Right Axillary Access For Complex EVARs And TEVARs: Advantages, Technical Tips And Preventing Strokes

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Disclosures

• Consultant – Medtronic; WL Gore

Upper extremity access

• Important adjunct for complex endovascular aortic procedures:
  • ChEVAR
  • FEVAR
  • TEVAR
  • FEVARCh

Completion Angiogram

R Axillary Artery Conduit

22 Fr Dry Seal

Ascending Case
Which side and Which Vessel?

- Anecdotally, right side is less safe due to stroke risk
- But, it is easier to work from the right side due to image intensifier location
- Can we minimize stroke risk?

Which vessel - brachial, axillary, or subclavian?

- Left or right arm out - makes full lateral imaging a challenge
- Patient prep is easier with arms tucked
- Anesthesia doctor can use both arms
- Subclavian artery angle can be challenging and brachial artery is usually too small for more than one

Direct puncture or conduit?

- 1 or 2 sheaths – direct arterial puncture through a previously placed purse-string with a pledget
Direct puncture or conduit?

• 1 or 2 sheaths – direct arterial puncture through a previously placed purse-string with a pledget
• > 2 sheaths: we prefer an axillary conduit

4 Sheaths - labeled

Direct puncture or conduit?

• 1 or 2 sheaths – direct arterial puncture through a previously placed purse-string with a pledget
• > 2 sheaths: we prefer an axillary conduit
• Navigate arch with 7 Fr sheaths and then selectively catheterize visceral vessels

Our Results

• 2012-2018
• 398 aortic interventions
  • 72 operations required upper extremity access
    • 1 for placement of zone 0 device
    • 1 for sac embolization
    • 2 for imaging
Our Results – Patient Population

- Mean age – 73.7 years
- 66.7% male
- Median hospital LOS – 3 days
- Prior aortic interventions – 34 (47.2%)
  - 11 open operations (15.3%)
  - Ruptured – 6 (8.3%)

Our Results - Branches

- 115 chimney grafts planned
  - 96 deployed
  - 2 unplanned

<table>
<thead>
<tr>
<th>Branches</th>
<th># of patients</th>
<th>%</th>
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<tbody>
<tr>
<td>1</td>
<td>29</td>
<td>42.6</td>
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<tr>
<td>2</td>
<td>20</td>
<td>29.4</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>10.3</td>
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<tr>
<td>4</td>
<td>1</td>
<td>1.5</td>
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Our Results - Access

- Axillary access – 59
- Brachial access – 12
- Subclavian - 2

  Right Axillary – 42
  58.3%

Our Results - Endpoints

- Technical success
  - Successful chimney placement in 62 cases (91.1%)
- 30-day mortalities
  - 5 (6.9%)
- CVAs
  - 5 (6.9%)
- 1 subclavian rupture
  - L-sided access

Our Results - CVA

- 5 CVAs
  - 2 in left-sided access
  - 2 in right-sided access
  - 1 bilateral access
- 5 CVAs
  - 2 ischemic
  - 1 hemorrhagic
  - 2 mixed
Our Results – CVA

<table>
<thead>
<tr>
<th>Category</th>
<th>Left CVA</th>
<th>Right CVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age</td>
<td>73.7 years</td>
<td>70 years</td>
</tr>
<tr>
<td>% Male</td>
<td>66.7%</td>
<td>20%</td>
</tr>
<tr>
<td>Median hospital LOS</td>
<td>3 days</td>
<td>13.6 days</td>
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<tr>
<td>Prior aortic interventions</td>
<td>-34 (47.2%)</td>
<td>-5 (100%)</td>
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<tr>
<td>Open operations</td>
<td>-11 (15.3%)</td>
<td>-3 (60%)</td>
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<tr>
<td>Ruptured</td>
<td>-6 (8.3%)</td>
<td>0</td>
</tr>
<tr>
<td>30-day mortality</td>
<td>-5 (6.9%)</td>
<td>-1 (20%)</td>
</tr>
</tbody>
</table>

Conclusions

- Technically feasible
- Safety in comparison to L-sided access is equivalent
- Potentially better for type 3 arches

Thank you

- University of Chicago Vascular Lab
- University of Chicago Section of Vascular Surgery
  - Kira Long, MD
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- Evanston Hospital
  - John Golan, MD
  - Omar Morcos, MD
  - Benjamin Lind, MD