

The “Dog Bone Technique” - A novel easy and safe catheter maneuver for aortic arch and coarctation stenting

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Background: Various techniques are described to facilitate stable stent implantation in aortic arch stenosis or coarctation. We describe an alternative technique, which due to the unique appearance during stent implantation, we have named “Dog Bone Technique” (DBT).

Technique: The stent/ balloon assembly is placed proximal the stenosis, the long sheath is retrieved to uncover the distal 20-50% of the stent. The balloon is inflated with the pressure inflator just to expand slightly the stent. Thereafter the proximal end is uncovered and partially inflated; therewith the assembly takes the typical “dog bone” shape before complete inflation and final positioning.

Repositioning of the stent and control angiography is possible at each time of this procedure if needed.

Results: Between 1/2010 and 12/2014 we implanted 91 stents in 87 patients (mean age 20.2 years). 71 patients had typical native or re-coarctations and 16 patients had transverse aortic arch stenosis. In 38 patients (44%) a pharmacological exercise test with Orciprenaline was performed during implantation resulting in high cardiac output. In none of the patients reduction of cardiac output by adenosine or a rapid pacing of the right ventricle was required for stable stent implantation. All stents were implanted in the targeted position without any displacement using this single balloon technique. There were no acute or short-term complications detected.

Conclusion: DBT is a safe and feasible technique for aortic stent implantation even at high cardiac output. Other additional techniques for stent placement are not necessary to obtain a stable final position in the target region.