Transcaval Embolisation of Type 2 Endoleaks after EVAR

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Disclosures

- Research-grants, travelling, proctoring speaking-fees, IP, royalties with Cook.
- Consultant with Philips
- Research, consulting, royalties with Vascutek.
- Shareholder Mokita Medical
Type 2 Endoleak

- Incidence 8-45%
- Prevalence decreases during Follow-up
- Predominantly benign
- Potentially dangerous (ruptures reported)
- Sac-enlargement 5-25% → Intervention

O´Connor et al. 2015; Semin Intervent Radiol 32:272-277
Treatment Type 2 EL

- Transarterial embolization
- Translumbar embolization
- Para-endograft embolization
- Trans-endograft embolization
- Transcaval embolization
- Open, laparoscopic, ligation, etc.
Transarterial Embolization

- Technically challenging
- Time-consuming
- High failure rate: 10-80%
- Repeat procedures: 20%
- High recurrence rate: 40%

Hongo et al. 2014; J Vasc Intervent Radiol 25:709-16
Direct Puncture Techniques

Translumbar

- High success rate
- Low recurrence rate
- Selective and non-selective
- Quick procedure
- Selective embolization challenging

Baum et al. 2002; J Vasc Surg 35:23-9
Direct Puncture Techniques

Translumbar

- High success rate
- Low recurrence rate
- Selective and non-selective
- Quick procedure
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Transcaval

- Supine position
- Stable position of sheath
- Alternative access-points
- Selective embolization

Baum et al. 2002; J Vasc Surg 35:23-9
Transcaval Access in TAVI

Caval-Aortic Access to Allow Transcatheter Aortic Valve Replacement in Otherwise Ineligible Patients
Initial Human Experience

Adam B. Greenbaum, MD,* William W. O’Neill, MD,† Gaetano Paone, MD,†
Mayra E. Guerrero, MD,* Janet F. Wyman, DNP,* R. Lebron Cooper, MD,‡ Robert J. Lederman, MD§

- Single center 2013-2014
- N=19; age: 81y
- Access successful in 19/19
- Dissection: n=2 all conservative
- Bleeding: n=4
  - 2 conservative
  - 2EVAR

Transcaval embolization (TCE)

Treatment of type II endoleak with a transcatheter transcaval approach: Results at 1-year follow-up

Giancarlo Mansueto, MD, Daniela Cenzi, MD, Alberto Scuro, MD, Leonardo Gottin, MD, Andrea Griso, MD, Andrew A. Gumbs, MD, and Roberto Pozzi Mucelli, MD, Verona, Italy and New York, NY

- Single center 2004-2005
- N=12; age 79y; 11 male
- N=4: failed prev. transarterial therapy
- All type 2 EL after EVAR
- Access:
  - Transfemoral: n=7
  - Transjugular: n=5

Mansueto et al. 2007; J Vasc Surg 45:1120-7
Transcaval embolization (TCE)

Treatment of type II endoleak with a transcatheter transcaval approach: Results at 1-year follow-up

Giancarlo Mansueto, MD, a Daniela Cenzi, MD, a Alberto Scuro, MD, b Leonardo Gottin, MD, c Andrea Griso, MD, b Andrew A. Gumbs, MD, d and Roberto Pozzi Mucelli, MD, a Verona, Italy; and New York, NY

- Non-selective: coils, thrombin
- Pressure measurement
- Technical success 11/12
- 6m FU: 10/11 no Type 2 EL
- Regression in 10/11: 6.8mm

Mansueto et al. 2007; J Vasc Surg 45:1120-7
Selective vs. Non-Selective TCE

- Single center 2008-2012
- N=26; Age 73y
  - Primary selective TCE: n=17
  - Primary non-selective TCE: n=9
- Type 2 EL after EVAR and sac-enlargement
- All transfemoral access

Gandini et al. 2014; J Endovasc Ther 21:714-722
Selective vs. Non-Selective TCE

Technical success: 26/26

Non-selective TCE: recurrence: 4/9
- Reintervention: n=3 → selective TCE

Selective TCE: no recurrence @ 24 months FU

Gandini et al. 2014; J Endovasc Ther 21:714-722
Transcavale Embolisation
2014-2017: n=17
- 76 years (57-89), 16 male
- type II endoleak
- Infrarenal (n=9) or f/bEVAR (n=7)
- 1/17: repeat procedure
- 8 selective, 8 non-selective TCE

Embolizing agent:
- Coils: n=16 (139)
- Histoacryl glue: n=14 (mean 2.5ml)
- Thrombin: n=2 (mean 1.5ml)
- Vascular plug: n=1
Technical success: 16/17
- Procedural time: 104.3 min
- Flouroscopy time: 29.3 min
- DAP: 27086 cGy*cm²
- Contrast: 74.8ml (VP 270)

Complications: n=0
Reinterventions:
- Re-TCE: n=1
- Aortic banding + open ligation n=1

FU ≥ 6 months (n=10):
- Regression: n=3
- Stable diameter: n=6

Mean FU: 15.3 months
- 4-29 months
Conclusion

- Transcaval embolisation safe and feasible in most patients with Type 2 EL and sac-enlargement.

- High technical success-rate and low rate of recurrent endoleak.

- Selective embolisation preferred but not always feasible.

- CT-Fusion helpful to find nidus.
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