



AORTIC VALVE REPLACEMENT IN POST ARTERIAL SWITCH OPERATION IN TGA FOR NEO AR

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ABSTRACT

Introduction: The arterial switch operation (ASO) has become the surgical procedure of choice for the repair of the transposition of the great arteries (TGA) in neonates and infants (1–2). Yet, specific morbidity is observed after ASO, mainly concerning the pulmonary outflow tract, the coronary arteries, and the previous pulmonary valve, which has become the aortic valve (3–4). Aortic regurgitation incidence and outcome are important to know, as AR can entail severe morbidity such as aortic valve replacement (6–7), which can have potentially adverse consequences, especially in children. **Case Report:-** A 13-year-old boy presented with shortness of breath for 1 month, palpitations for 1 month, chest discomfort for one month, h/o arterial switch operation + closure of VSD & ASD + division and suturing of PDA (2009) at one year of age. Diagnosis of neo AR in post-arterial switch for CCHD with D- TGA with large VSD, OS ASD (2009) and posted for surgery Through Redo sternotomy and Rt Femoro-Femoral bypass AVR done with 23mm SJM mechanical valve, RPA end-to-end anastomosis done with 16mm Dacron graft, post-procedure was uneventful. **Conclusion:-** The occurrence of AR is related to the presence of a VSD. The evolution of AR underlines the need for close long-term monitoring and further studies to clarify the risk factors and possibly modify the surgical timing in some patients. Despite late complications of AR in patients with corrected TGA, AVR can be safely performed with early detection and timely intervention.

KEYWORDS :

INTRODUCTION:

The arterial switch operation (ASO) has become the surgical procedure of choice for the repair of the transposition of the great arteries (TGA) in neonates and infants (1–2). Yet, specific morbidity is observed after ASO, mainly concerning the pulmonary outflow tract, the coronary arteries, and the previous pulmonary valve, which has become the aortic valve (3–4). The fate of the new aortic valve is variously assessed as the incidence of aortic regurgitation (AR) but seems to increase as follow-up lengthens (5–6). Aortic regurgitation incidence and outcome are important to know, as AR can entail severe morbidity such as aortic valve replacement (6–7), which can have potentially adverse consequences, especially in children.

Case Report:

A 13-year-old boy presented with shortness of breath for 1 month, palpitations for 1 month, chest discomfort for one month, h/o arterial switch operation + closure of VSD & ASD + division and suturing of PDA (2009) at one year of age.

Clinical Examination :

Revealed BP: 130/10MMHG; PR :92/MIN, midline sternotomy scar +, s1+, s2-, rough rumbling mid diastolic murmur of grade 3+, ESM+, Corrigan's sign+, Duroziez murmur, Hill's sign, Collapsing pulse. ECG: LVH+.

2decho:- S/P arterial switch operation + ASD/VSD/PDA closure, situs solitus, levocardia, D loop, 2 atria, 2 ventricles, 2 great arteries, side by side great arteries with good confluent branch Pas, dilated LA, LV, left aortic arch, aortic root dilated, aortic annulus 3.2cm, sinus 4.3cm, STG 4cm, ascending aorta 4.1cm, ARVC 0.8cm, eccentric severe aortic regurgitation present, VSD patch intact with no residual shunt, no residual shunt across ASD and PDA closure, no RWMA, good biventricular function, no MR, TR, no clot/veg/PE.

Cardiac Ct: Severe left heart enlargement, with associated mild LV hypertrophy, IAS, IVC intact, measurements of aorta: LVOT -max diameter 37mm, min 32mm, mean 34.5mm, AORTIC ANNULUS: max 34.6mm, min 33mm, mean diameter 33.8mm, AORTIC ROOT mean diameter 43mm, STJ 27mm, ascending aorta 25mm, aortic valve, tricuspid shows thickened leaflets, no evidence of calcification, arch 29mm, proximal descending aorta 22mm, distal Descending 22mm, MPS 22mm, MPA 22mm, RPA 14mm, LPA 13.5mm, arborization of PA is normal.

Diagnosis of neo AR in post arterial switch for CCHD with D- TGA with large VSD, OS ASD (2009) and posted for surgery, FINDINGS: adhesions present, cardiomegaly present, PA confluence over the aortic root, aortic root dilated, severe AR, leaflets thinned out, annulus

dilated LV, LA dilated. Through Redo sternotomy and Rt Femoro Femoral bypass, great vessels were delineated and separated, RPA clamped and divided to expose the aorta, AVR done with 23mm SJM mechanical valve, RPA end to end anastomosis done with 16mm Dacron graft, post-procedure was uneventful.



Fig: 1 Chest X Ray Pa View

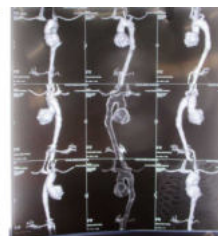


Fig: 2 Ct Aortogram

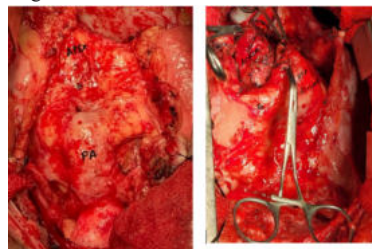


Fig: 3 Intra Operative Pictures

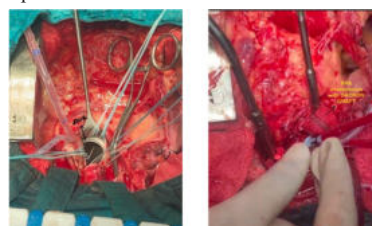


Fig 4: intra operative pictures showing avr and rpa end to end anastomosis with dacron graft.

Post Op 2d Echo: prosthetic aortic valve in situ, leaflets moving well, acceptable gradients across the aortic valve, no paravalvular leak, AVG 9/6 mmHg.

DISCUSSION:

The fate of the AR is diversely assessed. In our population, the

prevalence of AR increased slowly, but the hazard function shows, after a rapidly declining phase, a secondary slow increase. Aortic regurgitation was less frequent at the end of the follow-up than at discharge, as AR disappeared in some patients, most often in those with trivial or mild AR. The role of surgical techniques such as VSD closure through the native pulmonary valve, and the size of the coronary button, are probably important but seem to be temporary factors in some cases. Reoperation is the main consequence of AR, done for this indication in 1.4% of the survivors, representing 11.6% of the reoperation after ASO; it occurs late after the ASO with a slowly increasing incidence. In one study Aortic valvuloplasty was feasible but was successful in only one patient of three. Aortic valve replacement isolated or associated with a Bentall procedure was attempted with good late results in 13 patients. Reintervention for AR was observed in 2.2% and 2.4% of the survivors in two publications but was not reported in most of the publications in which follow-up was shorter or AR was infrequent.

CONCLUSION:

The occurrence of AR is related to the presence of a VSD. Surgical technique could also be a factor, as AR at discharge is strongly related to late AR even if some regurgitations disappear shortly after surgery. The evolution of AR underlines the need for close long-term monitoring and further studies to clarify the risk factors and possibly modify the surgical timing in some patients. Despite late complications of AR in patients with corrected TGA, AVR can be safely performed with early detection and timely intervention.

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