Nuts and Bolts in ED Surgery

Andrew C. Kramer, MD
Associate Professor of Surgery
University of Maryland School of Medicine

Role of Surgery in Treating ED

• 1. Penile implant surgery
• 2. Venous ligation procedures
• 3. Arterial bypass surgery

Bypass Procedures

• Candidates with ED related to pelvic fracture, trauma to the perineum, or prolonged bicycling should consider
• Workup is primarily vascular

Venous surgery in erectile dysfunction. The role of dorsal-venous-vein ligation and spongiosplasty for impotence.

Abstract

We report here on our surgical experience with venous leakage of the cavernous bodies. Out of 175 patients operated on, 134 were available for long-term follow-up. These data on the cavernous venous leakage, retroplacental and retrovesical, of the different surgical treatments were carried out in patients with clinical and radiographic findings of deep dorsal vein leakage. The patients were divided into two groups: 1) those with symptomatic and 2) those without symptoms. The results of these treatments were evaluated for efficacy and complications. The overall success rate for the dorsal vein ligation was 90%, and for the spongiosplasty it was 85%. The complications included hematoma formation, infection, and pain. The success rate for the dorsal vein ligation was significantly higher than for the spongiosplasty. The complications were minimal and transient.

Penile Arterial Reconstruction

• Dissection of the dorsal penile artery
Penile Arterial Reconstruction

• Exposure and mobilization of the donor artery

Role of Urologist in Sexual Health Medicine:
Educate public and health professionals about results of penile implant surgery

<table>
<thead>
<tr>
<th>Total Men In US</th>
<th>Men With ED In US</th>
</tr>
</thead>
<tbody>
<tr>
<td>140,000,000</td>
<td>17,000,000 over 4 years</td>
</tr>
<tr>
<td>43,000,000</td>
<td>68,000 over 4 years</td>
</tr>
<tr>
<td></td>
<td>PDE 5</td>
</tr>
</tbody>
</table>

Infection control

• Infection control has progressed significantly
• The biggest things you can do are adhere to: --minimal touch techniques and --perform a slick, streamlined procedure

Everything else is how you deal with complications
Complications

- Two basic things can happen:
  - Immediate infection - either remove, salvage, or something in between, depends on the patient and your risk tolerance
  - Various other tubing/cylinder/pump placement issues - revision procedures typically can fix them all, and when learned, are straightforward
Complications:

- Infections
- Everything else

Prevention

- What is evidence based?
  vs
- What is Superstition?
Adhere to certain tenets
(15 step program: <1% infection)

1. Seamless and efficient operation.
2. All glitches worked out, complete quickly
3. Minimizes skin contact, minimizes time device is open to air, preserves blood supply

Step 2: Antibiotics

- Daptomycin 500mg IV (bacteriocidal) and Gentamycin 80mg IV
- Vancomycin 1gm every 12 hrs until discharge
- Home on Augmentin 875mg PO BID x 5 days

Step 3:

- All surgeons use new, clean scrubs for every case

Step 4:

- Use a certified operating room, and try to minimize traffic

Step 5:

- Patient is prepped with a surgeon who wears a full gown and gloves, does a full scrub and prep

Step 6:

- Prep is Hibiclens scrub, then the use of 1 chloroprep Stick Prep
- With all drapes in place, use a 2nd Chloroprep stick prep
Step 7:
• Three layers of drapes are used—never touch skin while placing drapes
• Paper sticky drapes
• Laparotomy drape
• Extremity drape

Step 8:
• Keep a close eye on the back table during the process. Do not let it get compromised.

Step 9:
• Foley is placed steriley on the field, betadine put on catheter, bladder drained, and suction tip used to drain urine is thrown away and replaced

Step 10:
• All surgeons replace gloves before skin incision
• Any time skin is touched, that glove is changed
• Two pairs of gloves at all times

Step 11:
• Once corpora are opened, they are bathed and irrigated with antibiotic solution
• Dilute irrigation from bulb syringe is used generously, in my case is BAN (bacitracin) solution with Gentamycin added to it

Step 12: *device prep*
• Soak/Dip device in a very concentrated antibiotic solution (Polytrim B ophthalmic solution)
• Prep device directly on the field, inches from incision, not on a “back” table
• Only new or under-gloves touch a new device
• Device goes from box w/ antibiotic, to corpora. If there is transit space, use a brand new towel as a segue
Step 13:
- Pump, during prep time, is wrapped in a gauze, or sits on a sterile/new towel
- The pump often appears to be a nidus of infection, and it has tendency to sit on scrotum for longest. Minimize this effect.

Step 14:
- Final irrigation is done with device installed. No blood clots can ever be seen on pump or cylinders, or they are irrigated off

Step 15:
- Close in multiple layers, so even if things separate, device cannot be exposed

Auxiliary Procedures
- Modeling:
  CPT: 54360
  ($740.67)
- Ventral phalloplasty:
  CPT: 55175
  ($366.95)

Note: 54405= $826.22 in 2010
ORGANISMS THAT CAUSE IPP INFECTIONS

<table>
<thead>
<tr>
<th>Organism</th>
<th>% of Reports</th>
<th>Average Number of days from implantation to onset</th>
<th>Median Number of days from implantation to onset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staphylococcus Epidermidis 34%</td>
<td>366</td>
<td>154</td>
<td></td>
</tr>
<tr>
<td>Staphylococcus Aureus      29%</td>
<td>402</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>Candida Albicans           11%</td>
<td>215</td>
<td>118</td>
<td></td>
</tr>
<tr>
<td>Enterococcus               9%</td>
<td>NI</td>
<td>NI</td>
<td></td>
</tr>
<tr>
<td>Escherichia Coli           8%</td>
<td>764</td>
<td>389</td>
<td></td>
</tr>
<tr>
<td>Pseudomonas Aeruginosa     6%</td>
<td>106</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>Klebsiella Pneumonia       3%</td>
<td>208</td>
<td>175</td>
<td></td>
</tr>
</tbody>
</table>


Salvage Procedure

Surrounding erectile tissue did not appear infected.
Salvage Procedure

1. Culture and sensitivity of purulent material surrounding device
2. Explant device
3. Place red rubber irrigating catheters in proximal and distal corpora
4. Seven irrigating solutions:
   - Bacitracin, actinomycin, neomycin (250 ml saline)
   - 1/2 strength peroxide (250 ml)
   - 1/2 strength betadine (250 ml)
   - Gentamycin (6 mg/kg), vancomycin (1 gm) in 5 liters saline - administer by water pic
   - 1/2 strength betadine (250 ml)
   - 1/2 strength peroxide (250 ml)
   - Bacitracin, actinomycin, neomycin (250 ml saline)
5. Close wound with temporary staples (+/-)
6. Re-prep, re-drape, new sterile instruments
7. Insert new penile prosthesis
8. IV antibiotics x 3 days
9. Oral antibiotics x 1 month (+/-)

Device Malfunction

- Look for common things first such as tubing breaks

Everything Else

- Malfunctions
- Need for revisions
- Intraop or Postop complications and emergencies
SST Deformity

Posterior Capsule Repair

Impending erosion

• Posterior capsule repair works as well (proximally)

• Can also approach this distally (with or without tutoplast):
Perforation:

- **Distal**: maximal control during Furlow needle passage is essential
- **Cannot** happen

- **Proximal**: ACE. Angle. Experience. Control.
- **Not a major issue** if it occurs

**Implant Perforation**

- **Proximal**
  - **Can usually continue with surgery**
  - **Use contralateral corpora to size implant**
  - **Different surgical techniques described to correct defect**
    - Suture Sling
    - Dacron Sock

- **Distal**
  - **General recommendation is to abort penile implantation**
    - Remove contralateral cylinder (if already placed)
    - Placement of Foley catheter (3-5 days)
    - Oral antimicrobial therapy
  - **Special cases implant can be performed**
    - In cases with severe fibrosis in which the corporal bodies are separate chambers, the contralateral cylinder can be placed.

**Suture Sling**

- Suture goes from proximal tunica – rear tip - other side of proximal tunica.
- After placement of new ipp, you inflate the implant prior to tying the prolene suture for proper anchoring length.

Swelling/hematomas

- Do your best to minimize
- Be strict with post-op activity restrictions
- Mummy wrap, drain, foley in overnight, rest


Conclusion: infection control

- Infection control has progressed significantly
- The biggest things you can do are adhere to: -- minimal touch techniques and
  - perform a slick, streamlined procedure

Everything else is how you deal with complications
Conclusion: complications

- Two basic things can happen:
  - Immediate infection - either remove, salvage, or something in between, depends on the patient and your risk tolerance
  
  - Various other tubing/cylinder/pump placement issues - revision procedures typically can fix them all, and when learned, are straightforward