Do Adjuncts Improve Durability of POSE?

Robert Fisher

LiVES

Royal Liverpool University Hospital
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Predictors of Abdominal aortic aneurysm sac enlargement after endovascular repair.

Schanzer et al. Circulation 2011

- Compliance with anatomic guidelines
- 10228 pts 1999-2008
- 42% met conservative IFU
- 5yr sac enlargement 41%
  - Neck>28mm, CIA>20mm, neck angle >60%

Poor IFU compliance, high rate of sac enlargement

Irresponsible insertion of EVAR?
Aneurysm sac failure to regress after endovascular aneurysm repair is associated with lower long-term survival.  

*O’Donnell TFX et al. JVS 2019*

- 2003-2017 EVAR in 14,817 pts with 1 yr CTA
- 40% sac regression, 35% stable, 25% expanded
- Expansion associated with new endoleak (OR 1.23)
- Increased long term mortality with:
  - Sac expansion (HR 1.6)
  - Failure to regress (HR 1.2)

- EVAR 1 trial: 15yrs
- >8yrs: EVAR > open
  - 1.25 HR total death
  - 5.8 HR AAA death
- EVAR:open
  - AAA rupture 7:1
  - Increased cancer
- EVAR cost £3798 more
Abdominal aortic aneurysm: diagnosis and management

NICE guideline
Draft for consultation, May 2018

Recommendations:

If fit: Open surgical repair NOT EVAR

If unfit: conservative NOT EVAR

EVAR not cost effective
Take Home Message?

- EVAR not durable
- EVAR expensive

How to improve:
- Get it right first time
- Case selection
- Device selection
- Device delivery
- Effective AAA exclusion
  - Sac regression
Do Adjuncts Improve POSE Durability?

• Primary adjuncts
  – Planned
  – Unplanned

• Indications
• Evidence
• Cost
Aortic Neck

• Compromised seal zone with risk of type Ia endoleak
  – Balloon
  – Giant Palmaz
  – Endoanchors
  – Cuff (+/- chimney or endoanchor)

Critical Issue 2019
Aortic Neck Adjuncts

• Re-ballooning
  – Can eradicate Type Ia
  – Can rupture aorta!

• Giant Palmaz
  – If adequate neck/seal
  – Risk of rupture, emboli, renal compromise
  – Long term neck dilatation

• 31 pts between 2000-05; median 53 mths FU
• No type Ia endoleak
• 26% had neck shortening/ 35% loss of seal zone due to aortic degradation
• No stent migration
• 15mm infrarenal: 63% neck diameter >10%
• 55% sac regression; 45% increase
The Long-term Durability of Intra-operatively Placed Palmaz Stents for the Treatment of Type Ia Endoleaks After EVAR of Abdominal Aortic Aneurysm.

Abdulrasak M et al. EJVES 2017.

- Malmo 1998-2012; 125 pts (83 elective, 22 rupture, 20 symp)
- 9 died (2 elective, 7 acute)
- Mean 43month FU; 51 re-interventions (7 for Type Ia)
- I° freedom from endoleak at 5 yrs: 89%
  - Elective >acute
- 9mm infra-renal aortic diameter increased 33% over follow up

_Palmaz effective eradicating Type Ia endoleaks but continued aortic degradation may influence durability._

NOT a permit to go off IFU!
Aortic Neck Adjuncts: Endoanchors
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Medtronic HeliFX workshop 2019

• Multicentre 319 pts
  – 242 primary/77 revision
• Technical success
• Procedural success
• Mean neck length 16mm
  – 43% <10mm/ 43 % conical
• 5.8 endoanchors
• 95% technical success
• Procedural success
  – 90% primary
  – 81% revision

- 86 ANCHOR pts
  - 61 primary/ 25 revision
- 62% without Type Ia
  - More endoanchors with good penetration (4vs3)
- Multivariate analysis
  - Good penetration with Endurant graft
- Poor penetration in large, short and calcified necks

Selection and deployment paramount
Aortic Neck Adjuncts

• Aortic Cuffs

• Cuff + APTUS


- 77 pts with C3 or regular Excluder
- 44 pts (57%) unfavourable neck morphology
- 16/44 (36%) needed cuff
- 13% in C3 group vs 65% in Excluder
- 2month FU- no type Ia endoleaks

- *Repositional grafts may reduce need for cuffs*
Aneurysm morphology

• Stent stenosis/compression
  – Distal neck
    • Bilateral angioplasty
    • Stent relining
  – Iliac origin morphology
    • Angioplasty
    • Stent relining
  – External Iliac extension
    • Stent relining
Adjunctive Iliac stents

- Adjunctive iliac stents reduce the risk of stent-graft limb occlusion following endovascular aneurysm repair with the Zenith stent-graft. Oshin et al. JEVT 2010
- Adjunctive stents (Wall stent/SMART stent) reduce incidence of external iliac limb occlusions

- 218 elective EVAR
- No extensions (98)
- Prox/distal extension (120)
- Similar morphology
- Similar outcomes
- Median 1 (1-4) pieces
- 30% uplift in costs

?per-case costing
Irresponsible Mavericks Getting what they Deserve?

- Poor case selection fuelled by
  - Enthusiasm?
  - Adjuncts?
- Poor durability and cost effectiveness of current EVAR practice
- NICE retribution?
- Appropriate case selection
  - Supported by adjuncts to improve durability

*NOT adjuncts to extend indications for EVAR*