



STENTING OF RIGHT VENTRICULAR OUTFLOW TRACT TO ESTABLISH ONE AND HALF VENTRICULAR REPAIR POST BIDIRECTIONAL GLENN ANASTOMOSIS

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History and physical:

A 15-year-old girl with valvar pulmonary atresia, intact interventricular septum had presented with cyanotic spells at the age of 3 months and underwent Emergency Bidirectional Glenn(BDG) with transannular patch repair of right ventricular outflow tract (RVOT). She was planned for intracardiac repair, however was lost to follow-up. She presented at 15 years with worsening cyanosis, NYHA functional class III dyspnea and pedal edema, saturation 71%, right heart failure and failing BDG.

Imaging:

A 2-dimensional echocardiography showed trickle of antegrade pulmonary blood flow(PBF), severe tricuspid regurgitation, small ostium secundum atrial septal defect with right ventricular(RV) dysfunction (fractional-area-change 27%) and flowing BDG. Cardiac computed tomography with contrast showed tight narrowing of RV outflow tract and good pulmonary artery anatomy without any large collaterals.

Indication for intervention:

She was not considered a good biventricular candidate, nor fit for Fontan completion in view of RV dysfunction and severe tricuspid regurgitation. The Heart Team discussed an aortopulmonary shunt or improvement of antegrade pulmonary blood flow by surgical or percutaneous means.

Intervention - RVOT stenting:

- Patient had chronic thrombotic occlusion of inferior vena cava(IVC) from above iliac bifurcation to renal vein. IVC Balloon angioplasty was performed using 6mmx8 cm Advance balloon.



- Using a 12Fr Torque Vue sheath, the RVOT was crossed with a 0.035 Terumo wire. To ensure stability of hardware, we performed venovenous looping of an Amplatzer superStiff wire (IVC-RV-PA-SVC-IJV) which was exteriorized out through right internal jugular venous access.
- An Andrastent XL 26mm hand crimped onto a 16/30 Andra balloon was deployed across the RVOT resulting in good antegrade PBF with a RVOT gradient of 50 mm Hg. There was mild increase in the Glenn (from 10 to 14 mm Hg) and RA pressures with reduction in RV systolic pressure from 80 to 55 mm Hg without affecting systemic pressures.
- Patient was clinically well with good RV function, saturation of 94% with good antegrade PBF at 6 months follow up.

Learning points of the procedure:

Option of Biventricular repair or one and a half ventricular repair must always be sought in any palliated cyanotic heart disease. A careful assessment for correctable abnormalities to improve hemodynamics should be sought at every visit. However, it is of note that RVOT stenting is an interim palliation with the goal of just adequate relief of outflow tract obstruction. It can lead to overflow and raised Glenn pressures.