

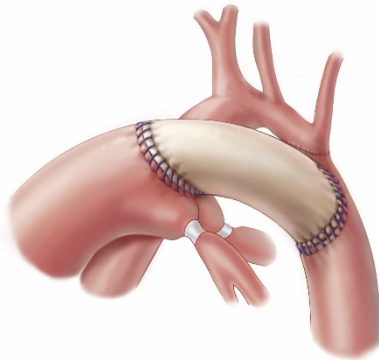
MP1-18

Reversed shunt and bilateral branch pulmonary artery banding as bailout for backward left heart failure after adequate neonatal coarctectomy in borderline left heart.

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Introduction: An adequate neonatal coarctectomy with good gradient relief may still result in circulation failure due to borderline small left heart. We present bail-out procedure for backward left heart failure after coarctectomy.



Methods: in 2005 – 2015 89 neonates presented with “isolated” critical coarctation and variable degree of small left heart. Nine patients underwent a hybrid procedure (ductal stent and bilateral PA banding) because of borderline left heart.

Results: Eighty had extended end-to-end coarctectomy; 2 developed, despite adequate coarctectomy, after initial stable hemodynamics, suprasystemic retrograde pulmonary hypertension with severe RV dilation and compression of the small LV with progressive circulatory failure non-responsive to medical treatment.

Pt1 (4,4 kg, coarctectomy D5); patient 2 (3,7 kg, coarctectomy D7, progressive lactate and renal failure). Through a sternotomy a “new duct” or “reversed shunt” procedure was created as an urgent bailout respectively 9 and 7 days after the coarctectomy: 6mm Goretex® graft between the main pulmonary artery and thoracic aorta, 3.5mm Goretex® bands around branch pulmonary arteries. Immediate circulatory improvement was observed with extubation 4 and 7 days later.

The left heart was allowed to grow; Pt1 evolved to Damus–Kaye and Fontan circulation, Pt2 had 4 months later biventricular repair by debanding, shunt take-down and arch optimisation.

Conclusion:

Backward left heart failure after neonatal coarctectomy can be managed by surgical construction of a reversed shunt in combination with bilateral PA banding. If high risk for backward failure, a primary hybrid procedure is a more elegant strategy.