DEBRANCH FIRST TECHNIQUE
AND FROZEN ELEPHANT TRUNK PROCEDURE
O.S.R. EXPERIENCE

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I do not have any potential conflict of interest
O.S.R. Experience

43 consecutive patients with chronic arch aneurysm treated with F.E.T technique (E-Vita Jotek) (one surgeon experience)

9 Patients with chronic degenerative or atherosclerotic arch aneurysm
33 Patients with previous Type A/B aortic dissection (Redo procedures)
1 patients with Acute Type A aortic dissection were treated

To reduce the rate of possible neurological complications described in literature a multidisciplinary approach was designed.

Three different surgical technique was developed:

1) 3 pz with the traditional ISLAND TECHNIQUE and direct cannulation of the left carotid artery sec KAZUI.
2) 16 pz with traditional ISLAND TECHNIQUE with a preoperative left carotid-succlavian bypass with concomitant left subclavian occluder plug.
3) 24 patients with BRANCH FIRST TECHNIQUE with a preoperative left carotid-succlavian bypass with concomitant left subclavian occluder plug.
Final results

E-Vita Island technique
First experience with Frozen Elephant Trunk and Debranch First Technique

- A young female patient
- 32 years old
- Previous suspected diagnosis of collagenopathy (Horton Arteritis).
- Previous type A aortic dissection (12 months before)
- Further Dilatation of distal false lumen.
- Important dilatation and chronic dissection of both supraaortic vessels.

- Not possible Standard F.E.T. with ISLAND TECHNIQUE
- 1 month before aortic surgery Bilateral Right and Left Carotid-succclavian bypass with concomitant prevertebral plug occlusion of left suclavian artery
First experience with Frozen Elephant Trunk and Debranch First Technique
First post op results with Frozen Elephant Trunk and Debranch First Technique
A novel custom-made E-vita plus prosthesis has been designed by adding 2 side branches (Fig. 1)

- Bilateral continuous antegrade cerebral perfusion
- Zone 0-1 distal anastomosis
- Early reperfusion of spinal cord and visceral vessels
Methods

1. Bilateral axillary cannulation and perfusion through the subclavian bypass performed 20/30 days before arch surgery (37°C)

2. On pump Zone 0-1 debranching of innominate and left common carotid artery (beating heart surgery after central aortic cannulation) (37°C-32°C)

3. Ascending aorta clamping: cardioplegia and proximal cardiac procedure (32°C-28°C)

4. Over-the-wire FET deployment under spinal cord and visceral ischemia (28°C)

5. Distal reperfusion with antegrade flow through the dedicated side-branch (28°C-32°C)

6. Supraaortic vessels debranching reimplant on beating-heart (32°C-37°C)
### Standard F.E.T. versus D.F.T

**OSR Experience (2009-2018): 19/24 cases**

<table>
<thead>
<tr>
<th>Island technique</th>
<th>min/ time</th>
<th>Debrach First Technique</th>
<th>min/ time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median CPB</td>
<td>196 (180-240)</td>
<td>Median CPB</td>
<td>165 (147-185)</td>
</tr>
<tr>
<td>Antegrade cerebral perfusion</td>
<td>77 (67-90.5)</td>
<td>Antegrade cerebral perfusion</td>
<td>103 (94-120)*</td>
</tr>
<tr>
<td>Limb Ischemia</td>
<td>61 (27-75)</td>
<td>Limb Ischemia</td>
<td>37 (33-45)</td>
</tr>
<tr>
<td>Cardiac ischemia</td>
<td>133 (107-160)</td>
<td>Cardiac ischemia</td>
<td>77 (66-108)</td>
</tr>
</tbody>
</table>

- * CONTINOUS CEREBRAL PERFUSION.
- Low CPB time
- Low Limb Ischemia
- Low Cardiac Arrest
## Standard F.E.T. versus D.F.T

**OSR Experience (2009-2018): 19/24 cases**

<table>
<thead>
<tr>
<th>Island technique</th>
<th>30-day results</th>
<th>Debrach First Technique</th>
<th>30-day results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>2 (10.5%)</td>
<td>Mortality</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Major cerebrovascular events</td>
<td>4 (21.0%)</td>
<td>Major cerebrovascular events</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Spinal cord ischemia (permanent)</td>
<td>2 (10.5%)</td>
<td>Spinal cord ischemia (permanent)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Renal injury / failure (AKI 2-4)</td>
<td>6 (31.5%)</td>
<td>Renal injury / failure (AKI 2-4)</td>
<td>1 (4.1%)</td>
</tr>
<tr>
<td>Respiratory failure</td>
<td>4 (21.0%)</td>
<td>Respiratory failure</td>
<td>1 (4.1%)</td>
</tr>
<tr>
<td>Bleeding (re-exploration)</td>
<td>3 (14.28%)</td>
<td>Bleeding (re-exploration)</td>
<td>3 (12.5%)</td>
</tr>
</tbody>
</table>

* 3 patients with transient paraplegia. At the discharge to complete restitutio ad integrum

With the use of the Debrach First Technique
- Low mortality
- Low Cerebrovascular events
- Low Cord Ischemia
Conclusions

- Safe and feasible with this new custom-made graft
- Debranch-first with bilateral axillary cannulation allows:
  - Continuous cerebral perfusion at T > 28° (No Standard Cerebral Arrest Time)
  - No direct supraortic vessels cannulation
  - Zone 0-1 distal anastomosis
- Low spinal cord and visceral ischemic time
- Low cardiac ischemic time
- Comparative studies needed to investigate possible clinical advantages
Thank you