PD catheter insertion: Fundamentals

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Disclaimer

- No conflicts to report
- I put in PD tubes
Objectives

• Review the fundamentals of PDC insertion
• Review the current methods of placement
• Review the advantages and disadvantages of bedside PDC placement
• Review relevant ISPD guidelines
• Recommendations
The truth

• If you have immediate access to a laparoscopic surgeon/facility where the surgeon is experienced in PDC placement, understands the forces that drive PDC migration and non function, who cares about her/his outcomes, and is interested in helping your program...

• It is the best approach for your patients and your program
Also true...

• “In uncomplicated patients, no uniform advantage of any operative technique over the classic “bedside” or ambulatory percutaneous catheter placement is evident. In complex cases, there may well be advantages of laparoscopic insertion. **Operator experience is more likely to dictate outcomes (ISPD, 2008)**
Fundamentals of PDC placement

• Experts agree:
  • 2 cuff catheter—otherwise type doesn’t matter
  • Landmark the patient for entry and exit site to facilitate PdC placement in pelvis (left), exit with good visualisation away from clothes line
    • standing
  • Use of imaging techniques (Ultrasound, fluroscopy, laparoscopy) ensures safe entry into peritoneal cavity and placement
  • Check inflow and outflow—position does not guarantee function
  • Secondary procedures—omentopexy, rectus sheath tunneling may improve catheter survival
Methods of insertion

• Non surgical (+/- sedation)
  • Unassisted seldinger catheter placement
  • Assisted seldinger catheter placement
  • Peritoneoscopic (Y-tec) method
  • Radiologic—assisted seldinger

• Surgical (General anaesthesia)
  • Basic laparoscopic
  • Advanced laparoscopic
  • Open dissection
Methods of insertion

• No RCT’s

• Outcome data largely single centre

• Primary non function, leaks, infections poorly monitored—no standards set

• Determined by local resources, experience, size of program
What is bedside insertion?

- Nephrologist, Surgeon, Non nephrologist physician, nurse
- Outside of OR-radiology suite, procedure room
- Local anaesthesia +/- conscious sedation
- +/- imaging assistance
  - Real time ultrasound, ultrasound mapping, fluroscopy, contrast
- Minimally invasive
- Midline or paramedian
What is surgical insertion?

• Laparoscopy--video guided*, midline or paramedian
• Laparoscopy plus—assessment of pelvic cavity
  • Lyse adhesions
  • Move the peritoneum
  • Secondary procedures
• Both are small incisions—midline or paramedian
  • Allow for rectus sheath tunneling
• Mini Laparotomy (open)
• *may be blind at start
How do you choose?

• Patient characteristics-size, scars, bowels, bladder
• Timing of dialysis start
• Your centers’ outcomes
• A dedicated operator
• Resources
Advantages of a bedside PDC program

• Kidney clinic/dialysis team in charge of timing
  • Improved incidence and prevalence of PD
• Catheter planning/ follow up and training coordinated at one place
• Little patient “downtime”
• Little “perioperative” risk
• Urgent start possible
• For the uncomplicated patient (~80%) same outcomes as surgical techniques—WITH an experienced proceduralist
• Catheter removal streamlined
• Cost
Disadvantages of a bedside program

• Loss of surgical capability
• Hassle factor—what if the catheter doesn’t work?
• Maintenance of skills—size factor
CLINICAL PRACTICE GUIDELINES FOR PERITONEAL ACCESS

Ana Figueiredo,¹ Bak-Leong Goh,² Sarah Jenkins,³ David W. Johnson,⁴ Robert Mactier,⁵ Santhanam Ramalakshmi,⁶ Badri Shrestha,³ Dirk Struijk,⁷ and Martin Wilkie³

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Clinical Practice Guidelines for Peritoneal Access (Modified GRADE of Recommendation and Evidence)

Guideline 1: Access team

Guideline 1.1 We recommend that each center should have a dedicated team involved in the implantation and care of peritoneal catheters (1C).
Guideline 4: Implantation technique

Guideline 4.1 We recommend that local expertise at individual centers should govern the choice of method of PD catheter insertion (1B).

We suggest that no particular catheter type is proven to be better than another (2C).
Guideline 6: Training

Guideline 6.1 We recommend that PD catheter insertion training should be available to all trainees with an interest (1C).

Guideline 6.2 We recommend that PD catheter insertion should not be delegated to inexperienced unsupervised operators (1A).
Guideline 7: Audit

Guideline 7.1 We recommend that there should be 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.

Catheter patency: more than 80% of catheters should be patent at 1 year (censoring for death and elective modality change)

Complications following peritoneal dialysis catheter insertion:
- Bowel perforation: < 1%
- Significant hemorrhage: < 1%
- Exit-site infection within 2 weeks of catheter insertion: < 5%
- Peritonitis within 2 weeks of catheter insertion: < 5%
- Functional catheter problem requiring manipulation or replacement or leading to technique failure: < 20%
Global Issues

• Availability of the operating room—inefficiencies
• Technological advances—I have to learn ultrasound!!!
• Training—surgeons and others—not currently in Canadian training curriculum for Nephrology or surgery
• Quality initiatives
  • Auditing
Recommendations for successful PDC insertions:

- Identify key stakeholders
  - This includes admin
- We have great “vascular access” teams—make one for PD
- Identify if PD access is a contributor to your current PD rate
- Ensure no secondary messaging