chosen and carotid artery cutdown was performed by heart and thoracic surgeon team.

### **Indication for intervention:**

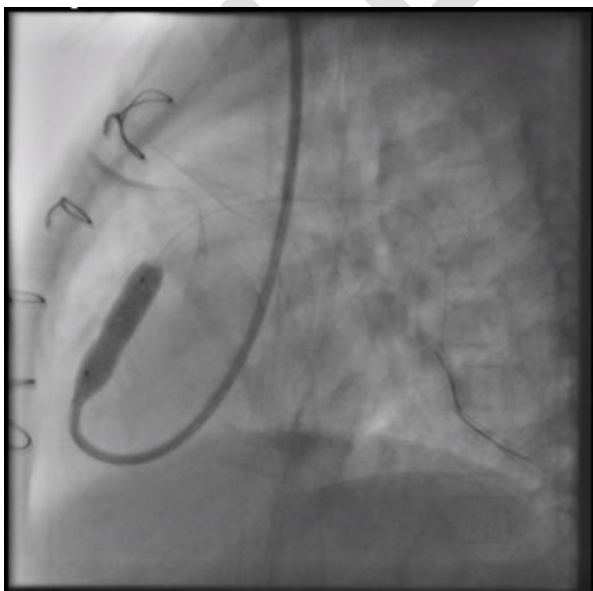
We decided to have an immediate action due to severe desaturation. Since the patient suffer tricuspid atresia, the track to approach the RVOT was retrogradely from carotid artery. 6F sheath was inserted, and 3.5/6F JR guiding was put into RV. RVOT-graphy showed in-stent restenosis in RVOT stent. A soft 0.014" coronary wire (ASAHI SION blue) was successfully cross the stenotic stent and anchored into distal LPA after many difficult attempts. A buddy-wire technique was decided to be used. Unfortunately, the first wire was suddenly stuck in the stent strut. Then we did a pre-dilatation using high pressure balloon 5.0 x 15 mm (Sapphire) despite of wire crossing the strut. The balloon was inflated 25 atm several times to open the stenosis. A 6.0 x 18 mm vascular stent (Herkulink Elite) inserted into RVOT. Using crushing technique, the second stent then inflated up to 17 atm. After procedure, the aorta saturation rose to 79%.

**Learning points of the procedure:**

Re-RVOT stenting using crushing technique could be a strategy to increase the oxygen saturation. Retrograde trans-arterial approach should be considered when the trans-venous approach was not possible. Due to the difficulty crossing the RVOT into PA in case of stenosis, the buddy-wire technique was used. The nightmare happened when the stent was trapped through the stent struts. Pre-dilatation using high pressure balloon was needed to crack the previous stent thus the stenosis would be release and the new stent could be inserted. Placing the new stent precisely into the old one using crushing technique was favourable.



**Image 1.:** Stenosis at RVOT stent. Wire trapped in struts while successfully anchoring into distal LPA



**Image 2.:** Second stent was deployed in the same position with previous using crushing technique