Minimal invasive segmental artery coil embolization – Technical Aspects

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Disclosure
Speaker name: Andrej Schmidt
I have the following potential conflicts of interest to report:
Consulting / Speaker honorarium:
Abbott, C.R.Bard, Cook, Cordis, Medtronic,
ReFlow Medical, Upstream Peripheral

Technique for Segmental Artery Coilembolization

- Local anesthesia
- Percutaneous trans-femoral access
- No CSF-drainage
- Clinical monitoring of the patients’ neurologic function for 48h
- No CSF-drainage during TEVAR

Technical Aspects and Challenges

- Large aneurysms sac:
  - "open" the angle of a diagnostic catheter with a guiding catheter to reach the aortic wall
Technical Aspects and Challenges

• Very large aneurysms sac:
  – Deflectable steerable guiding-sheath (Oscor)

Problematic Patients / Exclusion Criteria

- Urgent repair required
- Renal insufficiency (GFR < 30 ml/min)
- Severe iliac kinking / aortic elongation
- Adipositas permagna

Problem for Coilembolization:
  Kinked access vessels
  – "reinforced power of tower" and buddy wire

Technique for Segmental Artery Coilembolization

Coilembolization of Segmental Arteries

Case 1: several weeks after coiling
**Coilembolization of Segmental Arteries**

Case 1: several weeks after coiling
Case 2: 4 weeks after coiling
Always occluding?
Spontaneous revascularization?
Is reduction of flow sufficient?
Sufficient to prevent embolization

**Techniques for Segmental Artery Coilembolization**

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

Technical Considerations of MISAO

Where to embolize?
SA should be occluded in their ostial segment. (Etz et al. J Thorac Cardiovasc Surg 2011)

Where to coil?
Ostium
3 weeks after coiling

Technical Considerations of MISAO

Collateral network may develop proximal to coils
Chronic SA-occlusion
Technical Considerations of MISAO, open questions

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

At which level to start with MISAO?

- The hypothesis of a spinal blood supply depending mainly on one critical arterial input (Adamkievicz artery) is obsolete.

At which level to start with MISAO?

- Dominant ARMA at level Th 12 right
- Anterior spinal artery

At which level to start with MISAO?

- Anterior radiculomedullary artery (ARMA)

Where and how many SA per session?

- Th 9 - L 1
- Maximally 4 (?) per session

Summary

Segmental artery coiling in thoracoabdominal aneurysms can be challenging, a new field with many open questions.

First experience suggest that MISASO is feasible, safe and effective.