CONE BEAM CT AFTER STANDARD & COMPLEX EVAR – WHAT TO DO IF ONE DOES NOT HAVE THE TECHNOLOGY?

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DISCLOSURE

• Consulting fees (All paid to Mayo)
  Cook Medical Inc., WL Gore, GE Healthcare

• Research grants (All paid to Mayo)
  Cook Medical Inc., WL Gore, GE Healthcare

• Off label technique
  Up and over IBD deployment

TECHNICAL PROBLEMS

USE OF FUSION & CBCT IN 386 F-BEVAR PATIENTS

ADVANCED IMAGING

CONE BEAM CT PROTOCOL

- Two 5 or 7s 200° spins, without and with injection of Visipaque®
  50% at 25 mAs/s with 2s delay
- Rotational DSA at 50 fps using 40 x 40 cm FOV

No CBCT: 8% had reinterventions for technical problem
CBCT: 8% had findings revised, with no reintervention

Tenorio et al. J Vasc Surg 2018
FINDING REQUIRING POSSIBLE REVISION

• 43 procedures (25%) had 52 positive findings

<table>
<thead>
<tr>
<th>Findings</th>
<th>Total n = 170</th>
<th>F-BEVAR n = 85</th>
<th>Standard n = 85</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any finding*</td>
<td>52 (31%)</td>
<td>27 (32%)</td>
<td>25 (30%)</td>
<td>.0004</td>
</tr>
<tr>
<td>Stent compression or kink</td>
<td>29 (17%)</td>
<td>19 (22%)</td>
<td>10 (12%)</td>
<td>.11</td>
</tr>
<tr>
<td>Type I or III endoleak</td>
<td>16 (9%)</td>
<td>12 (14%)</td>
<td>4 (5%)</td>
<td>.005</td>
</tr>
<tr>
<td>Dissection or thrombus</td>
<td>9 (6%)</td>
<td>6 (7%)</td>
<td>3 (4%)</td>
<td>.11</td>
</tr>
<tr>
<td>Immediate revision</td>
<td>28 (16%)</td>
<td>18 (21%)</td>
<td>10 (12%)</td>
<td>.09</td>
</tr>
<tr>
<td>Observation</td>
<td>15 (9%)</td>
<td>12 (14%)</td>
<td>3 (4%)</td>
<td>.01</td>
</tr>
</tbody>
</table>

* 9 procedures may had > one positive finding
No postoperative complications

**CONCLUSION**

- CBCT has allowed immediate assessment to identify technical problems that are not easily detected by DSA.
- Immediate revision of these problems avoid unnecessary secondary interventions and may decrease morbidity associated with serious complications.
- If you don’t have CBCT, be attentive to detail and consider pre-emptive flaring if any possible compression of stent leaflet during advancement of large sheaths.

**DSA, CBCT & POSTOPERATIVE CTA**

- DSA alone would have missed positive findings in 34 of 43 procedures (79%), including 21 of the 28 procedures (62%) treated by immediate revision.
- 4 procedures (2%) had additional postoperative CTA findings, which were missed by DSA and CBCT.