

Early Experience in Use of the Advanta V12 Stent in Aortic Co-arcctation; A Single Centre Case Series.

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Introduction:

In light of concerns regarding stent recoil and late failure of the Atrium Advanta V12 covered stent for severe aortic coarctation, this study examines experience with the stent design in a single center paediatric population.

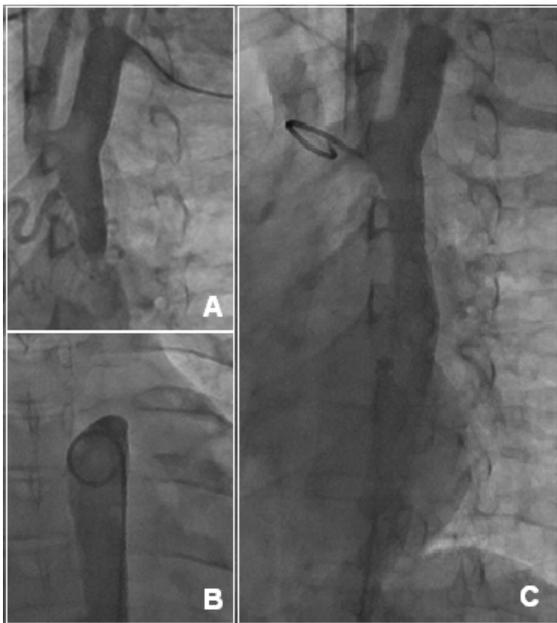
Methods

All patients with Advanta V12 implanted at our center underwent serial non-invasive follow-up, retrospective case note and angiography review. P values were generated with two tailed students T-Test.

Results:

Between 2005-2013, seven children underwent implantation of Advanta V12 stent for native (n=6) or post surgical arch obstruction (n=1). Median age at implantation was 13.5 (8-16) years. Median weight was 61.2 (26-72) kg. Time interval from implantation to latest follow-up was 15 (4.5-44) months.

Stent size ranged from 12mmx29mm to 16mmx41mm, according to patients' morphology and size.



Minimum aortic diameter at angiography was median 3.1 (0.8-9.1)mm, increasing to 14.1 (11.0-16.2)mm post stent placement, a mean increase of 9.4mm ($p<0.001$, 95% CI 24-30). Systolic invasive pressure gradient decreased from 41(14-48)mmHg to 6(0-12)mmHg, a mean drop of 27mmHg ($p<0.001$ 95%CI 24-30). There were no complications. At primary inflation, stent recoil of 5-20% of diameter was observe; this was abolished in all by repeated high pressure balloon inflation or subsequent inflations with oversized balloons.

Median non-invasive SBP decreased from 150(120-165)mmHg to 127(112-148)mmHg at latest follow up, a mean decrease of 16mmHg ($p=0.02$ 95% CI 9-23). Serial CW Doppler evaluation over the described follow-up period did not show any increase in peak velocities, nor the presence of any notable diastolic decay.

Conclusions:

In our limited experience with use of Advanta V12 covered stent in children with coarctation, no early or late complications or failures occurred. Use of the stent was effective, medium-term results were very satisfactory. It is important to contour the stent proximally to achieve complete adherence to the aortic wall, avoiding protrusion of the covered crowns into the transverse arch. Initial stent re-coil can be overcome with serial inflations or over-dilatation with a short balloon. The Advanta V12 provides a low profile, important stent design for treatment of childhood coarctation.