Surgical Management of Type A Aortic Dissection

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Natural History: Type A Dissection

Dissection Type: A

Survival vs Time from Symptom Onset (days)

- 0-24 hours (hyperacute)
- 2-7 days (acute)
- 8-30 days (subacute)
- greater than 30 days (chronic)

Log Rank Chi-Sq p<0.001 between management types
Type A Dissection: Goals of Surgery

1. Excise the intimal tear
2. Decrease or obliterate blood flow into false lumen
3. Replace the ascending aorta +/- aortic arch (Dacron graft)
4. Correct malperfusion
Surgical Treatment of Aortic Dissection

- Operative mortality 10 - 20%; higher if malperfusion present
- Goal is to replace the ORIGIN of dissection, not entire involved segment
- Mortality of surgery higher than medical therapy in Type B dissections
- 15-30% treated surgically require a 2nd operation
Cannulation of the axillary artery with a Dacron side graft
Disadvantage of Femoral Cannulation with Aortic Clamping
Distal Extent of Surgery for Type A Dissection
„Frozen Elephant“ Trunk for Type A Dissection
„Frozen Elephant“ Trunk for Type A Dissection

<table>
<thead>
<tr>
<th></th>
<th>Preoperative diameter of both the true and false lumen (n=120)</th>
<th>Preoperative diameter of the true lumen (n=120)</th>
<th>Intraoperative measurement of the true lumen (n=120)</th>
<th>Diameter of stent graft (before discharge) (n=115)</th>
<th>Diameter of stent graft (1 year after op) (n=109)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(mm)</td>
<td>30.1 ±2.3</td>
<td>20.7 ±2.1</td>
<td>27.7 ±2.6</td>
<td>26.0 ±2.5</td>
<td>27.5 ±1.6</td>
</tr>
</tbody>
</table>

EJCTS 2015;47:355-60
“Frozen Elephant“ Trunk for Type A Dissection

Long-aortic
Wei-Guo
Ai-Hua Z
Li-Zhong

Late Reoperation

% Freedom from Operation

<table>
<thead>
<tr>
<th>Interval (years)</th>
<th>Freedom from reoperation (%)</th>
<th>95% CI (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>94.74</td>
<td>87.82 – 97.78</td>
</tr>
<tr>
<td>3</td>
<td>90.45</td>
<td>82.45 – 94.92</td>
</tr>
<tr>
<td>5</td>
<td>88.84</td>
<td>80.08 – 93.89</td>
</tr>
<tr>
<td>8</td>
<td>84.16</td>
<td>72.42 – 91.19</td>
</tr>
<tr>
<td>10</td>
<td>84.16</td>
<td>72.42 – 91.19</td>
</tr>
</tbody>
</table>

Number of patients at risk

0 1 2 3 4 5 6 7 8 9 10
0 106 91 84 76 68 57 49 33 28 19 11

Years after frozen elephant trunk + total arch replacement

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Aortic Insufficiency in Type A Dissection

Treatment options for AI:

- Surgical decompression of false lumen and resuspension of AV commissures
- Aortic root replacement if extensive involvement of all three sinuses
- Aortic valve sparing aortic root replacement (David operation) in young patients
AV Resuspension for Type A Dissection
Options for Aortic Root Replacement
Aortic Valve Sparing (David) Operation
55 y.o. female sudden onset of chest pain
David Operation for Acute Type A Dissection
David Operation for Acute Type A Dissection
David Operation for Acute Type A Dissection
David Operation for Acute Type A Dissection
The outcome after aortic valve-sparing (David) operation in 179 patients: a single-centre experience

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Abstract

OBJECTIVES: The current study was performed in patients with aortic root aneurysmal disease and pliable aortic cusps. The objective of this study was to assess our early and medium-term outcomes with the AVr-D operation.

METHODS: Between 2003 and 2011, a total of 179 patients underwent AVr-D procedures. The mean patient age was 49.7 ± 15.1 years, and 23.5% (n = 42) were women. A total of 15.6% (n = 28) of patients with aortic dissection in our study underwent an aortic root replacement with aortic valve re-replacement during follow-up.

RESULTS: Early mortality was 15.6% (n = 28). Clinical or transthoracic echocardiography revealed no significant AI grade increase in 93.6% of patients. Four patients required aortic valve re-replacement during follow-up, two due to early endocarditis and two due to non-coronary leaflet prolapse in Marfan patients. Five-year freedom from aortic valve reoperation was 95.9 ± 2.0%.

CONCLUSIONS: AVr-D is associated with a low mortality and morbidity rate, even in patients with Type A aortic dissection. Although a slightly higher rate of recurrent AI may be present in patients with Marfan syndrome, freedom from recurrent AI and reoperation remains excellent during medium-term follow-up. The David operation should be considered the gold standard for patients with proximal aortic root pathology (aneurysm or dissection) and pliable aortic cusps.
Leipzig David Results: Long-Term Survival

Leipzig David Results: Freedom from AI > 1+

Thank you!

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