Migration Patterns In Newer Lower Profile EVAR Stent-Grafts: What Are The Implications For EVAR Planning And Follow-Up

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Disclosures
Colin D Bicknell
I have the following potential conflicts of interest to report:
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- Medtronic,
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Graft Migration

PRECIPITATING FACTORS:
- Patient anatomy
  • Inadequate landing zone
- Sizing, after rupture
- Remodeling and forces on the graft
- Lack of active fixation
- Disease progression and neck dilatation

Current 4th Generation AAA Stent Grafts

HAVE WE REALLY ABOLISHED MIGRATION?...

Habilitations of current generation stent grafts have been published for migration rates in newest generation stent grafts. Few published studies examining migration rates in newest generation stent grafts.

Questions
DO CURRENT GENERATION STENT GRAFTS MIGRATE?
WHAT PATTERNS OF MIGRATION OCCUR?
IS IT TIME DEPENDENT, WHICH MAY BE IMPORTANT FOR FOLLOW UP?
WHAT CAN THIS TEACH US?
Screening (Imperial and Coventry)

- Unsuitable for analysis: 20 FEVAR, 7 prox cuff ext, 15 died within a year
- 84 USS surveillance
- 98 returned to referring hospital (no follow up)

Screened using Greenberg method before in-depth analysis

15 required re-intervention
3 declined/not suitable for intervention (33% intervention in migrators)
28 no intervention

Migration of 4th Gen EVAR Risk Factors

Risk of migration significantly increased with
- Increased AAA size
- Increased neck diameter
- Change in neck diameter

Analysis of Migration Patterns

Migration:
- Using centerline technology (Terarecon ®) – marker placed at the SMA and tracked caudally to each of the prongs
- Distance from each of the prongs to SMA recorded with aortic diameter in every postoperative CT scan and superimposed on patients own aortic phantom.

Tilt:
- Change in angle from most proximal to most distal prong

Rotation:
- Radio-opaque marker identified and angle measured to the center of the origin of lowest renal artery to determine rotation in serial scans.

Temporal Patterns

DO CURRENT GENERATION STENT DRAFTS MIGRATE AND WHAT PATTERNS EXIST?
- There is still evidence that migration occurs - if you look closely, mostly in large AAA with wide necks
- There is a loss of STABILITY in many cases - migration, tilt and rotation
- Should we use endoanchors in these cases

IS IT TIME DEPENDENT, WHICH MAY BE IMPORTANT FOR FOLLOW UP AND WHAT CAN THIS TEACH US?
- There appear to be different patterns of migration over time
  - Intelligent 3D US surveillance would be ideal, in the meantime...
  - If there is INSTABILITY on first post op CT scan, suggest further CT monitoring, if it settles should stay stable, if not will need to be treated
  - If there is no INSTABILITY on first CT scan, then suggestions of reduced surveillance (if other criteria are met) are appropriate, but late imaging (CT at 5yr) appears important

Conclusions
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