INTRODUCTION

Type 1a Endoleaks
- Persistent Type 1a endoleak incidence 0.5-13%
- Increased incidence in failing older grafts or EVAR outside of IFU
  - Primary
  - Gutter-leaks after Ch-EVAR
  - Delayed
    - Neck dilation
    - Migration

RISK FACTORS FOR ENDOLEAKS

INTRAOPERATIVE ENDOLEAKS

- All immediate Type Ia endoleaks should be treated
  - Low Flow
  - High Flow
- Management
  - Balloon dilation
  - Proximal Cuff
  - Aptus Endoanchors
  - Palmaz Stent
  - Embolization/coils
INTRAOPERATIVE ENDOLEAKS

INTRAOPERATIVE ENDOLEAKS

GUTTER LEAKS

78 patients
144 parallel grafts
36% intraoperative gutter leaks

GUTTER LEAKS

GUTTER LEAKS

Intra-operative Gutter Endoleaks

28 Patients
Intra-Operative Gutter Leaks

17 Patients – Early Filling/Sac Enhancement

11 Patients – Low Flow/Delayed/Sac Enhancement

Repeat Angioplasty
(N = 14)

Proximal Cuff Placement
(N = 6)

Endostaple Placement
(N = 3)

Open Conversion for Proximal Plication
(N = 1)
Intra-operative Gutter Endoleaks

- 28 Patients
  - 17 Patients – Intra-Operative Gutter Leaks
  - 11 Patients – No Intra-Operative Treatment
  - 6 Patients – Intra-Operative Resolution
  - 11 Patients – Left OR with Low Flow Endoleak

Gutter Endoleaks at 1 Months

- 73%
  - Resolution of low-flow gutter endoleaks with observation alone

PERSISTENT TYPE 1 ENDOLEAKS

- 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

AVAILABLE INTERVENTIONS

- Bare Metal Stent – PALMAZ
- Proximal Cuff
- Conversion with AUI/Bifurcated EVAR
- Staples Aptus
- Coils/Glue/Onyx
- Snorkel + Cuff
- Fenestrated Cuff (PMED)
- Branched Endografts
- Open Conversion
  – Plication
  – Graft explant

USF Experience 2001-2013

Procedures for Proximal Fixation Loss N=106

- Type 1A leak
  - N=26 (25%)
- Loss of Endograft Fixation
  - N=41 (42%)
- Type 1A leak and Fixation Loss
  - N=35 (33%)

AmosRx Endurant AneuRx Zenith Endologix Talent

- 63 (60%) 13 (12%) 11 (10%) 8 (8%) 5 (5%) 5 (5%)
**RESULTS**

**Endovascular Options**

- <25mm below Renal Arteries
- >25mm below Renal Arteries
- Proximal Extension Cuff
  - N=49 (46.3%)
- AUI Conversion
  - N=10 (17.9%)
- Proximal + Distal Repair or structural failure
- Adequate Suprarenal Aorta with 1A
- Proximal Extension with Renal Chimney
  - N=14 (13.2%)
- Recalcitrant Leaks
  - N=6 (5.6%)
- Wall Apposition

**Open Salvage**

- Open Aortic Neck Plication
  - N=4 (4.1%)
- Open Parastomal Repair
  - N=21 (19.6%)

**Explant**

- AUI Conversion
  - N=19 (17.9%)
- Aorto-bi-iliac Re-lining
  - N=8 (7.5%)
- Proximal Extension with Renal Chimney
  - N=14 (13.2%)

**RESULTS**

**Freedom from Re-Intervention, Rupture and Explantation**

- Combined Groups
  - Freedom from Re-Intervention, Rupture and Explantation: 88%
  - # At Risk: 106 91 76 71 60 54 45

**RESULTS**

**ANEURYSM SAC BEHAVIOR BY INTERVENTION**

- Overall Cohort
  - Regression: 45%
  - Growth: 18%
  - Stabilization: 34%

**CONCLUSIONS**

- Low flow Type 1a may resolve spontaneously in majority of cases
- 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.