Parallel Grafts Work Well To Treat Aortic Lesions Involving The Visceral Segment And The Arch: The Mid- And Long-Term Results Demonstrate Durability Although Re-Interventions May Be Required

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Disclosure

- Speaker name: Mario Louis Lachat
- No disclosure

Literature review Aortic Arch Repair

- 30d mortality CVA/SCI EL
- 94 (33 HR)
- 14% 8% 18%

Parallel Grafts ARCH@USZ (most TAG/Viabahn)
40% acute patients (38)
50% redo thoracic aorta (47)

75 years old patient
Complicated TBAD with malperfusion
TEVAR with LSA Sandwich
-10 days severe delirie
Aortic enlargement during FUP
-Dissection extension proximal to LSA
-Antegrade reperfusion of TL «Tia EL»
Refused GA

Percutaneous PG TEVAR under LA

Percutaneous access to
-Right Axillaris
-LCCA
-Right CFA

BCT VB 10mm/20cm
TAG 43mm
View to BCT bifurcation

LCCA VB 8mm/10mm
PG-ARCH TEVAR - Long-term results @ USZ

- From October 2009 to May 2014
- 41 patients (13 female: 31%)  
  - Euroscore II 28%
- mean age 68 years (27-87; SD 13)
- 30d mortality: 12% (5)

Mean FUP 42 months (SD 28; 0-109)

Reinterventions during FUP

11/41 (27%)
- Most reintervention during first year
  - Endoleaks (14%)
    - 2x coil-embolization (Ia/Ib)
    - 2x CPG extension
  - 2x distal TEVAR relining/extension
  - Branches (3%)
    - 1x stenting LSA PG
    - 1x correction of PG inflow
  - Others (8%)
    - 1x TAVI (pre-defined strategy), 2x conversion to Hybrid Repair

Aortic Arch multibranche Devices: Results @ 30days

<table>
<thead>
<tr>
<th>Device</th>
<th>N</th>
<th>Mortality</th>
<th>CVA/SCI</th>
<th>EL I/III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolton</td>
<td>36</td>
<td>8.3%</td>
<td>11.1%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Cook</td>
<td>68</td>
<td>7.3%</td>
<td>13.2%</td>
<td>16.3%</td>
</tr>
<tr>
<td>Nexus</td>
<td>3</td>
<td>100% (1)</td>
<td>40% (2)</td>
<td>30% (1)</td>
</tr>
<tr>
<td>PG PARA</td>
<td>18</td>
<td>12% (1)</td>
<td>12% (1)</td>
<td>12% (1)</td>
</tr>
</tbody>
</table>

Literature review PG-EVAR

Visceral PG-EVAR Literature review (5 cases)

- 1x EL Ia mortality: 4.7%
- EL Ia 7%
**Short-term results**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>CHIMPS</th>
<th>F/BEVAR</th>
<th>Open Repair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renal failure</td>
<td>0-12.9%</td>
<td>7.22%</td>
<td>18.22%</td>
</tr>
<tr>
<td>ICU stay</td>
<td>2</td>
<td>2-4</td>
<td>4-5</td>
</tr>
<tr>
<td>Hospital stay</td>
<td>10</td>
<td>8-13</td>
<td>11-16</td>
</tr>
<tr>
<td>Paraplegia</td>
<td>2</td>
<td>0-3%</td>
<td>6</td>
</tr>
<tr>
<td>Stroke</td>
<td>0-3</td>
<td>0</td>
<td>3</td>
</tr>
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**ICU stay**
- 2
- 2-4
- 4-5

**Hospital stay**
- 10
- 8-13
- 11-16

**Paraplegia**
- 2
- 0-3%
- 6

**Stroke**
- 0-3
- 0
- 3

**Long-term results**

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<th>Open Repair</th>
</tr>
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<tbody>
<tr>
<td>Branch patency</td>
<td>96%</td>
<td>90-99%</td>
<td>85-100%</td>
</tr>
<tr>
<td>Endoleak I/III</td>
<td>5%</td>
<td>0-5%</td>
<td>-</td>
</tr>
<tr>
<td>Stentgraft migration</td>
<td>0</td>
<td>0-1%</td>
<td>-</td>
</tr>
<tr>
<td>Redos</td>
<td>28%</td>
<td>15-25%</td>
<td>5-8%</td>
</tr>
</tbody>
</table>

**Patient Comorbidities**

- **HT** 116 (91.3%)
- **DM** 19 (15.0%)
- **Lipid disorders** 64 (50.4%)
- **COPD** 76 (59.8%)
- **Renal Function Impairment** 59 (46.5%)
- **CAD** 70 (55.1%)
- **PAD** 52 (40.9%)
- **Hostile chest** 47 (37.0%)
- **Hostile abdomen** 23 (18.4%)
Early Outcomes

30d Mortality
3 (2.4%)

30d Mortality
Systemic
7 (5.5%)

Local/Access
6 (4.7%)

Neural
3 (2.4%)

EL/IVI
10 (7.9%)

Type I
8 (6.3%)

Type III
2 (1.6%)

CPG Occlusion (270 vessels)
5 (1.9%)

Early Reinterventions

Reinterventions
15 (11.8%)

CPG Not related
Access bleeding
2 (1.6%)

Lymph fistula
1 (0.8%)

Limb Occlusion
3 (2.4%)

Mesenteric Ischemia
1 (0.8%)

CPG related
Thrombosis
4 (3.2%)

Gutter Endoleak
4 (3.2%)

Late Outcomes

CPG occlusion (270 vessels)
10 (3.7%)

Reinterventions
23 (18.1%)

EL
Type I
7 (5.5%)

Type III
2 (1.6%)

Late Reinterventions

Reinterventions
23 (18.1%)

CPG related
Thrombosis
11 (8.7%)

Gutter or R/I Endoleak
12 (9.5%)

Conclusions

Good results with ARCH/VISC PG Technique achieved
• Selected patients

Patient selection

• Appropriate anatomy
  – Arch and RV vessels disease-free
  – Landing zones about 2cm (VISC) or even more (Zone 0-1) in length
  – Femoral access vessels > 9mm (thoraco-abdominal AA)

• Life expectancy > 2 years

Conclusions

Good results with ARCH/VISC PG Technique achieved
• Selected patients

Behave durable up to >3 years mean follow-up
  – Taking into account substantial number of reinterventions to maintain seal and/or branch patency
Unsolved issue with PG-(T)EVAR

Gutter endoleak with Ch-EVAR (5-10%)
- Mostly unpredictable
- Need for dedicated anti-gutter stentgraft design
- Solution(s) emerging!

Endospan anti-gutter SG design

Case 1: 3 months FU
Case 2: 12 months FU