Descending aorta replacement through median sternotomy

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Special hospital for surgery
“Filip Vtori” Skopje - Makedonija
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History

Ebers Papyrus (2000 BC) - traumatic peripheral aneurysm
Galen (131-200) – localized pulsatile swelling
Antyllus (-200 AD) first ligated injured aneurysmal vessels

First anurysm resection
1951 Charles Dubost Abdominal AAA
1951 Denton Cooley Ascending AA

Replaced aorta with 15cm homograft

Endovascular Aortic Repair
Juan C. Parodi

No standard repair
Indications for operation

Symptomatic
Acute enlargement
Rupture

Morbidity
✓ Postoperatively
  – Bleeding 8-10%
  – Paraplegia (early,late) – 13-15%
  – Organ ischaemia-10-12%
  – Renal failure 5-7%

Perioperative morbidity up to 50%

Mortality
Elective 5 to 20 %

Emergency 20 to 60 %

TAA is diagnosed in 5.9 to 10.4 per 100,000 people per year
# Mortality and Morbidities of Open Surgical Repair

<table>
<thead>
<tr>
<th></th>
<th>Range %</th>
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</thead>
<tbody>
<tr>
<td><strong>Operative Mortality</strong></td>
<td></td>
</tr>
<tr>
<td>Ascending Aorta</td>
<td>3-5</td>
</tr>
<tr>
<td>Aortic Arch</td>
<td>6-19</td>
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<tr>
<td>Thoracoabdominal</td>
<td>10-15</td>
</tr>
<tr>
<td><strong>Neurological complications</strong></td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td>2-3</td>
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<tr>
<td>Paraparesis/Paraplegia</td>
<td>3-15</td>
</tr>
<tr>
<td><strong>Renal Failure</strong></td>
<td>5-10</td>
</tr>
<tr>
<td><strong>Cardiac Event</strong></td>
<td>5-30</td>
</tr>
<tr>
<td><strong>Respiratory Failure</strong></td>
<td>20-30</td>
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</tbody>
</table>


W Zhou

Kaiser National Surgical Symposium, 2007
Investigations

✓ Hx
✓ Examination
✓ Cardiac evaluation
  – ECG,
  – Not exercise test,
  – Angiography? CABG pre aneurysm
✓ Aneurysm evaluation,
  – Echo (TOE),
  – CT,
  – MRI,
  – ? Aortography
Investigations

64MSCT

MR
No standard surgical techniques and approaches

- Distal perfusion
  - Total CPB DHCA
  - Total CPB with moderate hypothermy and branch cannulation reperfusion
  - Partial CPB LA – Fem artery; normothermy
  - Arteri-shunt-aorto-femoral
  - Off pump thoracoabdominal surgery-no circulatory support

- Spinal cord protection
Crawford - classification
Case Presentation – History of Present Illness

A 66-year-old man, dysphagia, breastless period, chest pain, fatigue.

Ultrasound - massive aortic thoracic aneurysm

Past Medical History – positive for HTA
Case Presentation

All laboratory parameters such as

- Serum electrolytes
- Coagulation panel
- Complete blood cell count
- C-reactive protein
- Thyroid function tests
- Liver enzymes – increased
- Sy vena cava sup. compression
- urgent intubation
- urgent surgery
Thoracoabdominal aneurysm-surgical technique through median sternotomy partial CBP - normothermy

Surgery
- median sternotomy
- right subclavian cannulation
- right femoral artery cannulation
- exclusion of the aneurysm
Clinical Course

- The CT angiogram showed reformation of the thoracic part of the aneurysm

18 days respiratory machine
percutaneous tracheotomy
29th day decanulation
38th day discharged
Complication - amputation of the distal phalange of the left II finger
Conclusion

Median sternotomy is feasible in repair of DAA.

It provides good exposure of the thoracic aorta with optimal position for proximal and distal aortic clamping, and it is better tolerated by patients regarding postoperative recovery.
Questions?