Chimney procedures for juxtarenal aneurysms – technical considerations and outcomes

G. Torsello

Department of Vascular Surgery, St. Franziskus Hospital and University Hospital Münster, Germany
Disclosure

Speaker name:
......G.Torsello...........................................................................................................

I have the following potential conflicts of interest to report:

☑ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

☐ I do not have any potential conflict of interest
87-year old man with symptomatic AAA
Endurant stentgraft and V12 covered stent in the „chimney technique“
Oversizing

<table>
<thead>
<tr>
<th>Proximal neck</th>
<th>Endograft</th>
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<tbody>
<tr>
<td>24-25mm</td>
<td>32mm</td>
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<tr>
<td>26-28mm</td>
<td>36mm</td>
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Suggested devices

Endurant + V12

Excluder + Viabahn

Standard endovascular equipment

- **Wires:** *Terumo and Rosen 0.035“*
- **Catheters:** *Vertebral (120-150cm), MPA (125 cm)*
- **Sheath:** *Shuttle (Cook); 7F and 90 cm shaft*
- **Endograft:** *Endurant (Medtronic)*
- **Chimney graft:** *Advanta V12 (Maquet)*
Postoperative CT angiography
CT scan after treatment of ruptured AAA with parallel grafts
Munster experience

• Used abdominal device:
  ENDURANT: 105 patients; ZENITH: 1 patient
  Bifurcated endograft n: 71 (66.9%)

• Used chimney grafts
  BECS n: 95 (89.6%)

• Additional lining with BMS n: 22 (21%)
Mortality

• < 30-day mortality: n:1/106 (0.9%)
  Etiology: Cardiac insufficiency

• Late mortality: n: 9/105 (8.5%)
  Etiology: Cardiac reasons: n: 3 patients
  Tumor: n: 3 patients
  Unknown: n: 2 patients
  Renal failure: n: 1 patient

  No AAA-related death

• Overall mortality: 10/106 (9.4%)
Chimney graft patency

• 6 patients with 7 occluded chimney grafts
• Revascularized target vessel with occluded chimney: iliorenal bypass, fibrinolysis and additional placement of BMS
  Secondary patency: 96.6%
Type Ia Endoleak

- n:3/106 patients (2.8%)

  - i) 4 months postoperatively: Additional tube placement
  - ii) 3 years postop.: Conversion of single chimney to tripple Chimney
  - iii) 4 years postop.: Conversion of single chimney to tripple Chimney + Onyx
Type Ib Endoleak

- n:2 (1.8%)
- i) Extension of iliac limb 4 years postoperatively
- ii) Surgical conversion and explantation of the chimney grafts due to mycotic component
Type III Endoleak

• n: 1 (0.6%)
• Contained rupture of AAA 2 years and 3 months postoperatively > Placement of Endurant iliac limb in local anesthesia.
Persistent type II ELs

• N:2 (1.8%)
• Onyx embolization 4 years postoperatively due to aneurysm progress (63 > 71mm)
• Onyx embolization 1 week postoperatively due to persistent abdominal symptoms after single chimney EVAR for a symptomatic case
Conclusions

• Chimneys are a lower risk alternative for the management of JAAA

• Careful selection of patients, graft and stents for the target vessels is the key for success

• Stiff endografts and low-radial force stents should be avoided

• Long-term durability, including preservation of graft fixation, seal, and branch vessel patency after chimneys remain to be determined
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Thank you!
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