Surgical Issues with PD Catheters

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History of PD Catheters
- First described in the 1920s
- Chronic PD initiated in 1960s
- Stalwarts of PD
  - Tenckhoff
  - Moncrief/Popovich
  - Toronto & Missouri groups

By the end of 2010, >120,000 pts on PD worldwide
About half a million people in the US with ESRD

HD is currently more prevalent than PD

Studies have shown short term benefit with PD, likely due to preservation of kidney function, and ability to do home dialysis

Cheaper than HD

Patient/family personal responsibilities

Better transplant candidates?
Overall catheter survival is about 88%/yr (regardless of type).

Previous large randomized prospective trials have really failed to show difference in survival or complication rates based on catheter type.


2014 meta-analysis that showed straight catheters had high function rate at 2 yrs vs coiled tip (79% vs 55%)

Double cuffed caths have longer survival and less peritonitis episodes

Some evidence that weighted tip catheters may function better

Hagen SM Kidn Int 2014; 85:920
Flanigan M. Perit Dial Int 2005; 25:132
Sanchez-Candel, Perit Dial Int 2016; 36:52
Placement Techniques

- Percutaneous technique
- Fluoroscopy (interventional radiology)
- Surgery
  - Open
  - Laparoscopic

Bury the Catheter? Moncrieff-Popovich Technique

- Offers complete sinus tract healing to reduce peritonitis episodes
- Conflicting studies regarding actual decrease in peritonitis rates
- Prolonged burial has higher rates of primary non function (up to 10%)

Brown PA, Nephrol Dial Transpl 2008;23:2299

A Catheter not flushed shall clog!
<table>
<thead>
<tr>
<th>Implantation Method</th>
<th>Author</th>
<th>Catheters (n)</th>
<th>Prior surgery</th>
<th>Leak (%)</th>
<th>Flow dysfunction</th>
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<td>Ozener et al. (2001)</td>
<td>133</td>
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<td>Rosenbath et al. (2008)</td>
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<td>Y-TEC laparoscopy</td>
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<td>Main et al. (2006)</td>
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<td>Corpus et al. (2009)</td>
<td>408</td>
<td>57</td>
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</table>

**Why Laparoscopy?**

- Ability to visualize placement
- Ability to perform lysis of adhesions
- Ability to diagnose small hernias
- Ability to place catheters
- Shown to be cost effective
- Allows Quick Start

Laparoscopic techniques utilize peritoneal dialysis in the difficult abdomen.

Lysis of Adhesions

- Previous abdominal surgery
- Decision if PD feasible or not

Post Peritonitis Adhesions
Omentopexy
- Policeman of the abdomen
- Tacking to upper abdominal wall prevents it from reaching pelvis

Catheter repositioning
Omentum is not the only fat that we are worried about!

Appendices Epiploicae

Catheterpexy
- Not commonly performed
- For patients with recurrent malpositioning
- Caution on the bowstring effect!
Look for pre-existing hernias if present – likely will worsen once PD started!

- Hernias can be fixed (may need mesh)
- Consider switching to temporary HD while hernia heals

Look for hernias!
Hemoperitoneum

- Not that uncommon
- Usually from retrograde menstruation
- Significant blood may require imaging and/or surgical eval

Colonoscopies Gone Wild!

Endometriosis as a Cause of Hemoperitoneum
Choosing the exit site for your patient

- Men vs. women
- What side they sleep on
- Morbidly obese
- Colostomies
- Small children

Bleeding from Exit Site
CAPD or Machine Cycler?

- CAPD more physiologic
- In supine position, catheter can float
- CAPD empties by gravity, cycler empties by active suction

How about transplant?

- Patients on PD tend to do better immediately post transplant
- In cases of DGF, may need to temporarily do HD
- Typically, PD cath removed 6-8 weeks post transplant, but often removed earlier

Thank You!