Pulmonary artery reintervention following the arterial switch operation for transposition of the great arteries: a single centre experience

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Background:
To determine rates of pulmonary artery (PA) reintervention following arterial switch operation (ASO) for transposition of the great arteries (TGA) and to identify factors associated with reintervention.

Methods:
Retrospective data collection via an electronic database and individual patient records.

Results:
178 patients underwent ASO for TGA between 2005-2011. Fifty-two patients followed-up overseas were excluded from further analysis. Of the remaining 126 patients, ASO was performed at a median age of 9 (2–2067) days with median weight 3.6 (2.4–17.6)kg.

Simple TGA (including muscular VSD) accounted for 109 / 126 (87%) patients. Fourteen (11%) underwent palliative procedures (PA banding +/- modified BT shunt (mBTS)) before ASO. Over 98% of patients underwent a Lecompte manoeuvre, whilst 43% had primary PA augmentation during ASO.

Over a median follow-up of 4.0 (0.7–7.7) years, 4 patients died, whilst 12 / 126 (9%) required reintervention for PA stenosis, half of whom required multiple reinterventions. Those undergoing reintervention all underwent Lecompte manoeuvres and 7 / 12 (58%) had PA augmentation at ASO. Only 1 / 12 had a preceding palliative procedure.

First reintervention following ASO occurred at a median interval of 16 (5–216) weeks; 11 / 12 (92%) reinterventions were within the first postoperative year. First reintervention was via transcatheter balloon angioplasty in 7 / 12 (58%) patients, of whom, only 2 / 7 (29%) have required no further intervention. Comparatively, 4 / 5 (80%) undergoing initial surgical reintervention remain free from subsequent reintervention.

Conclusion:
In our experience, PA stenosis requires reintervention in 9% of patients following ASO, most frequently within the first postoperative year. Need for reintervention is not significantly influenced by pre-emptive PA augmentation at initial ASO, preceding palliative procedures involving the PAs, or age at ASO when adjusted for weight. Balloon angioplasty is successful in some patients, though the majority require future surgical reintervention.