Transcaval Embolization of Endoleaks: Indications, Technique, Advantages and Precautions

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Disclosures

- Research-grants, travelling, proctoring
- Speaking-fees, IP with Cook.
- Consultant to Philips
- Non-approved use of coils and glue
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
- Transcaval embolization
- Paraendograft 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

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

- Translumbar
  - High success rate
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  - Quick procedure

- Transcaval
  - Supine position
  - Stable position of sheath
  - Alternative access-points

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, 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

- 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
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- 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

Treatment of Type II Endoleak After Endovascular Aneurysm Repair: The Role of Selective vs. Nonselective Transcaval Embolization

Roberto Gandini, MD; Marcello Chiocchi, MD; Giorgio Lorenzi, MD; Costantino Del Giudice, MD; Daniele Morosetti, MD; Antonio Chiaravalloti, MD; and Giovanni Simonetti, MD

- 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 @ 24months FU

Gandini et al. 2014; J Endovasc Ther 21:714-722
2012-2015: n=15

Post EVAR type II EL

Technical success: 93% (14/15)

- 7 selective
- 7 non-selective

Redo procedures: 13% (2/15)

Embolizing agent:

- Coils: n=15 (143)
- Histoacryl glue: n=13 (2.5ml)
- Thrombin: n=1 (1ml)
- Vascular plug: n=1
Procedural time: 106.3 min
Fluoroscopy time: 26.3 min
DAP: 25098 cGy*cm²
Contrast: 81.1ml (VP 270)

Complications: n=3
- 1 acute renal failure
- 2 groin hematoma
Reinterventions:

- Re-TCE: n=2
- Aortic banding, open ligation

FU 1 year: n=7

- Regression: 3/7
- Stable diameter: 4/7
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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