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A Novel Technique for Reconstruction of Right Ventricular Outflow Tract With Fresh Pericardial Valved Conduit

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Background:

A competent pulmonary valve at the end of intracardiac repair (ICR) in Tetralogy of Fallot (TOF) avoids the problem of free pulmonary regurgitation (PR) and helps in smother post operative course and good long term right ventricular (RV) function. There are definite indications of reconstruction of right ventricular outflow tract with valved conduits. The available artificial options are expensive and not always available. Hence we decided to construct a valved conduit using completely autologous/homologous tissue at the time of ICR.

Methods:

4 patients with age between 8 months to 14 years underwent total ICR of TOF with reconstruction of the RVOT with a valved conduit. In patients more than 30 kilograms of weight an autograft was made from autologous pericardium. In others freshly harvested homologous pericardium was used. Indications for conduit repair were pulmonary atresia, RV dysfunction, small sized pulmonary arteries and coronary crossing RVOT. Pericardium was fixed with 0.6% glutaraldehyde. Valved conduit of largest possible size was constructed using pericardium as the tube and constructing leaflets from pericardium, which used to achieve right ventricle - pulmonary artery continuity.

Results:

Three patients were extubated on day 1. Postoperative echocardiogram showed no PR in three patients and mild in one patient. All patients had good coaptation of conduit valve leaflets and no stenosis across the valve cusps. Computerised tomography was performed in all, to assess conduit lie and valve. Three patients on follow up echocardiograms at two and six weeks had good RV function.

Conclusion:

In conclusion, autologous pericardial valved conduits provide good early results that compare favorably with other valved conduits. Advantages of these conduits are free of cost, ready availability and minimizing the chances of infection. Long term results in terms of long term RV function and timing of re do surgery for conduit replacement are awaited.