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Does the hypoplastic arch grow after resection of Coarctation and extended end-to-end anastomosis?

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Introduction

Arch hypoplasia coexists in about 40% of children presenting with Aortic Coarctation. Resection and extended end-to-end anastomosis is an elegant operation to repair Coarctation without subjecting a neonate to the risks of cardiopulmonary bypass (CPB). We sought to analyze the long-term growth of the arch after such an operation.

Methods

29 patients with hypoplastic arch and Coarctation undergoing resection and extended end-to-end anastomosis without CPB (out of a total of 139 consecutive Coarctation repairs performed between 2002-2010) were reviewed. Median age and weight were 7 (range 0-442) days and 3.1 (0.98-10) kg respectively. Z-value of the transverse arch preoperatively was a Median of -4.6(-9.4 to -1.4). Median follow-up (Fup) was 82.3 (28.1-119.7) months.

Results

There was no early or late death. 2/29 (7%) patients needed surgical re-enlargement of the arch through a sternotomy at 6 & 14 months and therefore were excluded from further Fup. 1/27 patient required balloon dilatation for recoarctation at 2.3 months and was retained in the study. Z-value of the transverse arch improved from a median of -3.5 (-7.6 to -0.5) early postoperatively to -2.6 (-7.3 to -0.6) at follow-up (Growth spurt from 3.1 to 19.5[9-44] kg). All (barring 1) patients were free of antihypertensive medication. 3 patients had signs of LV hypertrophy, often due to association with bicuspid aortic valve, sub- aortic stenosis and AV septal defect.

Conclusion

The hypoplastic arch grows with age after extended end-to-end anastomosis, but some arches remain small for age. Further studies are needed to identify the morphological subgroup with small proximal arch diameter that may be best corrected through a sternotomy and use of CPB.