Step by Step:
Abdominal Aortic Aneurysm: Basics and Endovascular Repair

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Disclosures

- Research-grants, travelling, proctoring speaking-fees, IP with Cook.
Tip of the Iceberg?
Durable Repair Goes Beyond The Procedure

“The greatest force exerted on a stent-graft is time.”

Tara Mastracci
Precursors of Disease Progression

- Short neck
- Wide neck
- Angulated neck
- Thrombus laden
- Posterior bulge
- Combination
Suitability and Outcome

Schanzer et al. 2011; Circ 123:2848-55
EVAR ......and What Follows
EVAR: Standardized Steps

“Our standards are very high. We even have high double standards.”
Step 1: Planning
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**EVAR- Planning saves:**

- OR-time
- Contrast-agent
- Radiation
- Nerves
Graft Design

Supra-/infrarenal fixation

2- or 3-piece design:

- What fits better?
- What's easier to plan?
CO$^2$ as Contrast

Carbondioxide:

- Simple
- Safe
- Unexpensive
- Ventral target vessels
Step 1: Planning

- Diameters
- Lengths
- Projections
- Devices
- Access-issues
Step 2: Puncture

Mikropuncture-set:

- 27 G needle
- 0.018 Wire
- 2 sheaths
Step 2: Puncture
Step 3: Heparine

- Heparine: 100 IE/kg KG
- Ca 10,000 IE
- ACT 250-300 sec

- Depends on body-weight
- Exception: rupture
Step 4: Access

**Contralateral:**
- 6F sheath
- VanSchie 2 5F
- Universal Flush (UF) 4F suprarenal

**Ipsilateral:**
- 6F sheath
- Luderquist-wire double curve 260cm ascending aorta
Iliac Conduit
Paving and Cracking
Step 5: Graft Preparation

* Remove peel-away, mandrin, etc.

* Fasten screws, stop-cocks.

* Flush central lumen and graft.

* Follow graft-specific instructions.
Step 6: Main Body Deployment
Step 6: Main Body Deployment

- (Predilatation 16F)
- Introduction of main body
- Angiography
  - 20/20
  - Renal arteries and aortic bifurcation
Step 6: Main Body Deployment

- Projection!
- 10ml (20/sec)
- 2-4 x
Step 6: Main Body Deployment

- Projection!
- 10ml (20/sec)
- 2-4 x
Step 7: Contralateral Gate

- Cobra C2
- VanSchie 2,4,5
- Sidewinder from ipsilateral side
Step 7: Contralateral Gate

- Cobra C2
- VanSchie 2,4,5
- Sidewinder from ipsilateral side
Step 7: Contralateral Gate

- Cobra C2
- VanSchie 2,4,5
- Sidewinder from ipsilateral side
- Pigtail-test
- Balloon
Step 7: Contralateral Gate
Step 8: Iliac Leg Deployment

- Right Projection
- Overlap
- All the way to the hypogastric!!!
Step 8: Iliac Leg Deployment
Step 9: Dilatation

- Proximally careful
- Overlap allways
- Distally careful
Step 9: Dilatation

- Proximally careful
- Overlap always
- Distally careful
Step 10: Final Angiographie

- 20ml (20/sec)
- Long angio – venous phase
- If necessary:
  - Retract flush-catheter
  - Redilate
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Landing in external iliac:

- Avoid stiff wires
- Postdilatation / stent
- Aspiration
- Stent external iliac
Clinical outcome depends on device-design.

Durability is still first priority for EVAR.

Treatment outside of the IFU will produce less durable outcomes if patients live long enough.

EVAR remains the method of choice for properly selected patients and an option for patients outside the IFU if unfit for surgery.
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