My Techniques to Manage the Challenging (Non-IFU) Aortic Neck

Patrick W. Kelly, MD, FACS

Disclosures

- US Patent and Applications Pending:
  - U.S. Pat. App. No. 13706036 - Debranching Stent Graft Limb and Methods for Use
  - U.S. Pat. App. No. 13706086 - Visceral Double-Barreled Main Body Stent Graft and Methods for Use
  - U.S. Pat. App. No. 13706127 - Debranching Visceral Stent Graft and Methods for Use
  - U.S. Pat. App. No. 13706144 - Aortic Arch Double-Barreled Main Body Stent Graft and Methods for Use
  - U.S. Pat. App. No. 13706158 - Debranching Great Vessel Stent Graft and Methods for Use
  - U.S. Pat. App. No. 13706175 - Combination Double-Barreled and Debranching Stent Graft and Methods for Use
  - U.S. Pat. App. No. 61740161 - Stent Deployment Device

- License Agreement With MDT

Disclaimer

This Presentation discusses the use of an investigational device under PSIDE G140207.

The Non-IFU Neck

- Straight
- Tapered
- Reversed tapered
- Angulated
- Bulge
Non IFU Aortic Neck
- > 60 degrees
- > 32mm
- < 10mm though this varies with manufacture
- +/- Thrombus/Calcifications

What Are The Failure Mode of the IFU Deviations
- > 60 degrees
  - Type I EndoLeak
  - Migration

What Are The Failure Mode of the IFU Deviations
- Dilated Neck >32mm
  - Type I EndoLeak
  - Migration
  - Catastrophic collapse into the Aneurysm Sake
  - Advancement of the Aneurysm Proximally

What Are The Failure Mode of the IFU Deviations
- Short Neck <10mm
  - Type I EndoLeak
  - Migration
  - Catastrophic collapse into the Aneurysm Sake
  - Advancement of the Aneurysm Proximally
What Are The Failure Mode of the IFU Deviations

• Thrombus/ Calcification
  – Type 1 EndoLeak
  – Migration
  – Embolization
  – Aortic Leak With Proximal Ballooning

In Isolation

• One Deviation From IFU
  – Doable
    • With the caveat >34mm dia and Neck <5mm
    • Will Need to Consider Adjuncts

• Two Or More Deviations From IFU
  – Look to More Aortic coverage/ Fixation
    • Endo Anchors
    • Parallel Grafting
    • Investigational Device

Successful EVAR

• Fixation
• Seal
• Flow

My Approach
First Step In My Algorithm

- Look at the PATIENT
  - Performance status
    - Solid
    - Compromise
    - Extreme Risk

Open Surgery It Still Works

Surgical Repair

- Primary Abdominal Aortic Repair
- Hybrid Repair
  - Before EVAR
    - Renal Bypass to Gain Affective Neck Length
  - After Failed EVAR
    - Renal Bypass to Gain Affective Neck Length
    - Napkin Ring (Create A New Neck)

Napkin Ring

Endo Treatments

- Increase Affective Neck Length
  - Anchors
  - Parallel (Longitudinal Grafts)
  - Investigational Device
Endo Anchors

3 mm

Cross Bar

1.0 mm

3.5 mm

Parallel Graft

Our IDE device

IDE Device
Unitary Stent Graft System

Fixation

40-50 mm Long Main Body
6-8 mm Visceral Limbs
13-14 mm InfraRenal Extension

Proximal Deployment

Place the Unitary Graft above the “branch vessels.”

This allows for continued perfusion throughout the procedure.

Type IV TAAA

Proximal Deployment

Of
Unitary Graft
Endo-Bypass

Each of the branch vessels are stented individually from a position more proximally.

These bridging stents are slightly longer, but the favorable flow characteristics and conformability to anatomic variations mirror many of the lessons we've learned from open bypass.

Type IV TAAA

Endo-Bypass
Type IV TAAA

Endo-Bypass

Delayed Distal Seal

Once flow has been secured to each of the involved branches, then the open limb of the unitary graft can be extended distally excluding the diseased segment of vessel.
Type IV TAAA