How much Arch reconstruction is needed in Type A Aortic Dissection?

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Disclosure of Interest

Speaker name: Ulrich Rosendahl

- I do not have any potential conflict of interest
• What is the primary goal of the operation?
• Where is the primary entry tear?
• How experienced is the team?

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Expected Morbidity and Mortality in aortic arch replacement with a Frozen Elephant Trunk

<table>
<thead>
<tr>
<th>Table 3: Aggregate morbidity and mortality</th>
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<tbody>
<tr>
<td>Reop bleeding</td>
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<td>2.5–30%</td>
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SCI: spinal cord injury; AKI: acute kidney injury.
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UK Aorto vascular Surgery
Elective and non-elective mortality
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Factors that influence long term survival after Aortic Dissection

- Type of repair initially performed
- Re-operation/intervention needed at a later stage
- Organ injury as a result of Dissection
- Age at onset of Dissection
- Connective Tissue disorder yes/no
- Gender
- Recurrence of Dissection
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Location of communications between True and False Lumen

Figure 3: Number of patients with communications between lumina. *At least one communication in the supra-aortic arteries was identified in 50% of patients. LSCA: left subclavian artery; LCA: left carotid artery; IA: innominate artery.
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**Changes in Location of communications between True and False Lumen**

*Figure 4: Changes in luminal communications during the follow-up period.*
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Changes in Aortic Diameter
In relation to proximal Entry or no proximal Entry

A) No entry at distal anastomosis

B) Entry at distal anastomosis

C) Baseline diameter <35 mm

D) Baseline diameter ≥35 mm

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If Aortic Arch Replacement considered in Typ A Dissection
Then with a Frozen Elephant Trunk

Figure 8: Scheme of frozen elephant trunk (FET) implantation with the Jotec device using an island technique when reimplanting the supra-aortic vessels.

Figure 9: Scheme of FET implantation with the Vasculat device using a separated reimplantation of the supra-aortic vessels.
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Aortic diameter remodelling after the frozen elephant trunk technique in aortic dissection: results from an international multicentre registry

Mauro Iafrancesco, Nora Goebel, Jorge Mascaro, Ulrich F.W. Franke,

M. Iafrancesco et al. / European Journal of Cardio-Thoracic Surgery

Figure 3: Kaplan–Meier curve for survival (A) and for freedom from distal reintervention (B) in acute and chronic dissections.
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Spinal Cord Injury according to position of distal stent graft

Figure 1: Postoperative spinal cord injury (SCI) according to the position of the distal stent graft. In 8 patients who presented with postoperative SCI, the stent graft was deployed at the T7 level in 1 patient, at the T8 level in 2 patients, at the T9 level in 3 patients and at the T10 level in 2 patients.

Katayama K, Uchida N, Katayama A, Takahashi S, Takasaki T, Kurosaki T et al.
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FROZEN ELEPHANT TRUNK: TECHNIQUE, ADJUNCTS AND OUTCOMES
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Impact of Age on Long term survival after acute Type A repair

Age < 70 versus age > 70

Figure 1: (A, B) Kaplan–Meier survival curve of patients undergoing surgery for AADA. Difference between the elderly patients and younger patients $P = 0.008$ by log-rank test.

Melchers et al, Europ J CardThorac 2017; 51

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Freedom from Reoperation according to initial procedure

Figure 4. Overall freedom from reoperation among non-Marfan patients operated on for acute type A aortic dissection, according to the extension of the aortic replacement. Red line: SUPRACORONARY group; green line: ROOT group; blue line: ARCH group; orange line: EXTENSIVE group. yr: year.

Piccardo A et al; Arch Cardvasc Dis 2017;110,14
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Influence of procedure on Long term survival

Figure 2. Overall survival among non-Marfan patients operated on for acute type A aortic dissection, according to the extension of the aortic replacement. Red line: SUPRACORONARY group; green line: ROOT group; blue line: ARCH group; orange line: EXTENSIVE group. yr: year.

Piccardo A et al; Arch Cardiovasc Dis 2017;110,14
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Outcome in Re-Do Operations after initial Aortic Dissection Repair according to procedure

Fig. 2 Figure schematizes the mortality rates according to the procedure performed.
Patient M.M.

- acute Type B Dissection with subacute retrograde dissection into the aortic arch
- 30mm/130mm stent graft EVITA
- Debranching of subclavian artery
- Interposition 8 mm graft to left carotid artery

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After Aortic Arch Replacement
How much Arch reconstruction is needed in Type A Aortic Dissection?

Anatomic distribution of recurrent Aortic Dissection

Isselbacher E et al Circulation 2016;134:1013
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Summary

• Replacement of the Aortic Arch with the Frozen elephant technique need to be performed in acute Type A Dissection when the primary tear is located in the aortic arch or proximal descending Aorta.

• Replacement of the Aortic Arch should be considered in young patients with Type A dissection to prevent expansion of the Aortic arch and descending Aorta necessitating further interventions bearing a high morbidity and mortality.

• The Type of the initial Type A repair influences re-intervention rates but not necessarily long term survival.

• Aortic arch replacement in the setting of acute Type A dissection should preferably be done by experienced aortic surgeons.