MODIFIED FENESTRATED DEVICE CLOSURE IN A PATIENT WITH PATENT DUCTUS ARTERIOSUS AND EISENMENGER SYNDROME

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A neglected large patent ductus arteriosus (PDA) can lead to pressure and volume overload to the pulmonary vasculature leading to pulmonary hypertension and eventually to Eisenmenger syndrome. These patients are usually given various pulmonary hypertensive medications for palliative care. We present a 49-year-old female who was diagnosed with PDA in childhood without intervention. She is wheelchair bound, New York Heart Association (NYHA) functional class IV and presented with easy fatigability and progressive dyspnea, edema, and differential cyanosis. Baseline six-minute walk test was only 5 meters. Initial hemodynamic studies done showed severe pulmonary vascular occlusive disease (Eisenmenger syndrome).

She was lost to follow-up with poor compliance to medications. She was then again seen in clinic and was started on sildenafil 25mg twice daily, and anti-heart failure medications as follows: digoxin, spironolactone and enalapril. Repeat hemodynamic studies after one month of pulmonary antihypertensive therapy showed suprasystemic pulmonary artery pressure with a large 10mm PDA. Test occlusion with oxygen challenge was done using a 24x26mm Lifetech PDA device occluder. The pulmonary artery pressure decreased to 70% systemic. Pulmonary vascular resistance (PVR) on oxygen challenge was 23.9 Wood units. Fenestration of the device with a 4x24mm DES coronary stent was done to serve as a restrictive Potts shunt for pulmonary hypertensive crisis. She was maintained on dual pulmonary antihypertensive immediately post procedure. However, bosentan was only given for a month due to financial constraints. She was maintained on sildenafil, dual antiplatelet, and anti-heart failure medications with good compliance. She was discharged after 5 days with marked resolution of bipedal edema from the right sided heart failure.

On 6-months follow-up, there was marked improvement in 6-minute walk test to 300 meters and improvement to NYHA functional class I. 23 months after fenestrated PDA device implantation, hemodynamic studies on oxygen challenge and angiogram showed a patent fenestrated device. The pulmonary artery pressure further decreased to half systemic with a Qp:Qs of 2.5:1 and a PVR of 11.3 Wood.

Marked improvement in clinical outcomes, despite Eisenmenger syndrome, in neglected large PDA can be achieved by using a PDA closure device with a fenestration to create a restrictive Potts shunt.

Figure 1. A fenestration was made through the fabric of a 24x26 mm PDA device, and a 7F dilator was passed through the device

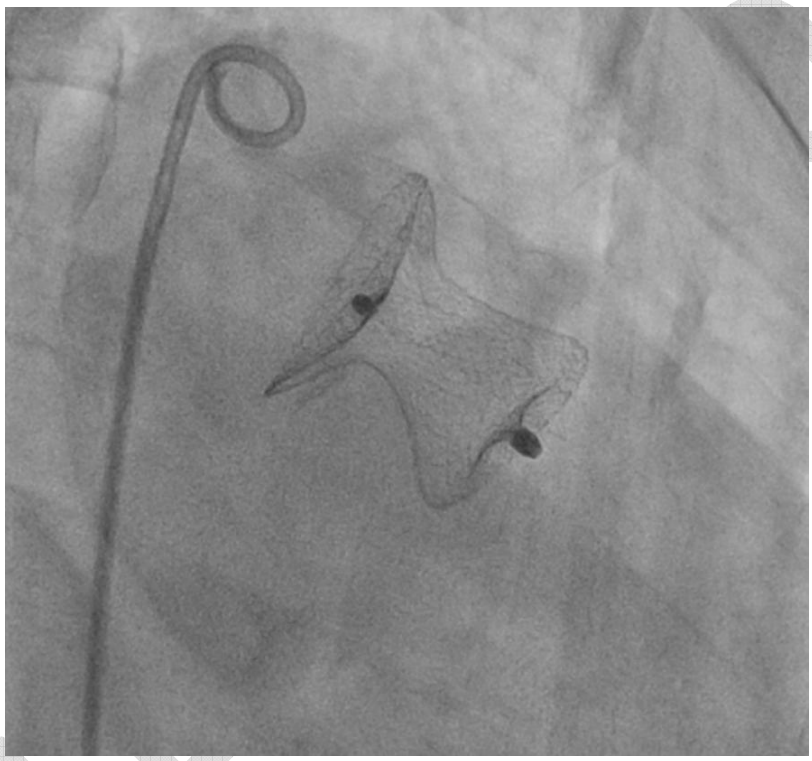

Figure 2. Coronary stent deployed across the PDA device fenestration.