Technical Issues And Experience With MISACE In >50 Patients Undergoing Endo TAAA Repair

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NO DISCLOSURES RELATED TO THE PRESENTED TOPIC


MISACE

**Concept**: occlusion of the main stem of several SAs, preserving the capability of the paraspinous collateral network to build new arteries;

**Result**: ischemic preconditioning of the spinal cord;

**Utility**: an entirely endovascular first stage of a ‘staged approach’ for TAAA repair to reduce ischemic spinal cord injury.

MISACE - Procedure

- local anesthesia;
- percutaneous trans-femoral access with a 5Fr Sheath;
- no CSF drainage;
- clinical monitoring of the patients' neurologic function for at least 48h after the procedure.

MISACE - Cannulation of the SA

“The tower of power”

MISACE – Occlusion of the Ostial Segment of SA

No particles or fluids (CAVE: distal embolization)
What is sufficient coilembolization?

- Always occluding?
- Spontaneous revascularization?
- Is reduction of flow sufficient?

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Techniques for Segmental Artery Coilembolization

- Superior packing density / occlusion
- Less procedure / radiation time
- Higher costs

MVP

0.021" ID-compatible

Where to occlude the SA?

MISACE – Where to embolize the SA?

SA should be occluded in their ostial segment


Where to occlude the SA?

3 weeks after coiling

Ostium

SA blood-supply may largely depend on collateral network proximal to coils

Chronic SA-occlusion
**Where to occlude the SA?**

Ostial coiling proximal to collaterals impossible

**MISACE – open questions**

- Every patent segmental artery?
- Only larger ones?
- SA-ostium may get twisted, stenotic with aortic enlargement
- Same artery 6 weeks after coiling 1 segment lower

**At which level to start with MISACE?**

**Where and how many SAs per session?**

Th 9 - L 1

Maximally 4 (?)

**Technical Aspects and Challenges**

- Very large aneurysms sac:
  - "open" the angle of a diagnostic catheter with a guiding catheter to reach the aortic wall

- Deflectable steerable guiding-sheath (Oscor)
Technical Aspects and Challenges

Kinked access vessels
- "reinforced tower of power" and buddy wire

Tower-of-power: 6-Fr. guiding-catheter, 5-Fr. diagnostic-catheter, Microcatheter

MISACE - Leipzig Experience

Branzan D et al. Eurointervention 2018

Patent SAs at the Aortic Level Planned for Endovascular Repair

SA in the Aortic Area planned to be stented: Mean ± SD (Range) 10 ± 4.4 (2-26)

MISACE Sessions

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Minimally Invasive Occluded SAs

Distribution of segmental arteries after minimally invasive segmental artery coil embolisation at the level of the planned aortic coverage

Characteristics of the sessions of minimally invasive segmental artery coil embolisation

TEVAR/ BEVAR/ FEVAR after MISACE

Complete Aneurysm Exclusion after MISACE

Complete Aneurysm Exclusion after MISACE

<table>
<thead>
<tr>
<th>Variables</th>
<th>No. or Mean ± SD</th>
<th>%</th>
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<tbody>
<tr>
<td>General Anaesthesia</td>
<td>34</td>
<td>100</td>
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<tr>
<td>Duration of Procedure(min)</td>
<td>175 ± 58.7</td>
<td>50-340</td>
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<tr>
<td>X-Ray Time (min)</td>
<td>60.5 ± 22.4</td>
<td>30-120</td>
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<tr>
<td>TEVAR</td>
<td>5</td>
<td>8.7</td>
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<tr>
<td>BEVAR</td>
<td>31</td>
<td>54.4</td>
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<tr>
<td>FEVAR</td>
<td>5</td>
<td>8.7</td>
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<tr>
<td>Subclavian Coverage</td>
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<td>1.7</td>
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<tr>
<td>Hypogastric Patency</td>
<td>46</td>
<td>80.7</td>
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<tr>
<td>Length of Covered Aortas(mm)</td>
<td>270-398±83</td>
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</table>
30 Days Results

- TAAA (n=57)
- MISACE (Stage 1) (n=22)
- Optional MISACE (Stage 2) (n=24)
- Optional Endovascular Repair of TAAA (Stage 3) (n=11)
- Endovascular Repair of TAAA (Stage 4) (n=55)

30 Days Results

- No SCI
- 1 Death

Conclusion

- First experience suggest that MISACE is feasible, safe and effective.
- Segmental artery coiling in thoracoabdominal aneurysms can be challenging, a new field with many open questions.
- The ultimate proof of MISACE’s success requires a randomized trial which is currently underway: ‘Paraplegia Prevention in Aortic Aneurysm Repair by Thoracoabdominal Staging with ‘Minimally-Invasive Segmental Artery Coil-Embolization (MISACE)’: A Randomized Controlled Multicenter Trial (PAPA_ARTiS)’.

Thank you!

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