

## Transcatheter Stenting and Upsizing of Stenosed GoreTex Grafts Delays Further Surgery in Complex Congenital Heart Disease.

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### Introduction:

Small GoreTex grafts are frequently used in the initial palliation of cyanotic congenital heart disease and increasingly for PA reconstruction or as an alternative to small homografts used as RV-PA conduits. Catheter interventions have been described to address graft failure. This study seeks to review our 10-year experience of stenting with a view to upsizing GoreTex grafts in an attempt to delay or obviate surgical re-intervention.

### Methods:

Retrospective case-note and angiography review of all patients undergoing stenting of GoreTex grafts between 2003 and 2013 at a single tertiary referral center.

### Results:

Fifty-nine patients underwent 68 interventions at a median interval of 126 (3-3379) days after GoreTex graft insertion. At catheterization, median age was 131 days (17-2530), median weight was 5.2Kg (3.2-28.6). A total of 76 stents were implanted into 68 GoreTex grafts. Coronary stents were used in 84% of the procedures. Grafts stented were RV-PA conduits (n=40 (58%)), central/BT shunts (n=23 (33%)) or reconstructed PAs/Fontan (n=6(8%)). Two or more stents were placed at 18 procedures (26%).

In patients with Shunts or RV-PA conduits, oxygen saturations increased from median of 68% (50-82) to 82% (60-94), [p<0.001]. From 2007, the choice of chosen stent size routinely exceeded nominal graft size. (See fig 1.) Where graft upsizing was achieved (n=26), median nominal graft size increased from 3.5 (3-8)mm to 4.75 (4-12.3)mm [p=0.01]. Median nominal graft cross sectional area increased from 38.5 (28.2-201.1)mm<sup>2</sup> to 70.9 (50.2-475.9)mm<sup>2</sup> [p=0.03].



Median deferral of further surgical intervention was 191 days (SD 266, IQR 39-233). For patients < 4months of age awaiting cavopulmonary connection (n=38), surgical graft revision was obviated in 58% (n=27).

There was 1 procedural death and 2 deaths within 7 days of the procedure. There were 7 other major complications, mostly in patients post Norwood stage 1.

### Conclusions:

Stenting and over dilatation of GoreTex shunts is feasible and relatively safe. The size of GoreTex can be significantly increased, delaying subsequent surgical intervention or obviating the need for additional surgical shunt procedures in the majority of patients.