Visceral debranching and periscope technique combined with endovascular repair for the treatment of thoracoabdominal aortic aneurysm

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Disclosure

Speaker name: ..................................................................................

I have the following potential conflicts of interest to report:

☐ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

☐ I do not have any potential conflict of interest
A 45-year-old male presented with symptomatic TAAA. CTA showed type-III TAAA with severe tortuosity of descending thoracic aorta.
The maximum diameter was 11.2 cm.
Options of the treatment ??

1. Open repair
2. Totally endovascular repair
   - Branched endografts
   - Sandwich with chimney or periscope technique
3. Hybrid repair
TAAA with challenging anatomy
Right common iliac artery-to-right renal artery-to-common hepatic artery bypass was performed.
Left common iliac artery-to-superior mesenteric artery bypass was performed. Iliac artery-to-left renal artery bypass could not be performed because of poor exposure.
Because of severe tortuosity of thoracic aorta and upgoing renal artery, left renal artery stenting with periscope technique and aortic stenting from mid thoracic aorta to aortic bifurcation were performed.
Periscope technique
Angiography
- The operative time was 606 minutes.
- Estimated blood loss was 1000 ml.
- Early postoperative complications were acute kidney injury, duodenal obstruction and upper gastrointestinal bleeding (UGIB).
External duodenal compression from the PTFE
Early postoperative complications

- AKI: Temporary hemodialysis
- Duodenal compression: Gastrojejunostomy
- UGIB: Endoscopic treatment
At 15 months follow-up, CTA showed no endoleak and no bypass graft occlusion.
CTA@15 mo.
At 24 months follow-up, the patient was in good condition.
Operative mortality and morbidity of standard open repair for TAAA have improved significantly at selected centers, but the overall national data of mortality rate approaching 20%.

The hybrid repair for TAAA offers an alternative technique as it avoids a thoracotomy, high aortic cross clamping, single lung ventilation, and prolong visceral and renal ischemia.

The performance of the procedure under stable hemodynamic conditions reduces the risk of paraplegia or paraparesis.
The meta-analysis for 30-day/in-hospital mortality rate was 14.3%

- mean follow-up period: 34.2 months.
- SCI: 7%, irreversible paraplegia: 4.4%
- Endoleak: 21.1%.
- Respiratory complication: 7.8%
- Cardiac complications: 4.6%.

Ann Cardiothorac Surg 2012
MNRH experience

- 7 hybrid repair (August 2014-December 2017)
- Mean follow-up period: 13 months
- Mortality rate: 14.3% (1/7)
- Morbidity rate: 28.6% (2/7)
- Endoleak rate: 14.3% (1/7)
- SCI: 0%
- Targeted vessel occlusion 1 in 20: 5%
Conclusion

- Low volume center with high mortality rate of open repair
- No branched endografts and challenging anatomy for totally endovascular repair
- Visceral debranching and periscope technique combined with endovascular repair for the treatment of TAAA showed good mid-term outcomes.
Thank you for your attention
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