Technique of False Lumen Embolisation

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Disclosures

- Research-grants, travelling, proctoring speaking-fees, IP with Cook Medical.
Efficacy of thoracic endovascular stent repair for chronic type B aortic dissection with aneurysmal degeneration

Salvatore T. Scali, MD, a Robert J. Feezor, MD, a Catherine K. Chang, MD, a David H. Stone, MD, c Philip J. Hess, MD, b Tomas D. Martin, MD, b Thomas S. Huber, MD, PhD, a and Adam W. Beck, MD, a
Gainesville, Fla; and Lebanon, NH

- 2004-2011
- n=80, 26 months FU
- TEVAR for type B and residual AD
- LSA-coverage 75%, 24% debranching
- Median 16 (1-74) months.
- 35% FL-expansion during FU (!)

Scali et al. 2013; J Vasc Surg. 58:10-7
TEVAR in Chronic Type B

Predictors of Outcome after Endovascular Repair for Chronic Type B Dissection

K. Mani, R.E. Clough, O.T.A. Lyons, R.E. Bell, T.W. Carrell, H.A. Zayed, M. Waltham, P.R. Taylor

- 2000-2010
- N=58, 38 months FU
- TEVAR for chronic type B (>14 days)
- Perioperative mortality 5.2%
- 3 year mortality 36%

Mani et al. 2012; Eur J Vasc Endovasc Surg 43: 386-91
Predictors of Outcome after Endovascular Repair for Chronic Type B Dissection

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<table>
<thead>
<tr>
<th>Parameters</th>
<th>Odds ratio</th>
<th>P-value</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, per year</td>
<td>1.08</td>
<td>0.04</td>
<td>1.00 - 1.17</td>
</tr>
<tr>
<td>Female vs male</td>
<td>0.01</td>
<td>0.03</td>
<td>0.00 - 0.64</td>
</tr>
<tr>
<td>Urgent vs elective</td>
<td>0.59</td>
<td>0.60</td>
<td>0.08 - 4.33</td>
</tr>
<tr>
<td>Maximal aortic diameter</td>
<td>0.92</td>
<td>0.82</td>
<td>0.43 - 1.95</td>
</tr>
<tr>
<td>Increase in aortic size, per cm</td>
<td>2.70</td>
<td>0.01</td>
<td>1.23 - 5.96</td>
</tr>
</tbody>
</table>

Mean change rate, cm/year

Mani et al. 2012; Eur J Vasc Endovasc Surg 43: 386-91
Predictors of Outcome after Endovascular Repair for Chronic Type B Dissection

K. Mani a,d,s, R.E. Clough a,b, O.T.A. Lyons a,c, R.E. Bell a, T.W. Carrell a,b, H.A. Zayed a, M. Waltham a,c, P.R. Taylor a,b

False Lumen Perfusion

No Aortic Remodelling

Death

Mani et al. 2012; Eur J Vasc Endovasc Surg 43: 386-91
Failure to Remodel in Chronic Dissection

- Perfusion and pressure unchanged in false lumen
- Presence of Intercostals originating from false lumen
- False lumen back flow to Intercostals
fEVAR in Chronic Type A/B

Outcomes of Fenestrated/Branched Endografting in Post-dissection Thoracoabdominal Aortic Aneurysms

K. Oikonomou, R. Kopp, A. Katsargyris, K. Pfister, E.L. Verhoeven, P. Kasprzak

Department of Surgery, Division of Vascular Surgery, University Hospital Regensburg, Regensburg, Germany
Department of Vascular and Endovascular Surgery, Paracelsus Medical University, Nürnberg, Germany

- 2010-2014
- N=31, 17 months FU
- 6 Type II EL; 6 type 1b EL
- 30d-mortality: 9.6%
- Technical success: 93.5%
- FL-thrombosis: 88%

Oikonomou et al. 2014; J Vasc Endovasc Surg 48: 641-8
fEVAR in Chronic Type B

Courtesy of Stephan Haulon, Lille
How to Exclude the Dilated False Lumen in Patients After a Type B Aortic Dissection? The Cork in the Bottleneck

Maartje C. Loubert, MD¹; Victor P.M. van der Hulst, MD, PhD³; Cees De Vries, MD²; Kees Bloemendaal, MD²; and Anco C. Vahl, MD, PhD¹

2 Cases

1. FL-TAA-occlusion with:
   * 2 Greenfield filters
   * 6 detachable balloons
   * 5ml thrombin

2. FL-TAA-occlusion with:
   * 24mm Talent occluder

Loubert et al. 2003; J Endovasc Ther 10: 244-8
**Direct False Lumen Occlusion**

- Separates aortic FL-compartments!
- Does not restrict further distal techniques like fenestrated EVAR

*Bulkhead*
False Lumen Embolisation

Outcomes after false lumen embolization with covered stent devices in chronic dissection

Jahanzaib Idrees, MD, Eric E. Roselli, MD, Susan Shafii, MD, Bruce W. Lytle, MD, Cleveland, Ohio

Maximum Diameter: 24mm!

„Candy-Plug“
Candy-Plug

22mm Amplatzer plug II

Kölbel et al. 2013; J Endovasc Ther 20: 484-9
Candy-Plug

- Investigational technique
- Max. 50mm diameter
- 22mm Amplatzer II
- N=10
- Technical success 10/10
- Reintervention for continued perfusion: 2

Köbel et al. 2013; J Endovasc Ther 20: 484-9
„Knickerbocker“
Knickerbocker-Technique
Knickerbocker-Technique

Kölbel et al. 2014; J Endovasc Ther 21: 117-22
Knickerbocker-Technique

Kölbel et al. 2014; J Endovasc Ther 21: 117-22
Knickerbocker-Technique

Kölbel et al. 2014; J Endovasc Ther 21: 117-22
Knickerbocker-Technique

Kölbel et al. 2014; J Endovasc Ther 21: 117-22
Knickerbocker-Technique

- Investigational technique
- Diameter reducing ties
- One sided bulge
- Gold-markers
- N=10
- Technical success 10/10
- 2 requiring additional coils and cyanoacrylate
- FL-thrombosis all patients

Kölbel et al. 2014; J Endovasc Ther 21: 117-22
Iliac False Lumen Embolisation
Iliac False Lumen Embolisation

Ballon-occlusion to prevent plug-embolisation
Iliac False Lumen Embolisation
Post Type A, Branched Arch
Post Type A, Branched Arch
Post Type A, Branched Arch
Post Type A, Branched Arch
Conclusion

- Tubular stent-graft sufficient in majority cases of TBAD.
- False lumen backflow limiting treatment success in chronic TBAD.
- Techniques for false-lumen embolisation:
  - Plugs, coils, glue
  - Candy-plug
  - Knickerbocker-technique
- Early results promising, but future role to be defined.