WHAT PD TECHNIQUE PLACEMENT IS BEST?

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CATHETER DESIGN AND OUTCOME

CATHETER DESIGN AND OUTCOMES

1. ASAIO Trans 36:M497- M500, 1990
3. Perit Dial Int 14:70-74, 1994
7. Perit Dial Int 16:S333-S335, 1996 (suppl 1)
**COILED VS STRAIGHT TIP**

- Coiled catheter
  - Allows for better flow
  - Less inflow pain
  - Less propensity for catheter migration
  - Less propensity for omental wrapping
  - Less trauma to the viscera

Perit Dial Int 12:384-389, 1992
Perit Dial Int 25:132-139, 2005

**STRAIGHT VERSUS COILED PD CATHETER**

- Risk of peritonitis (5 trials, 324 patients)
  - RR 1.14; 95% CI 0.73 to 1.79
- Peritonitis rate (4 trials, 2589)
  - RR 0.89; 95% CI 0.63 to 1.26
- Exit-site/tunnel infection (6 trials, 332 patients)
  - RR 1.26; 95% CI 0.73 to 1.79
- Catheter removal/replacement (5 trials, 275 patients)
  - RR 1.11, 95% CI 0.53 to 2.31

Cochrane Database Syst Rev. 2004

**DOUBLE-CUFF VERSUS SINGLE-CUFF**

- “benefit of double-cuff catheters was seen only among those initiating PD before 2001.”
- “upward trend may also be related to greater use of double-cuffed catheters.”
- “single-cuff catheters had a lower infection rate than double-cuff catheter.”


**CATHETER DESIGN AND OUTCOMES**

Catheter type, placement and insertion techniques for preventing peritonitis in peritoneal dialysis patients

No advantage for Single or double cuff Median or Lateral incision

Cochrane Database Syst Rev. 2004

**CATHETER DESIGN AND OUTCOMES**

- Time to Catheter Reposition
  - +16% Vs 14% (P 0.77)
- Time to Catheter-Associated Infection
  - +47% Vs 53% (P 0.60)
- Technique Survival
  - Inadequate small solute clearance (P < 0.05)
  - 2 yr patient survival rates 79% Vs 88%

Coiled Versus Straight Peritoneal Dialysis Catheters: A Randomized Controlled Trial and Meta-analysis

Jingcan Xie, MD,1,2 Kizyacht Kiyuk, MD,2 Hong Ren, MD,1 Ping Zhu, MD,1 Xiaomin Huang, MD,1 Pengfan Shen, MD,1 Tian Xu, MD,1 Xiaonong Chen, MD,1 and Nan Chen, MD,1

Background: Variations in peritoneal dialysis catheter design include differences in numbers and shapes of subcutaneous paths (skin neck vs Tenckhoff), and shapes of intra-abdominal segments (straight versus coiled). The relative benefits of these designs have not been studied adequately. The objective of this study was to compare the clinical outcomes of coiled-versus-straight-end peritoneal dialysis catheters.


Open Surgical

- Obese patient
- Shorter surgery time compared to laparoscopic technique

Laparoscopic

- Direct Visualization
- Adhesions are disrupted
- Omenspty

PLACEMENT TECHNIQUES

OPEN SURGICAL

LAPAROSCOPIC

FLUOROSCOPIC

PERITONEOSCOPIC

TECHNIQUES- PROS

Fluoroscopic

- Bedside/Office procedure (Lower Cost)
- Local Anesthetic (Lower Morbidity)
- Lower Complications

Peritoneoscopic

- Bedside/Office Procedure (Lower Cost)
- Local Anesthesia (Lower Morbidity)
- Lower Complications
- Direct Visualization of catheter

Peritoneal

- Technique does not allow corticosteroid or catherectomy compared to laparoscopic placement
- Bowel Perforation

Techinques- CONS

Open Surgical

- Higher risk
- Increased complications: Catheter migration, leak, Outflow drainage complication
- Large skin incision

Laparoscopic

- Off faculty
- Increased hospital stay
- Bowel Perforation

Fluoroscopic

- Blind Catheter placement
- Bowel Perforation
- Catheter Migration
- leaks, Cost

Peritoneoscopic

- Technique does not allow corticosteroid or catherectomy compared to laparoscopic placement
- Bowel Perforation

some one lied to you!

one size does not fit all!!
**LSU-SHREVEPORT EXPERIENCE - FLUOROSCOPY**

<table>
<thead>
<tr>
<th>COMPLICATION</th>
<th>INCIDENCE %</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLUID LEAK</td>
<td>1/43 (2.3)</td>
<td>NO INTERVENTION</td>
</tr>
<tr>
<td>CATHETER DYSFUNCTION</td>
<td>1/43 (2.3)</td>
<td>SURGICAL REVISION OF MIGRATED TIP</td>
</tr>
<tr>
<td>PERI-OPERATIVE INFECTION</td>
<td>0</td>
<td>WITHIN 14 DAYS AFTER PLACEMENT</td>
</tr>
<tr>
<td>PERI-OPERATIVE BLEEDING</td>
<td>1/43 (2.3)</td>
<td>LIGATION OF BLEEDING VESSEL IN TUNNEL</td>
</tr>
<tr>
<td>VISCERAL PERFORATION</td>
<td>0</td>
<td>MINIMAL RISK OF BOWEL PERFORATION</td>
</tr>
<tr>
<td>UNSUCCESSFUL ATTEMPTS</td>
<td>3/43 (6.9)</td>
<td>REQUIRED SURGICAL PLACEMENT</td>
</tr>
</tbody>
</table>

**FLUOROSCOPIC Vs SURGICAL**

Comparison of Outcomes of Peritoneal Dialysis Catheters

**PERITONEOSCOPIC Vs SURGICAL**

Peritoneoscopic Versus Surgical Placement of Peritoneal Dialysis Catheters: A Prospective Randomized Study on Outcome AJKD. 1999, 33;1:118-22

**RECOMMENDATIONS**

**GUIDELINE 4: IMPLANTATION TECHNIQUE**

- **Guideline 4.1** Local expertise at individual centers should govern the choice of method of PD catheter insertion (1B)
- **Guideline 4.2** Each PD unit should have the ability to manipulate or reimplant PD catheters when necessary (1B)
- **Guideline 4.3** Urgent removal of PD catheters should be available where necessary (1A)
- **Guideline 4.4** Timely surgical support should be available for the review of PD patients (1A).


**GUIDELINE 5: FACILITIES**

- **Guideline 5.1** Dedicated area be used for catheter insertion with appropriate staffing and patient monitoring facilities (1A)
- **Guideline 5.2** No particular catheter type is proven to be better than another (2C)
- **Guideline 5.3** Catheter of a suitable size should be used (2C)
- **Guideline 5.4** PD catheters should be inserted as day case procedures as long as this does not compromise the quality of care (2C)

GUIDELINE 6-7: TRAINING-AUDIT

* Guideline 6.1 Training should be available to all trainees with an interest (1C)
* Guideline 6.2 PD catheter insertion should not be delegated to inexperienced unsupervised operators (1A)
* Guideline 7.1 Regular audit at not less than 12-month intervals of the outcome of catheter insertion as part of multidisciplinary meetings of the PD team and the access operators (1B)

NEED MORE LEVEL 1 EVIDENCE

Laparoscopic versus open peritoneal dialysis catheter insertion: the LEAD trial. A study protocol

Abstract
Background: Open peritoneal dialysis (PD) is associated with a higher rate of peritonitis and PD catheter loss compared with laparoscopic PD catheter insertion. In a study of 70 fully accessible and fully functioning dialysis catheters, several complications occurred in the open group, such as inflow and outflow obstruction, peritonitis, exit-site infections, leakage and migration, or loss of peritoneal access. Currently, different local protocols are used for PD catheter insertion. The aim of the LEAD trial is to compare the complications of laparoscopic PD catheter insertion with open PD catheter insertion.

Conclusions
Fluoroscopic and peritoneoscopic techniques are fairly straightforward with minimal complications

Local expertise at individual centers should govern the choice of method of PD catheter insertion