Management Options For Type I Endoleaks

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CONFLICTS OF INTEREST

• Speakers Bureau: Cook, Gore, Medtronic
• Research Support: Cook, Gore, Medtronic
• Residency Support: Cook, Gore, Medtronic
• Proctor - Aptus (Medtronic)

INTRODUCTION

• Persistent Type Ia endoleak incidence 0.5-13%
• Increased incidence in failing older grafts or EVAR outside of IFU
• Loss proximal EVAR fixation is a dangerous failure event
  – All available devices prone to migration
  – Migration incidence 2% to 30% (definition, F/U length)
• Limited reports of durability of secondary interventions

RISK FACTORS FOR TYPE I ENDOLEAK

Available Interventions

• Bare Metal Stent - PALMAZ
• Proximal Cuff
• Conversion with AU/BIrurcated EVAR
• Staples Aptus
• Coils/Glue/Onyx
• Snorkel + Cuff
• Fenestrated Cuff / PMEG
• Branched Endografts
• Open Conversion
  – Plication
  – Graft explant

INcidence Of ENDOleaks By Device Type

USF experience 2013 (N=106)

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<thead>
<tr>
<th>Device</th>
<th>Aneurx</th>
<th>Excluder</th>
<th>Ancure</th>
<th>Zenith</th>
<th>Talent</th>
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<tbody>
<tr>
<td>Aneurx</td>
<td>63 (60%)</td>
<td>13 (13%)</td>
<td>11 (10%)</td>
<td>8 (8%)</td>
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OPEN AORTIC NECK PLICATION

- Circumferential apposition > 50% endograft to aortic wall
- Adequate oversizing of original endograft
- Absence of significant aortic calcification, thrombus or intimal disease
- Overlap of all endograft components by > 20 mm
- Structural integrity of endograft and/or cuffs

OBJECTIVES

- We sought to examine our experience using a selective management algorithm for proximal fixation loss after EVAR with long term CT-based follow-up of endograft stability and AAA exclusion.

METHODS

- Contrast-enhanced CT at 1 mo, 6 mo, annual intervals
- Aortic duplex alternated with non-contrast CT for high risk renal patients
- Primary Endpoints
  - Type 1A leak resolution
  - Aortic sac regression
- Secondary Endpoints
  - Freedom from rupture / explant / aneurysm-related mortality
  - Tertiary endograft salvage procedures

RESULTS

- Fixation Loss Following Initial EVAR
  - Occurred at 55±32 months on average
  - AAA size 6.9cm ±1.7cm
  - 20 (18%) previous Type II embolization
  - Concurrent Type II endoleak in 44 (36%)
  - Follow-up averaged 25±23 mo (range to 94 months)
RESULTS

Secondary Interventions N=108

- Endovascular Options
  - >25mm below Renal Arteries
  - >15mm below Renal Arteries
  - Proximal Extension Cuff N=49 (46.3%)
  - AUI Conversion N=49 (46.3%)
  - Adequate Suprarenal Aorta with 1A
  - Proximal Extension with Renal Chimer
  - Recalcitrant Leaks >70% Wall Apposition

- Hybrid

Open Salvage

Open Plication

Open Aortic Neck Plication N=4 (4.7%)

Open Partial Explant N=11 (10.4%)

Open Plication N=4 (4.7%)

AUI Conversion N=5 (4.7%)

Aorto-bi-iliac Re-lining N=8 (7.5%)

Prox + Distal fixation loss or structural failure

Proximal Extension Cuff N=49 (46.3%)

AUI Conversion N=49 (46.3%)

Proximal Extension with Renal Chimer N=14 (13.2%)

Recalcitrant Leaks >70% Wall Apposition

RESULTS

Intraoperative Adjuncts/ Conversions

- Palmaz Stent N=2
- Open Plication N=2
- Explication N=1

Early (N=3) ≤7 days

RESULTS

Late (N=7)

Average 47.6 months

AUI Conversion N=2

Additional Proximal Cuff N=2

Open Plication N=3

RESULTS

Freedom from Re-Intervention, Rupture and Explantation

88%

Overall Cohort

Aneurysm Sac Behavior By Intervention

- Stabilization 45%
- Regression 34%
- Growth 18%
- Unk 3%

RESULTS

- Successful salvage of proximal endograft fixation can be achieved within a selected treatment algorithm
- Multiple treatment modalities exist to re-establish proximal endograft fixation and should be tailored to individual patient’s anatomy to provide durable results.