Description and Outcomes of a Surgical Technique for Treating Arteriovenous Fistula Pseudoaneurysms

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No Disclosures
Introduction

- Pseudoaneurysms (PSA) occur in 10% of arteriovenous fistula (AVF)
  - Sequelae include bleeding, rupture, skin breakdown, infection and thrombosis

- Etiology of PSA
  - Traumatic wall puncture leads to degeneration of fistula wall with subsequent dilatation
Introduction

- Management of PSA
  - Does the pseudoaneurysm require treatment?
    - Is the access painful?
    - Is the patient concerned about appearance?
    - What is the skin integrity over the fistula?
      - Ulceration?
      - Necrotic eschar?
    - Is there a cannulation zone away from the PSA?
  - Is the access functional?
    - Is the patient receiving adequate dialysis?
Introduction

- Treatment Strategies
  - Surgical
    - Ligation / Excision
    - Revision
      - Primary Repair / Aneurysmorrhaphy
      - Segmental Bypass w PTFE
  - Endovascular
    - Stent Grafting
Prior Research

- Endovascular Treatment Options
  - Variable outcomes
Prior Research

- Open Feasibility Studies
  - Woo K et al. J Vasc Surg 2010

- Good outcomes to maintain autogenous hemodialysis access
Pseudoaneurysm of Left Arm Fistula with Skin Erosion
Technique
Technique
Technique
Technique
Technique
Methods

- Retrospective Review, 2001 - 2013
  - Greenville Health System Vascular Access Database
  - Medical Records

- Endpoints
  - Technical Success
  - Functional Patency
  - Perioperative Complication Rate
Results

- 24 Surgical Revisions
  - 20 Patients
    - 9 Women, 11 Men
- Configuration of Access
  - 5 Radial-cephalic AVF
  - 11 Brachial-cephalic AVF
  - 4 Brachial-basilic AVF
- Mean Follow-Up
  - 36 Months
- Indications for Revision
  - Skin Necrosis/Erosion (17)
  - Pain (2)
  - Bleeding (2)
  - Limited Sites for Cannulation (2)
  - Infection (10)
  - None for Size of Aneurysm
- 3 Emergency Procedures
Results

- **Technical Success**
  - 23 of 24 cases (96%)

- **Treatment for Concomitant Outflow Stenosis**
  - Four patients (17%)

- **Placement of Tunneled Hemodialysis Catheter**
  - Seven patients (35%)
Results

- Perioperative Complications
  - Four patients (17%)
    - Bleeding requiring return to OR
    - Bleeding with readmission to hospital
    - Thrombosis with thrombectomy and vein patch angioplasty
    - Infection requiring ligation and excision
Results

- Functional Patency at 12 Months – 85%
- Secondary Intervention to Maintain Access Patency
  - 10 patients
    - None from surgical revision of PSA
- No Late Failures due PSA Revision
Conclusions

- Open surgical repair of AVF PSA
  - Simple technique
  - Avoids need for placement of PTFE
  - Good long-term patency
  - Low complication rate
- Dialysis catheter unnecessary in most cases

- Our technique should be considered as a first-line treatment of AVF with PSA