Preservation of supra-aortic branches by looping-chimney technique during TEVAR

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Disclosure

Speaker name: Jinhui Zhang

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
Materials and Methods

Looping-chimney technique (LCT) procedure

• aortic arch pathologies
• short proximal landing zone
• left common carotid artery (LCCA) and innominate artery (IA)
• percutaneous right brachial artery access
• looping in the ascending aorta through IA
• Preserve guidewires and catheters into LCCA before TEVAR
• without opening or puncturing the carotid artery
• local anesthesia
• DSA unit

• a 0.035-inch, 260-cm, J-tip guidewire (RADIFOCUS®, TERUMO, Japan)
• a 5-F, 125-cm, VERT impress® catheters (MeritMedical, Utah, USA)
• a 6-F, 90-cm, carotid guiding sheath (Destination®, Terumo, Maryland, USA)
or a 8-F, 90-cm, MPA1 guiding sheath (Vista Brite Tip®, Cordis, Florida, USA)
### Results—Dec. 2016 to Dec. 2018

<table>
<thead>
<tr>
<th></th>
<th>n=16 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main Diagnosis</strong></td>
<td></td>
</tr>
<tr>
<td>PSA</td>
<td>2 (12.50%)</td>
</tr>
<tr>
<td>RAAD</td>
<td>1 (6.25%)</td>
</tr>
<tr>
<td>TAA</td>
<td>2 (12.50%)</td>
</tr>
<tr>
<td>PAU</td>
<td>1 (6.25%)</td>
</tr>
<tr>
<td>TBAD</td>
<td>10 (62.50%)</td>
</tr>
<tr>
<td><strong>Vertebral Arteries</strong></td>
<td></td>
</tr>
<tr>
<td>Dominant Left</td>
<td>2 (12.50%)</td>
</tr>
<tr>
<td>Bilateral Equal</td>
<td>3 (18.75%)</td>
</tr>
<tr>
<td>Dominant Right</td>
<td>11 (68.75%)</td>
</tr>
<tr>
<td><strong>Comorbidities</strong></td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>11 (68.75%)</td>
</tr>
<tr>
<td>Cerebral Infarction</td>
<td>3 (18.75%)</td>
</tr>
<tr>
<td>T2 Diabetes Mellitus</td>
<td>3 (18.75%)</td>
</tr>
<tr>
<td>Chronic Heart Disease</td>
<td>2 (12.50%)</td>
</tr>
<tr>
<td><strong>Follow-up</strong></td>
<td>9.53 ± 6.98</td>
</tr>
<tr>
<td><strong>Death</strong></td>
<td>1 (6.25%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>n=16 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aortic Endografts</strong></td>
<td>18</td>
</tr>
<tr>
<td>Ankura (Lifetech)</td>
<td>15</td>
</tr>
<tr>
<td>Hercules (MicroPort)</td>
<td>3</td>
</tr>
<tr>
<td>Chimney Grafts of LCCA</td>
<td>20</td>
</tr>
<tr>
<td>Absolute Pro (Abbott)</td>
<td>1</td>
</tr>
<tr>
<td>Omnilink Elite (Abbott)</td>
<td>6</td>
</tr>
<tr>
<td>Complete SE (Medtronic)</td>
<td>3</td>
</tr>
<tr>
<td>Protégé GPS (ev3)</td>
<td>10</td>
</tr>
<tr>
<td>Chimney Grafts of IA</td>
<td>1</td>
</tr>
<tr>
<td>Protégé GPS (ev3)</td>
<td>1</td>
</tr>
<tr>
<td>Fenestration in Situ</td>
<td>5</td>
</tr>
<tr>
<td>Fluency (Bard)</td>
<td>5</td>
</tr>
<tr>
<td><strong>Proximal Landing Zone</strong></td>
<td></td>
</tr>
<tr>
<td>Zone 0</td>
<td>2 (12.5%)</td>
</tr>
<tr>
<td>Zone 1</td>
<td>13 (81.25%)</td>
</tr>
<tr>
<td>Zone 2</td>
<td>1 (6.25%)</td>
</tr>
<tr>
<td><strong>Perioperative Outcomes</strong></td>
<td></td>
</tr>
<tr>
<td>Type I Endoleak</td>
<td>3 (18.75%)</td>
</tr>
<tr>
<td>Type II Endoleak</td>
<td>2 (12.5%)</td>
</tr>
<tr>
<td>Compression of CG</td>
<td>4 (25%)</td>
</tr>
</tbody>
</table>
Case 1

- 32 years old, male
- blunt aortic arch pseudoaneurysm
Case 1

looping-chimney technique (LCT) before TEVAR
Case 1

Ankura (Lifetech) 28*160

Absolute Pro (Abbott) 10*60
Case 1

no type I endoleak
Case 1

- LCCA
Case 1

Amplatzer (AGA) 7*10
Case 1

- Phone follow-up
- initial LCT case
- emergency
Case 2

- 41 years old, male
- TBAD with dissection of LCCA
Case 2

- The loop should not be shrunk
Case 2

CG of LCCA via LCT

Protégé GPS (ev3) 8*80

Loop escaped
Case 2

CG of IA
Protégé GPS (ev3) 12*40
Case 2
Case 2

- 6 months after
Case 3

- 49 years old, male, IMH
Case 3

- PAU after 42 days medical treatment
Case 3

Omnilink Elite (Abbott) 9*39
Case 3
Complete SE (Medtronic) 8*60
Case 3
Case 3

needles based in situ
fenestration
Case 3

Fluency (Bard) 10*40
Case 3
Case 3

6 months after
Case 4

72 years old, TBAD
LCT
Hercules (MicroPort) 34*30*160 & 32*28*160
Protégé GPS (ev3) 10*60
1 month after
Conclusion

• LCCAs were preserved by LCT in 15 (94%)
• Type I endoleak in 3 (19%) and type II endoleak in 2 (13%)
• Short-term follow-up (9.53 ± 6.98) showed satisfactory results

• LCT is NOT routine procedure for aortic arch lesions
• CANNOT BEVAR, FEVAR, hybrid or open
• LCCA and IA protected by LCT
• LCT gives those a chance to be treated.
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