

Tips and pitfalls in transplant surgery after Fontan.

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Introduction. Heart transplantation after Fontan completion poses a unique surgical challenge. Seventeen patients are presented, stressing the technical hints performed in the five anastomoses to match the graft in the recipient.

Methods. Data are collected from fifteen Fontan and two takedown patients along 6 consecutive years. Age (9 years), weight (30 Kg.) and time interval between Fontan and transplant (3 years) are presented as median. Extra cardiac conduit (size 18/20) was implanted in 13 patients, whereas atriopulmonary connection was found in three and lateral tunnel in one. Five patients developed protein losing enteropathy. Thirteen stents have been previously deployed in left pulmonary artery (8), inferior vena cava (3), superior vena cava (1) and right pulmonary artery (1). One patient was on Levitronix for two weeks before transplant.

Results. The five anastomoses underwent some changes. Left atrium once (enlargement with recipient both atria), aorta eight times (hemi-arch repair), superior vena cava five times (one case with double superior vena cavae), pulmonary branches thirteen times (hilum to hilum plasty with donor's aorta/pericardium patch after thorough stent removal) and inferior vena cava twelve times (conduit sleeve anastomoses). Follow-up was complete for a median of 45 months (range 2-70). Two patients died. ECMO was needed in six cases for pulmonary hypertension. Three patients had collateral vessels occluded in the cath-lab and stents placed in superior vena cava (1) and aorta (1). Protein losing enteropathy resolved in four children. Interestingly, one patient was on systemic assist device before transplant and right assistance (ECMO) afterwards.

Conclusions. Transplant in Fontan patients is actually challenging. Hints in every of the five proposed anastomoses must be anticipated, including stents removal. Extra tissue from the donor (innominate vein, aortic arch, pericardium) is strongly advisable. ECMO for right ventricular dysfunction was needed in one third of cases. Overall results can match other transplants cohorts.