Preliminary follow up of the use of Valeo stent for coarctation stenting in children.

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Objective
To evaluate the performance of the Valeo stent in the management of coarctation of the aorta in children.

Methods
Between July 2012 and August 2014, coarctation stenting with the Valeo Premounted Re-dilatable Stent was undertaken in 5 children. Data including demographic, angiographic and echocardiographic imaging and clinical outcome were reviewed retrospectively.

Results
Median age at the time of procedure was 5.1 years (range 3.6 to 7.1 years) and median weight was 18.3kg (range 15.3-27kg). The youngest patient presented following an intracerebral haemorrhage secondary to severe systemic hypertension; one patient had William’s syndrome with fracture and restenosis of previous coarctation stent; one had complex congenital heart disease with re-coarctation after previous surgical repair and two others had isolated coarctation. All stents were 10mm x 26mm in size and delivered via a 7F sheath. There was improvement in median coarctation diameter from 4.9 mm (range 1.8–7.4mm) to 9.8mm (range 5.8–12.7mm), p<0.01; and a reduction in the median peak pressure gradient across the coarctation from 30 mmHg (range 20–40mmHg) to 8mmHg (range 0–15mmHg), p<0.01. Median percent stent recoil in the middle of the stent was 1.5% (range 0.5–19%). All implants were successful with no vascular complications. All patients had a CT angiogram at a median time of 3 months (range 2.7-10.2 months) post procedure which showed no aortic wall complications. Follow-up was a median 16.6 months (range 4.7-30 months). At the last follow up, echocardiographic findings were no different from discharge in 4 patients; one patient had gradual increase in peak gradient of the descending aorta on echocardiography and repeat catheterisation at 13.1 months post procedure showed no stent stenosis but narrowing of the transverse arch. Four children required antihypertensive medications and 1 was off medication at latest follow-up.

Conclusions
The Valeo stent is low profile, has adequate radial strength and can be post dilated up to adult size (20mm). The use of Valeo stent for treatment of coarctation in childhood is safe and effective in the early term. However, further study is required to determine longer-term stent efficacy.