Direct Percutaneous Sac Puncture: An Easy Way to Solve Post-EVAR Type II Endoleaks

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Disclosures

• Consultant / Speaker / Proctor / Advisory Board

• Bayer
• Boston Scientific
• Cook
• Medtronic
• Penumbra
• Philips
• Surmodics
• Volcano
• W.L. Gore & Associates
Background

- Type II EL: 10 – 45 % of EVAR
- No sac enlargement: 30%
- Spontaneous resolution: 40 – 58%

- Lumbar aa.
- IMA
- Accessory Renal aa.
- Medial Sacral aa.

Embolization: sac enlargement >5mm over 6-mos period
Persistent Type II EL has been compared to AV malformations

- Inflow-outflow action must be interrupted
- If only the inflow is occluded, perfusion of the aneurysmatic sac can be maintained by recruitment of other side branches
EL Treatment

- Transarterial embolization
- Translumbar embolization
- Transcaval embolization
- Trans-sealing/para-endograft embolization
- Surgery (open, laparoscopy)
TransLumbar

Translumbar Embolization of Type 2 Endoleaks after Endovascular Repair of Abdominal Aortic Aneurysms

Richard A. Baum, MD, Constantin Cope, MD, Ronald M. Fairman, MD, and Jeffrey P. Carpenter, MD

Index terms: Aneurysm, aortic · Aorta, aneurysm · Embolization · Endoleak · Stent-graft


- More direct approach
- No time consuming
- High success rate
- Low recurrence rate
- Selective and non-selective embolization
TransLumbar

- Pt. in prone position
- Local anesthesia
- Access the aneurysmatic sac through the left side
- Ideal pathway: lumbar muscle (avoid bowel and vessels)
- Hydro/carbo dissection if needed
How to do

- 5Fr / 15cm needle catheter
- 22G Chiba needle
- 4 Fr. / 65cm catheter (Cobra 2, Bern)
- 2.7Fr microcatheter (DMSO compatible)

- Embolic materials: liquid (Onyx, Squid, Easyx) – coils – plugs
- Local anesthesia + sedation if using DMSO

Cone Bean CT
Not necessary to enter the sac at the level of the EL
Complications

- Incidental puncture of the endograft
- No-target embolization (IMA, lumbar aa.)
- Bowel perforation
- Nerve damage
- Retroperitoneal hematoma
F.R. - 77 y, Female

Hypertension

12-mos post-EVAR

Sac enlargement +12 mm
Concerto detach micro-coils (Medtronic) +
   Onyx 34
   (Medtronic)

Cobra 2 4 Fr. (Cordis)
Progreat 2.7 Fr (Terumo)
Concerto micro-coil
Ø 5mm
+
Onyx 34

Onyx 34
4cc
(Medtronic)
Personal Experience

From 2009: 52 pts with type II EL

Technical success 52/52 pts

- Access: posterior Lt 43 (82.6%)
  posterior Rt 6 (11.5%)
  anterior 3 (5.7%)
- Procedure Time: 51.36 min (range 36 – 68 min)
  Fluoro time: mean 16.7 min
- N rotational-angio: mean 5 (range 3 – 7)
- Complications: 0/52
- Reintervention: 2/52 (3.8%) after 9 and 12 mos.

Coils+Onyx: 31
Onyx: 19
Coils+Squid: 1
Easyx: 1

12-mos sac diameter:
- Regression: 36/52 (69.2%)
- Stable: 16/52 (30.7%)
G.M. - 72y, Male
12-mos post-EVAR

Sac enlargement +10 mm
Coaxial system
4Fr. C2 catheter (Cordis)
2.7 Fr. Progreat microcatheter (Terumo)

Onyx 34
6cc
(Medtronic)
Direct puncture with 5Fr needle-catheter
- Coaxial system (4Fr catheter + microcatheter)
- No introducer sheath
- Selective catheterization of feeding vessels
- Large sac: combine treatment (coils + liquid)
- Combine different liquid viscosity: Onyx 34 + 18
Conclusions

▪ There are no specific guidelines for choosing a specific technique

▪ Trans-lumbar direct sac approach seems to be a feasible and safe technique allowing complete sealing of the feeding vessels and of the aneurysmatic sac

▪ This technique reduces complications and difficulties correlated with trans-arterial access (tortuosity, too proximal embolization, etc.)

▪ Combined embolic agents (coils+Onyx) allow a safe and more efficient embolization of the EL

▪ More experience in large series is required to definitively validate this technique
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