Supplementary material

Jędrzejczyk S, Rymuza B, Ścisło P, et al. Bioprosthetic Aortic Scallop Intentional Laceration to prevent Iatrogenic Coronary Artery obstruction (BASILICA) in valve-in-valve Transcatheter Aortic Valve Implantation (ViV-TAVI): First experience in Poland. Kardiol Pol. 2022.

Recommended anesthesia: general, but conscious sedation is also possible (not recommended for unexperienced centers).

Recommended visualization: TEE by experienced echocardiographist.

Preprocedural preparation: Scraping the back part of Astato XS 20 300 cm transversal wire and connecting exposed metal to electrosurgical pencil. Setting on “pure cut” mode and adequate power. Keeping the Astato inside the PiggyBack.

1. Access

Two guide catheters are needed:

- Transversal catheter (8 Fr) – inserted through large sheath (14/16 Fr) that also includes parallel pigtail (placed in left ventricle)
- Snare catheter (6 Fr)

The right radial artery can be utilized as both an arterial line to measure blood pressure and insertion route of cerebral protection device (e.g. Sentinel) along with 6 Fr sheath.

2. Snare position

6 Fr Multipurpose guiding catheter is followed by

- 0.025-inch curved wire, which lands in the apex of the left ventricle. Subsequently, a snare is placed parallel to the curved wire, with the optimal position defined as a straight line in the left ventricular outflow tract, 5-10 mm below the aortic annulus.

3. Leaflet transversal, wire snaring

- Parts of the transversal system: transversal wire (Astato XS 20 300 cm), 8 Fr transversal guide (e.g. AL3, alternatively AL1, AL2, AL4 for left cusp, MP or JR for right cusp).

- The base of the cusp should be targeted, positioning of transversal system guide should be confirmed in front and side view (suitable fluoroscopic projections determined by pre-op CT).
- After securing the correct positioning, an internal mammary diagnostic catheter (5 Fr, 125 cm) with Astato XS 20 in the PiggyBack is inserted into the transversal guide. Optimal orientation, depth, and attack angle in both frontal and side fluoroscopic projections should be confirmed once again. Subsequently, a quick 50W electrification should be applied and stopped right after the puncture and crossing the base of the cusp. Optimally, Astato should land in a wire snaring area.
- High areas of the left ventricular outflow tract are optimal for wire snaring (to reduce the risk of damage to mitral valve structures). Once achieved, the snare guide should be advanced through the aortic valve, curved anchoring wire removed, followed by pulling the Astato wire into the snare guide by withdrawing the snare.

4. V shaping

- Both ends of Astato wire should be already out of the body. At that step Astato is still covered by both internal mammary and PiggyBack, therefore IM should be completely pulled out of the body, and PiggyBack brought to the back of the wire. Before the procedure, Astato should be bent to form V-shape with the inner curve scraped by the blade. The optimal position of the V-shape is achieved by pulling the snare guide.

5. Leaflet laceration

- Before the laceration, the optimal positioning of the V-shaped Astato inside the base of the leaflet should be confirmed again. The laceration is done by simultaneous moderate tension pulling of both ends of Astato wire and applying 50W (power depends on the type of the degenerated valve) electric energy by electrosurgical pencil to the scraped end of Astato wire.
- After the laceration, the Astato wire should be released from the snare guide and withdrawn from the body.

Considering potential hemodynamic instability related to aortic regurgitation, the operators should immediately advance to TAVI procedure.

For a detailed guide, we recommend: Komatsu I, Mackensen GB, Aldea GS, Reisman M, Dvir D. Bioprosthetic or native aortic scallop intentional laceration to prevent iatrogenic coronary

artery obstruction. Part 2: how to perform BASILICA. EuroIntervention. 2019;15(1):55-66. doi:10.4244/EIJ-D-19-00056
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