

Reconstruction of the Right Ventricular Outflow with a Homograft Valve in Adults

Torbjörn Ivert, Hans Jonsson, Ulf Jensen, Gunilla Forssell and Maria Eriksson. Stockholm, Sweden

Objectives Analysis of clinical outcome and echocardiographic findings in patients receiving a homograft valve in the right ventricular outflow (RVO).

Methods During 1991 through June 2006 a cryopreserved homograft was used to reconstruct the RVO in 47 adults. There were 22 females (47%) and mean age was 37 (range 19-74) years. All patients except two had previously undergone cardiac surgery for congenital heart disease. Indications for surgery was grade 3 or larger pulmonary regurgitation, right ventricular enlargement in five patients associated with ventricular arrhythmias. A pulmonary homograft valve was used in all but two patients in whom an aortic homograft was inserted. Echocardiographic evaluations were performed yearly.

Results There was no early mortality but two late deaths from congestive heart failure. One homograft failed in the operating room for technical reasons. Four patients developed pulmonary regurgitation larger than grade 2 during a mean follow-up of 5 years (range 1 month to 13 years). Arrhythmias at follow-up were documented in 49%. There was myxoid degeneration of the homograft in one symptomatic patient who was reoperated on. Median RVO pressure difference was 16 (range 4-78) mm Hg. One high pressure difference was caused by a short narrowing at the main pulmonary artery. Survival at five years without reoperation or significant pulmonary regurgitation was 84%.

Conclusions Resternotomy and implantation of a homograft for pulmonary regurgitation can be performed safely. The operation did not abolish arrhythmias. Degeneration and possibly continuing dilatation of the RVO contribute to late occurring pulmonary regurgitation.