Early and Mid-term outcome of TEVAR in complicated Type B dissection

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Total Aortic Solution

Aortic MDT

3D imaging

Aortic Multidisciplinary Team

TEVAR

Carotid-carotid bypass

On table DSA roadmap

Total Arch Replacement
Hybrid Theatre

Open surgery

Endoscopic surgery

Cardio Pulmonary Bypass

DynaCT

Angiogram

Echo-Cardiogram
PWH experience

• Retrospective study of all complicated Type B aortic dissections with intimal tear in descending aorta treated with TEVAR from January 2008 to Oct 2014 in a tertiary referral center.

• We recorded clinical and radiological outcome defined as incidence of death, procedure-related complications and radiological evidence of aortic remodeling during the follow up period.
混合胸腔主動脈手術
血管腔內胸主動脈修復
外科手術 — 頸動脈搭橋手術

2區支架植入  1區支架植入  0區支架植入
Carotid axillary bypass (Zone 2)
Carotid-carotid bypass
(Zone 1 with non-dominant left vertebral artery)
Carotid-carotid + carotid-axillary bypass
(Zone 1 with dominant left vertebral artery)
Set up: Femoral cut-down vs percutaneous closure
Percutaneous Closure Device
Aortic Debranching (Zone 0)
Total Aortic Debranching (Zone 0)
Total arch replacement + elephant trunk
PWH experience

• From 2008-Now
• Total 103 TEVAR cases performed
• Procedural related death = 2.9%
• 30 days mortality = 5.8% (1 acute retrograde aortic rupture, 1 ruptured false lumen, 1 rebleeding from concealed rupture, 2 pneumonia, 1 AMI)
• Total debranching = 8
• Extra-anatomical bypass of H&N vessels = 45
• Re-exploration for bleeding = 2
• Minor stroke = 5
• Paraplegia = 3, resolved from CSF drainage
• 75% with post-op pyrexia, only 3 had +ve c/st


Results

• There were three aortic related deaths
  • 1 acute retrograde aortic dissection
    • Zone 0 landing, total debranching
  • 1 ruptured false lumen over descending thoracic aorta
    • a case of redo total arch replacement with TEVAR completion to elephant trunk, developed type 1 b endoleak from abdominal re-entry point
  • 1 rebleeding from concealed rupture
    • Proximal descending thoracic aortic dissection with concealed rupture who developed sudden collapse and found massive left haemothorax on day 4

PWH experience

- Endoleak
  - 4 type 1 endoleak in proximal landing zone
  - 8 type 2 endoleak (7 from the left subclavian artery, 1 from intercostal artery)

- Mortality
  - 8 deaths after 30 days
  - 1 death aortic related: aorto-esophageal fistula
  - 7 deaths non-aortic related: pneumonia (n=3), sepsis (n=2), metastatic disease (n=1) myocardial infarction (n=1)

Radiological and clinical outcomes

• In the latest follow up CT (median: 50 months, range: 1 week – 72 months), aortic remodeling of varying degrees occurred in all patients. Complete and partial thromboses of the false lumen of thoracic aorta were achieved in 70% and 25% of patients respectively.

• The overall survival rates were 86% (1-year), 83% (2-year) and 81% (5-year).

Case illustration
First stage total arch replacement
2 months after completion TEVAR
2 years after completion TEVAR
Hybrid Theatre allows one-stop open and endovascular procedure

Antegrade TEVAR
via a temporary graft conduit
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Wong RH, Yu SC, Chu CM, Wan IY, Ng CS, Underwood MJ. Hybrid Antegrade Thoracic Aortic Stenting via a temporary graft conduit for patient with poor peripheral access. AORTA 2014 Jun; 2 (3) :123-127(5)
Antegrade TEVAR

- Device with indistinct proximal and distal landing
- Same radial force between proximal and distal segments
- No Barbs
- Simple to deploy

Conclusion

• Thoracic Aortic Endovascular Stenting is a safe and effective treatment for patients with complicated type B aortic dissection.
• Early and mid term radiological and clinical results are encouraging
Thank You!