Endoanchors can be safely deployed in the thoracic aorta to strengthen your sealing zones

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Disclosure

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I have the following potential conflicts of interest to report:

☐ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

☑️ I do not have any potential conflict of interest
Technique - Endoanchors during TEVAR

Step 1
C-ARM AT 60° LAO AND 0° CRANIAL TILT FOR IMPLANTATION AT 9 AND 3 O’CLOCK

Step 2
C-ARM AT 30° CRANIAL TILT AND APPROPRIATE PARALLAX CORRECTION FOR IMPLANTATION AT 8 AND 2 O’CLOCK

Step 3
C-ARM AT 30° CAUDAL TILT WITH APPROPRIATE PARALLAX CORRECTION FOR IMPLANTATION AT 10 AND 4 O’CLOCK

Not all C-arm orientations (i.e. clock positions) are physically possible...
Technique - Endoanchors during TEVAR

- Infrastructure (angiographic suite)

- Magnify (zoom in) and adjust image quality

- Proximal (and/or distal) markers of the graft should be aligned (parallax correction)

- Place the stearable sheath perpendicular to the aortic wall and push the applier against it

- The sheath’s tip radiopaque marker must have the capital letter L configuration

- Test before final anchor release
• Selection of guiding sheath may differ for inner and outer aortic arch curves. For the outer curve better use the smallest sheath (22mm) as it’s easier to rotate.

• Use of a large femoral introducer sheath (20F), may facilitate guiding sheath manipulation/rotation

• A minimum of 6 endosutures are recommened by IFU, better splitting in 2 rows

• Endosutures can be placed both in proximal and distal landing zones
Conclusion: Determining the optimal C-arm orientation during preoperative planning will facilitate successful EndoAnchor deployment and may contribute to improved durability of endovascular repair in hostile necks in the aortic arch.

Following Cr/Cau tilt, the proximal markers need to be realigned (i.e. parallax correction) By adjusting the C-arm In its LAO projection

Like in TAVR planning!
Identify and avoid thick calcified atherosclerotic plaque and/or aortic wall thrombus (>2mm)
### SCENARIO 1: PROPHYLACTIC USE OF ENDOANCHORS IN ZONES 2 OR LOWER

<table>
<thead>
<tr>
<th>Factor</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>NECK LENGTH</strong></td>
<td>The use of EndoAnchors can prevent stent-graft migration and type Ia or Ib endoleaks both in prox. and distal necks ≤ 3cm</td>
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<tr>
<td><strong>NECK DIAMETER</strong></td>
<td>Prox. Landing zone with diameter ≥35mm and distal ≥32mm are prone to enlarge over time. EndoAnchors can prevent neck dilatation</td>
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<tr>
<td><strong>NECK ANGULATION</strong></td>
<td>For highly angulated proximal landing zone (2,3) with risk of bird beak effect, EndoAnchors could improve stent graft sealing on the inner aortic arch curve</td>
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<td><strong>CONICITY</strong></td>
<td>EndoAnchors can provide better graft anchorage in conical necks</td>
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<tr>
<td><strong>LIFE EXPECTANCY</strong></td>
<td>Use of Endosutures for patients with life expectancy &gt;10 years</td>
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Post TEVAR+EndoAnchors (TESAR) follow-up CT in a TAA of 6.5cm case
SCENARIO 2: REVISION CASES TO FIX COMPLICATIONS

The main indications for revision cases are:

- **ENDOLEAKS Ia and Ib correction**
- **NECK DILATATION**
- **BIRD BEAK EFFECT correction**
- **MIGRATION**

- As revision procedures are usually bailout operations, EndoAnchors can be used in any thoracic aorta zone and not only in zone 2 or lower, as it is recommended for prophylactic use.

- Yet the implantation of EndoAnchors in proximal or mid arch (zone 0 or 1) can be challenging and should be reserved to experienced users.
Case example - revision

- TEVAR performed 4 years ago in another institution now presents with type IA endoleak and TAA of 57mm diameter
- Short and conical proximal neck
Contraindications

• Presence of calcium at the intended deployment location thicker than 2mm or when 50% or more of the aortic wall is calcified

• If a 2mm gap between endograft and aortic wall exists due to progressive enlargement or presence of thrombus.

• Aortic dissections, IMHs and connective tissue diseases

• Implants as reinforcement in the mid-thoracic aorta and in the middle of the stent graft

Conclusions

• The proof that EndoAnchors can improve the outcomes of difficult TEVARs has been substantiated by single centers evidence, case series and comparative cohort analysis.

• Distal application to correct or prevent type Ib endoleaks should be the starting point.

• Larger cohorts of patients are needed to further evaluate long term clinical outcomes