

Contemporary results of Coarctation repair: Can we do better?

*Dave H., Hofmann M., Schmiady M., Cavigelli-Brunner A., Klauwer D., Balmer C., Knirsch W., Kretschmar O., Valsangiacomo Buechel E.R., Hübler M.
University Children's Hospital Zurich Switzerland*

Introduction

Aortic coarctation occurs as an isolated anomaly or in association with other complex malformations. Resection of isthmus and extended end-to-end anastomosis has become the gold standard for surgical repair of coarctation.

Methods

We reviewed 100 consecutive primary coarctation repairs performed since 2003 at our clinic. Coarctation co-existing with complex intra-cardiac defects such as d-TGA, Shone's complex and others (10 out of 100) were excluded. Median age and weight were 32(1-1878) days and 4(1.5-20) kg. Coexisting defects included bicuspid aortic valve (20), arch hypoplasia (34), ASD/VSD (9). In 7 patients with significant LV dysfunction at time of diagnosis temporary stenting of the isthmus followed by early stent removal and resection was performed as soon as the LV function recovered. Muscle sparing posterior thoracotomy was the approach used. Three patients underwent arch augmentation using subclavian/left common carotid flap and 3 using autologous pericardial/xenopericardial patch. Eight patients with VSD underwent concomitant PA banding. Median ischemic aortic clamp time was 25 (15-43) min. Follow-up was complete with a median duration of 38 (2-80) months.

Results

The hospital mortality was 0%. Two patients with a well corrected aortic arch and isthmus and a corrected AVSD died after 20.5 and 4.5 months due to pulmonary hypertensive crisis and unknown cause, respectively. Incidence of paraplegia/paresis was 0%. The median hospital stay was 11 (2-147) days – few having been discharged to the referring hospital. The freedom from reoperation and reoperation/reintervention on the arch and isthmus was 90(+10,-18.6) % and 87.6(±6.6) % at 60 months respectively. Seventeen patients till date have undergone subsequent intra-cardiac repairs for ASD, VSD, AVSD, sub-aortic membrane, and mitral valve repair/replacement.

Conclusion

Surgery for aortic coarctation (isolated and with simple intra-cardiac shunts) can be performed with incrementally low operative risk. The rate of reoperation and re-intervention is low. Most recoarctations can be managed with catheter intervention. Further studies will help develop better selection strategies so as to further reduce the need for reoperation by subjecting them to a more aggressive repair using cardiopulmonary bypass.