Current Status of Endovascular Repair for Thoracoabdominal Aneurysms

Ramon L. Varcoe, MBBS, MS, FRACS, PhD
Associate Professor of Vascular Surgery
University of New South Wales
Sydney, Australia
Disclosure

Speaker name:

.........Ramon L. Varcoe........................................................

I have the following potential conflicts of interest to report:

- Consulting: Medtronic, Abbott Vascular, Boston
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

- I do not have any potential conflict of interest
Thoracoabdominal Aortic Aneurysm (TAAA)

- Degenerative condition
- Extends from thoracic to abdominal aorta
- Incidence 10 per 100,000 person years

(Modified) Crawford Classification System for TAAA

OPEN Surgery

RISKS

- Spinal Cord Ischaemia (4-16%)
- Renal Failure (6-24%)
- Mortality (5-16%)

An Endovascular System for Thoracoabdominal Aortic Aneurysm Repair

Timothy A.M. Chuter, MD; Roy L. Gordon, MD*; Linda M. Reilly, MD; Jay D. Goodman, MD*; and Louis M. Messina, MD

Departments of Surgery and *Radiology, University of California San Francisco, California, USA

Figure 1 - (A) The primary stent-graft showing attachment stent (1), the sealing stent (2), an distal stump (3). (B) The midsection of the primary stent-graft showing a radiopaque marker (1), celiac stump (2), the superior mesenteric stump (3), and the right renal stump (4).
What Are Our Options in 2018?

1. Custom-Made Fenestrated/Branched Devices
2. Off-the-Shelf Multi-Branch Devices
3. Chimney/Periscope Technique
4. Sandwich Technique
Custom Made Devices

- Fenestrated or Branched (Pros & Cons)
- Branches favoured for TAAA
- Less anaesthetic and respiratory morbidity

Custom Made Devices

HOWEVER...

- Additional cost
- 8-12 week lead time
- No suitable for emergencies
- Risks remain:
  - SCI 0-7%
  - Endoleak 0-18%
  - Mortality 2-9%

Off-The-Shelf Multi-Branches

• T-Branch (Cook Medical, IN, USA)
• 4 Fixed Branches (cuffs)
• 8mm (coeliac and SMA) and 6mm (renals)

Off-The-Shelf Multi-Branches

- May treat 63% with adjunctive manoeuvres\(^1,2\)
- High technical success rates
- Low rates of mortality, endoleak and SCI

Chimney/Periscope Grafts

- First described by Prof Lachat to treat TAAA in 2010
- Technically achievable
- Off-the-shelf stent-grafts
- Come from either direction

Chimney/Periscope Grafts

- Reasonable rates of technical success
- Patient outcomes acceptable in small series'

Sandwich Grafts

- A concept pioneered by Dr Lobato
- Any combination of visceral branches
- Need 50mm overlap with aortic sandwich
- Often require BMS to avoid branch kinking

Sandwich Grafts

- Small numbers TAAA evaluated
- Reasonable high technical success rates and good early patient outcomes

Conclusion

• In those unsuitable for open repair there are 4 reasonable Endo vascular alternatives

• The choice of which will depend on:
  • Clinical Urgency
  • Access to technology
  • Local expertise
  • Surgeon preference
Current status of endovascular repair for Thoracoabdominal Aneurysms

Ramon L. Varcoe, MBBS, MS, FRACS, PhD
Associate Professor of Vascular Surgery
University of New South Wales
Sydney, Australia