Vertebral Artery Sheath

Mark Goodwin, MD
Advocate Medical Group
Disclosure

Speaker name: Mark Goodwin, MD

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
Inadvertent Carotid Sheath

CVC complication rate 15%, arterial puncture 6.3% – 9.4%, cannulation less than 1%
Anagou; Lancet 1982, 6 manual compression - 6 hemiparesis
JAMA J Am Surg 2004 – 9 patients
7 surgery - no CVA
2 manual -1 intubated, 1 CVA with large pseudoaneurysm
Baylor 2012; 12 patients over 11 years-
6 surgical, 6 percutaneous suture closure
AV Fistula Covered Stent

JVASC Surgery 2009 6 1570-1573 Girts

• V2 segment vertebrae jugular fistula symptomatic
• Unsuccessful central line for breast cancer surgery 8 months earlier
• Successful treatment with 6x25 Viabond
• Literature 5 prior cases of JV fistula, 4 iatrogenic, 1 stabbing
• 3 Jobe stent, 2 wall stent
83 y/o male with expanding 4.5cm AAA and 3.5cm bilateral Iliac Aneurysms for endograft repair. Hx LAD stent 2002, Cochlear implant and hypertension.
Anesthesia

- Anesthesia placing central line under ultrasound guidance
- Sheath placed in carotid
- Surgical cutdown – “I don’t know where it is”
Case Summary

• Access right femoral angio
• Access right brachial
• Cannulate vertebral and angio
• .014 wire placed and filter placed. IVUS performed
• Artisan Atrium .014 covered stent 6x24 and 6x24 placed
Summary Carotid

• Do not remove sheath
• Heparin - fully anticoagulate
• Carotid US and possible angio
• If thrombus or disease – surgery
• If none – surgery or PerClose
Summary Vertebral

- Prior reports of VJ Fistula Rx with stent graft
- Do not remove sheath
- Heparin then angio
- If thrombus consider a filter
- Consider endograft
- First reported case of endograft repair of vertebral artery
<table>
<thead>
<tr>
<th>First author</th>
<th>Etiology</th>
<th>Indication for treatment</th>
<th>Time to presentation and treatment (mon)</th>
<th>Stent graft used (mm)</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rackert¹</td>
<td>Iatrogenic (UV catheterization)</td>
<td>Tinnitus</td>
<td>36 (41 to treatment)</td>
<td>Jostent coronary, 4 x 20</td>
<td>15 mon; US at 4 months, unspecified “examination” at 15 mon</td>
</tr>
<tr>
<td>Gonzalez²</td>
<td>Iatrogenic (UV catheterization)</td>
<td>Tinnitus</td>
<td>3</td>
<td>Wallgraff, 6 x 20</td>
<td>9 mon (clinical)</td>
</tr>
<tr>
<td>Amar²</td>
<td>Stab injury to the neck</td>
<td>Prevent possible stroke from distal embolization and spinal cord damage from vertebral venous plexus pressurization</td>
<td>0 (emergency)</td>
<td>Wallgraff, 6 x 20</td>
<td>6 wk (patient refused further follow-up)</td>
</tr>
<tr>
<td>Feber³</td>
<td>V2 post-op (no details available)</td>
<td>Not recorded</td>
<td>Not recorded</td>
<td>Jostent coronary, 4 x 19</td>
<td>14 mon (patient with no stenosis; imaging method not recorded)</td>
</tr>
<tr>
<td>Saker⁴</td>
<td>Vascular injury during ascending aortic dissection repair</td>
<td>High-output cardiac failure</td>
<td>Not recorded</td>
<td>Jostent coronary, 2.7 x 20</td>
<td>16 mon clinical; angiography at 14 mon</td>
</tr>
<tr>
<td>Current case</td>
<td>Iatrogenic (UV catheterization)</td>
<td>Tinnitus</td>
<td>8 (9 to treatment)</td>
<td>Viabahn, 6 x 25</td>
<td>45 mon (US and neurologist)</td>
</tr>
</tbody>
</table>

UV, Internal jugular vein; US, ultrasound.

- All devices inserted via a femoral route except that of Saker et al., which was inserted via a bilateral arm artery access.