TRANSPLANT RENAL ARTERY ANASTOMOTIC PSEUDOANEURYSM

Fellow: Vivek V. Patil MD
Attending: Robert A. Lookstein MD
Program/Dept: Icahn School of Medicine at Mount Sinai, New York, NY
CHIEF COMPLAINT & HPI

- **CC:** Low Back Pain and Fever
- **HPI:**
  - 50 year old female with ESRD secondary to obstructive uropathy status post renal transplant
  - Post-Transplant course complicated by sepsis requiring ICU admission
RELEVANT HISTORY

- Past Medical History
  - Cervical cancer
  - ESRD secondary to obstructive uropathy

- Past Surgical History
  - Pelvic exenteration for cervical cancer treatment
  - Radiation therapy to pelvis
  - Colostomy (bowel section performed due to repeated bowel obstructions from adhesions)

- Family & Social History: non-contributory

- Review of Systems: negative except as above

- Medications

- Allergies
RELEVANT HISTORY

- **Medications**
  - Immunosuppression: mycophenolate mofetil, prednisone, tacrolimus
  - CV: metoprolol
  - Heme: Clopidogrel 75 mg daily; enoxaparin 30 mg daily
  - Psych: bupropion, zolpidem, alrazolam, gabapentin
  - Endo: levothyroxine

- **Allergies**
  - nitrofurantoin
  - Epoetin alfa
DIAGNOSTIC WORKUP

- Physical Exam
  - Abdomen diffusely tender without rebound or guarding
- Non-Invasive Imaging: CTA obtained
DIAGNOSTIC WORKUP

Link to Video
DIAGNOSIS

- Working Diagnosis: Transplant Renal Artery Anastomotic Pseudoaneurysm
- Treatment Options:
  - Open Repair
  - Endovascular Intervention
  - Palliative Management
- Plan after Interdisciplinary Discussion Endovascular Intervention was chosen given the patient’s extensive prior pelvic surgery
INTERVENTION

Link to Video
INTERVENTION

Atrium iCAST™ Covered Stent
INTERVENTION

Link to Video
INTERVENTION

Flash Ostial Flare Balloon

http://www.accessclosure.com/products/flash-ostial/
INTERVENTION – FINAL ANGIOGRAM

[Link to Video]
CLINICAL FOLLOW UP

- Post Procedure Day 1
  - Abdominal/low back pain stable
  - CBC and Cr stable
  - Ultrasound with satisfactory renal perfusion; no PSA detected
CLINICAL FOLLOW UP

- 6 months Post-Procedure Clinic Visit
  - Serum Creatinine at baseline (Cr 0.9)
  - Off antibiotics
  - Follow-up CTA scheduled
All of the following are potential etiologies of transplant anastomotic pseudoaneurysm except:

- **A: arterial wall injury**
- **B: defective suture technique**
- **C: infection**
- **D: immunological factors**
- **E: hypotension**
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CONTINUE WITH CASE
SUMMARY & TEACHING POINTS

- Diagnosis: Transplant Renal Artery Anastomotic Pseudoaneurysm
- Intervention: Covered stent placement and ostial flare balloon angioplasty
- Teaching Points:
  - Endovascular technology may be used in such patients for treatment of this rare post-transplant complication
  - Endovascular technology may be particularly well-suited in patients who are poor surgical candidates, as illustrated in this case (extensive prior pelvic surgery and radiation)
REFERENCES & FURTHER READING


# REFERENCES & FURTHER READING

**Table 1 Clinical data of patients with pseudoaneurysm following renal transplantation.**

<table>
<thead>
<tr>
<th>Pt No</th>
<th>Age (y)</th>
<th>Time to transplant</th>
<th>Rejection</th>
<th>Clinical presentation</th>
<th>Size (cm)</th>
<th>Treatment/date</th>
<th>Intraoperative culture</th>
<th>Major complications</th>
<th>LOS (d)</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>43/M</td>
<td>7 mo</td>
<td>Chronic</td>
<td>Local discomfort, pulsatile mass</td>
<td>5.8</td>
<td>Excision, polyester interposition graft, Tn (1982)</td>
<td>Negative</td>
<td></td>
<td>11</td>
<td>Alive: 61 mo Contralateral Tx</td>
</tr>
<tr>
<td>2</td>
<td>39/F</td>
<td>49 mo</td>
<td>None</td>
<td>Asymptomatic</td>
<td>5.5</td>
<td>Excision, polyester interposition graft, hypogastric artery auto transplantation (1987)</td>
<td>Negative</td>
<td></td>
<td>9</td>
<td>Alive: 39 mo</td>
</tr>
<tr>
<td>3</td>
<td>40/F</td>
<td>78 days</td>
<td>None</td>
<td>Fever, local pain, tender mass</td>
<td>6.8</td>
<td>Excision, ePTFE crossover femoral–femoral graft, Tn (1992)</td>
<td>Candida A</td>
<td>Pneumonia</td>
<td>13</td>
<td>Alive: 43 mo Contralateral Tx</td>
</tr>
<tr>
<td>4</td>
<td>67/M</td>
<td>5 mo</td>
<td>Chronic</td>
<td>Sudden abdominal pain, hypotension rupture</td>
<td></td>
<td>Stent-grafting (Hemobahn*, 8 mm x 5 cm) Drainage/Tn (5 days later) (1999)</td>
<td>Negative</td>
<td>Wound infection and dehiscence</td>
<td>18</td>
<td>Died: MI (27 mo) Contralateral Tx</td>
</tr>
<tr>
<td>5</td>
<td>50/M</td>
<td>7 mo</td>
<td>Chronic</td>
<td>Anemia, local pain, tender mass</td>
<td>12</td>
<td>Excision, silver polyestera interposition graft, Tn (2005)</td>
<td>Negative</td>
<td>Iliac fossa abscess and wound infection Sepsis</td>
<td>10</td>
<td>Died: MOF (10 d)</td>
</tr>
<tr>
<td>6</td>
<td>47/M</td>
<td>10 mo</td>
<td>None</td>
<td>Fever, pulsatile mass</td>
<td>4.7</td>
<td>Excision, silver polyestera interposition graft, Tn (2009)</td>
<td>Candida A Staph E</td>
<td></td>
<td>16</td>
<td>Alive (9 mo)</td>
</tr>
</tbody>
</table>

Pt, patient; Tx, transplant; Tn, transplant nephrectomy; MOF, multiple organ failure; MI, myocardial infarction.

*W. L. Gore & Assoc, Flagstaff, Arizona.

*a InterGard Silver prosthesis (Datascope InterVascular, La Clotat, France).