

Peritoneal Dialysis Patient Preparation

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Peritoneal dialysis patient preparation

The time before ESKD is challenging for the patient:

- Uncertainty of health status,
- Modality and dialysis access selection,
- Living with the comorbidity of chronic illness.



The impact of preparation of PD

- Initiation of dialysis if done badly, a person who may have been functioning at a high level may abruptly become a “patient,” with disruption of work and other activities.



PATIENT PREPARATION

Preparatory steps in an organized fashion:

- Patient education and preparation
- Preoperative preparation of the surgical field
- Postoperative care

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Patient preparation-**patient education**

1. What is peritoneal dialysis?
2. What is a PD catheter?
3. How is a PD catheter placed?
4. How do I prepare for PD catheter placement?
5. What happens during PD catheter placement?
6. What happens after PD catheter placement?
7. What are the risks of PD catheter placement?
8. What else should I know?

Patient education

Education include some or even all of the following

- a) Questions and answer sessions with nephrologists in either large group or small groups,
- b) Detailed interviews and assessments by pre-dialysis nurses,
- c) Educational videos,
- d) Person-to-person meetings,
- e) Multidisciplinary team meetings,
- f) Visits to HD and PD units and
- g) Booklets/ brochures.

Approaches impacting PD

1. **Patient suitability for PD:** medically and psychosocially suitable to undertake PD
2. **Shared decision-making:** person-centred approach, patient priorities and goals, benefits and harms of each modality, clinical consultation, avoiding biases and conflicts of interest
3. **Education and training:**
 - Effective education, 40–60% of patients choosing PD,
 - Pre-dialysis education and training usually requires 1– 2 hrs/mo for 3–6 months (three sessions may be enough), starting 12–18 months before dialysis

Approaches impacting PD

4. *Unplanned start.*

Late **referral to the nephrologist (<3 months** before initiation of dialysis) is associated with

- Suboptimal **dialysis initiation**,
- Deprives patients of opportunity for adequate control of complications
- Sicker patients, or those presenting late requiring dialysis, were more likely to receive HD than PD.
- Suboptimal **dialysis start** also occurs in patients known to nephrologist

Patient Preparation

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CLINICAL EVALUATION- **Focused History**

1. **Sleep position:**

On the opposite side, sleep on left side, the catheter preferentially on the right side.

2. **Handedness:**

On the dominant side (ie, right side in right-handed). the catheter extends 10 to 14 inches from the anterior abdominal wall.

Presternal catheter: on the nondominant side, minimize discomfort with moving the dominant arm.

CLINICAL EVALUATION- **Focused History..**

3. Bathing practice:

Take baths, exit site on the upper abdomen or chest; showering, low abdomen.

4. History of chronic urinary retention (e.g. BPH):

Complete bladder emptying, catheter malfunction postoperatively.

5. Percutaneous PD catheter insertion:

Foley catheter immediately prior to PD catheter placement, risk of inadvertent urinary bladder injury.

CLINICAL EVALUATION- **Focused History..**

6. **Large polycystic kidneys:** abutting the anterior abdominal wall
7. **Previous severe PD peritonitis:** adhesions
8. **Major abdominal surgery** (particularly if there was a previous midline laparotomy) or multiple abdominal surgeries.
9. **Minor** previous **abdominal surgery** is not necessarily a contraindication

CLINICAL EVALUATION- **Focused History..**

Medications and allergies

- ❖ Anticoagulants and antiplatelet agents.
- ❖ Corticosteroids and sirolimus wound healing and increase the risk of pericatheter leaks

Clinical evaluation - **Focused Physical Examination**

1. **Skin infection or chronic irritation:** risk of PD catheter infection
2. **Ostomy, feeding tube, or suprapubic catheter:** risk of PD catheter infection
3. **Abdominal or inguinal hernia:** risk of catheter malfunction
4. **Abdominal scarring :** risk of a leak or malfunctioning catheter
5. **Loose skin or abdominal folds:** risk of PD catheter infection
6. **Pant or belt line in three positions (lying, sitting, standing):** risk of discomfort and irritation, catheter exit-site infection

Clinical evaluation ..

Ultrasound examination

Polycystic kidneys

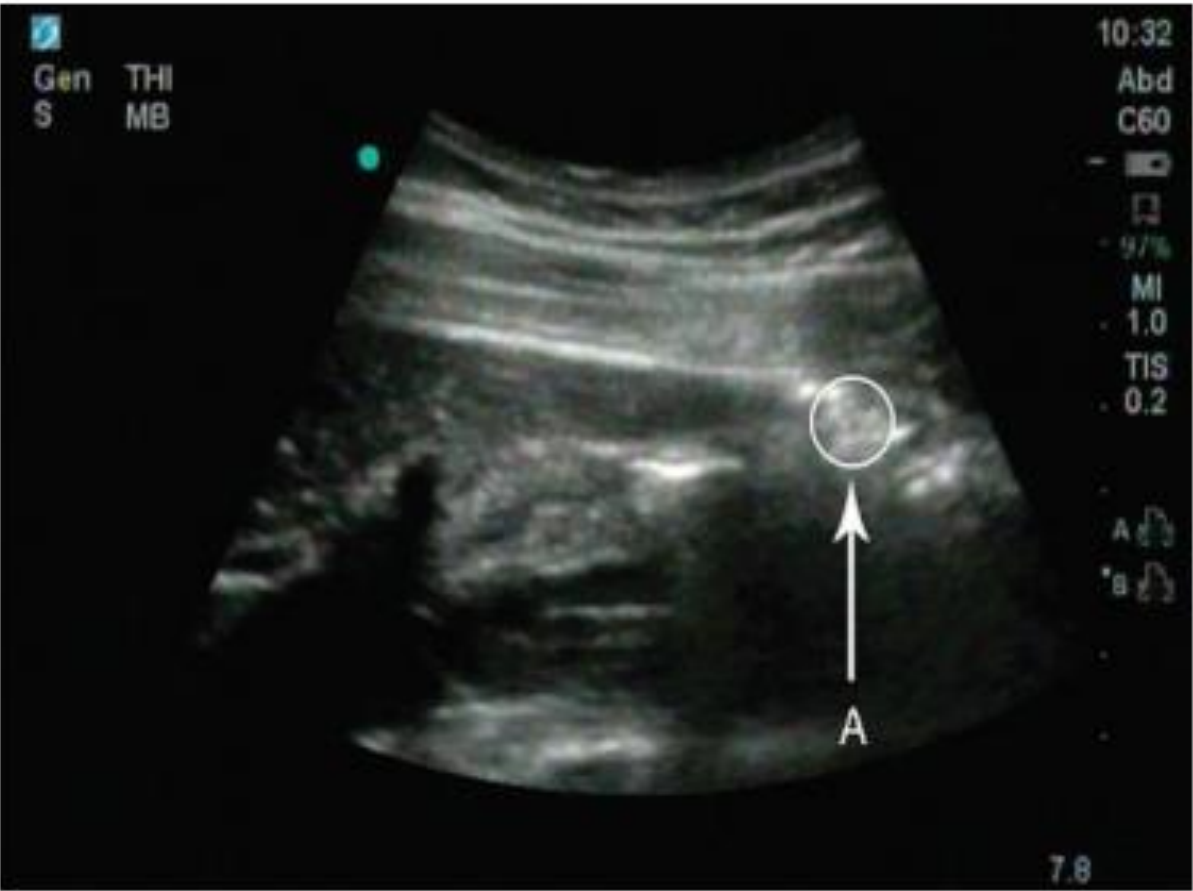
❖ Kidney proximity to the anterior abdominal

The visceral slide test

Visceral and parietal peritoneal surfaces normally move freely against each other.

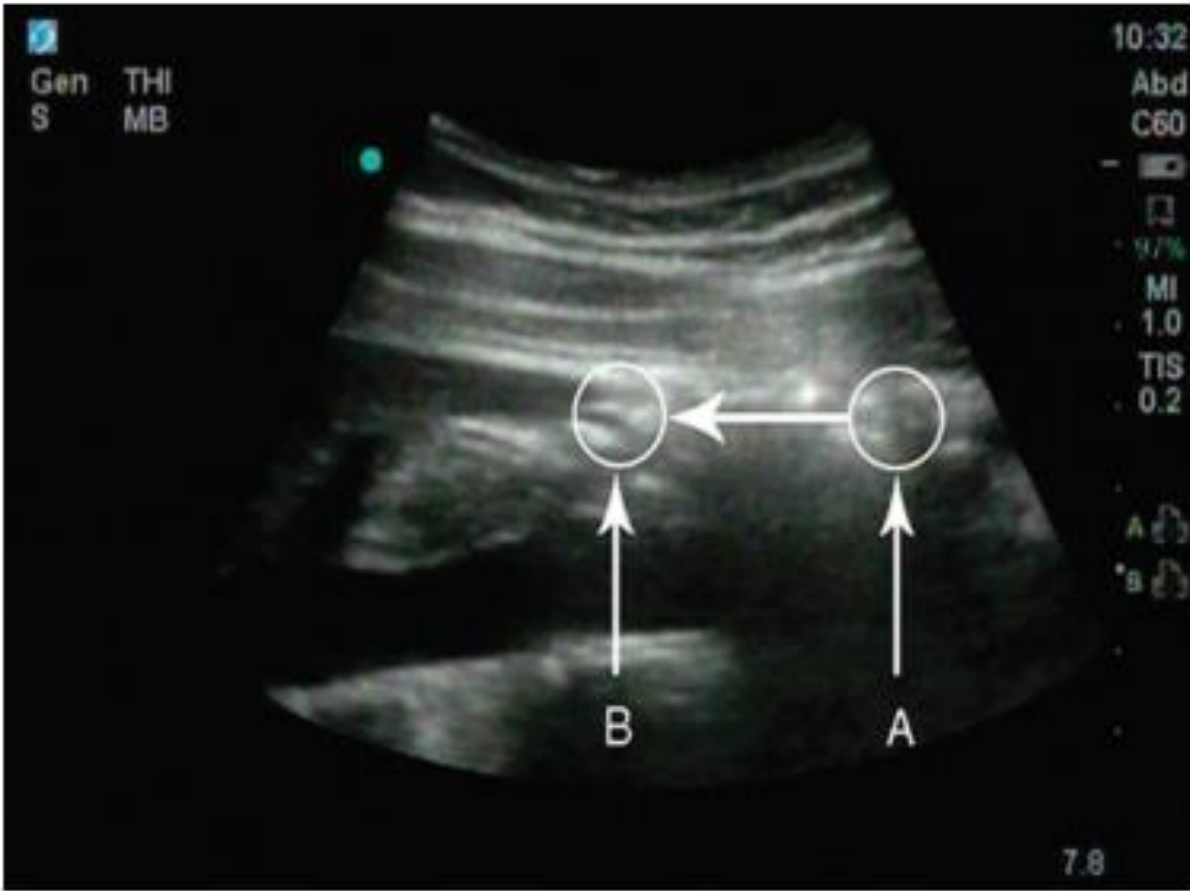
■ Adhesions may be present if visceral sliding is <2 cm on deep inspiration and are highly likely if there is absence of visceral slide.

Figure 1



Visceral slide test performance.

Figure 2

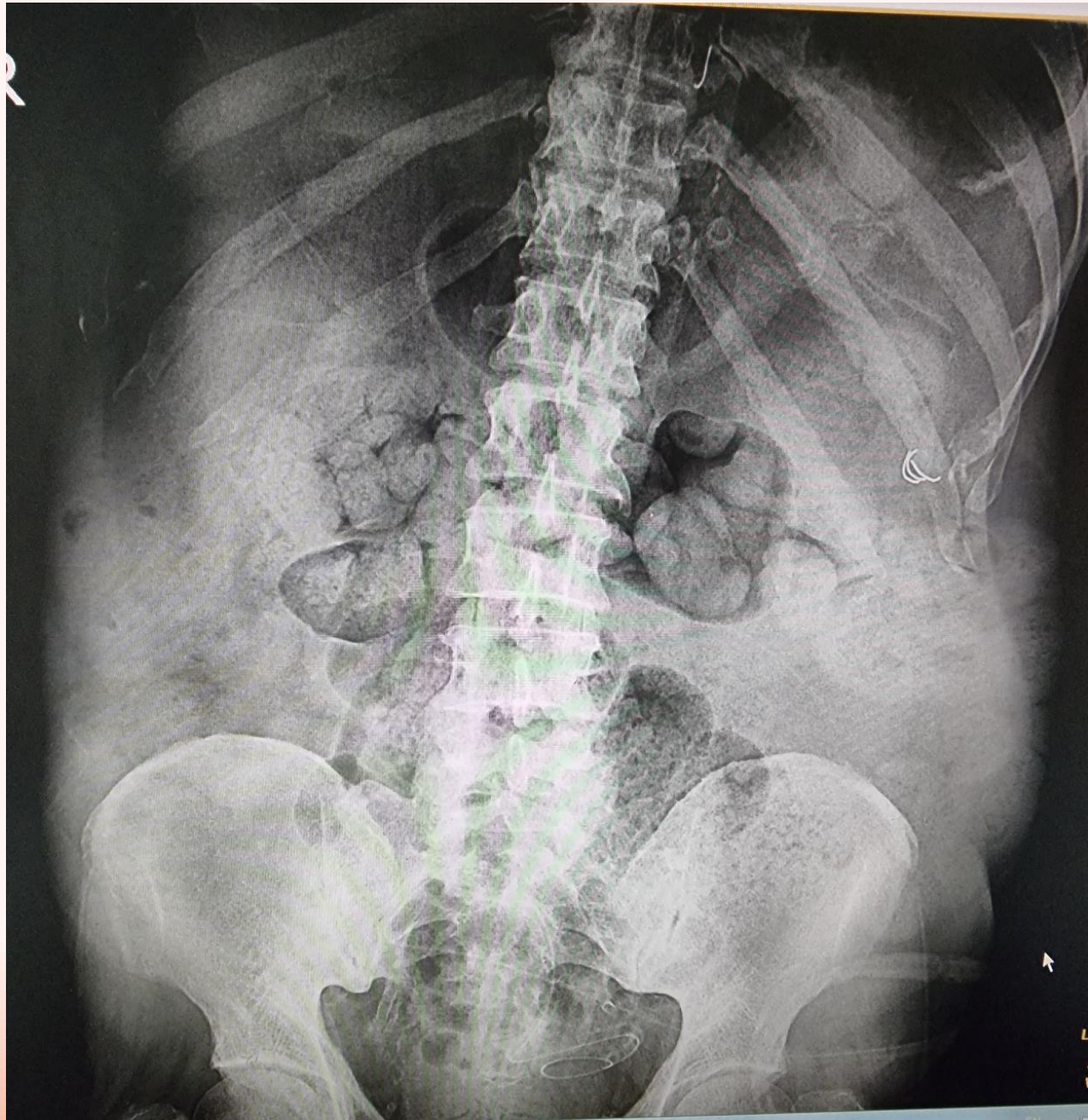


Visceral slide test after deep respiration.

BOWEL PREPARATION

Laxatives or stool softener:

1. Polyethylene glycol (eg, 17 g daily),
2. Bisacodyl (eg, 5 mg daily),
3. Docusate (eg, 100 mg daily), or
4. Combination of these agents,
5. Sorbitol, non-magnesium, non-phosphorus stool softeners,
6. Saline enemas



patient preparation for PD

BOWEL PREPARATION

- **Started three days prior to surgery,**
- **Held** the night before and the day of surgery,
- **Resumed** postoperatively and continued until the risk of constipation (eg, due to postoperative opiate therapy) has resolved.
- **Prevent constipation: calcium, oral iron supplements** should be **held** for **1 week** prior to catheter insertion to.
- These medications can be **restarted one to two days** following catheter placement
- **Fast** from **midnight** prior to the procedure.

Reasons for the treatment of constipation

1. Reduced **risk of catheter non-function** and **malfunction**.
2. Reduced **risk of bowel puncture**.
3. Easier **placement** of wires and the **catheter** into the peritoneal space.
4. Reduced **risk of straining** for a bowel movement postplacement, reducing the risk of strain **on the incisions** and the **risk of dialysate leak**.
5. Reduced **risk of peritonitis** by transmural migration of bacteria

This recommendation is consistent with the 2019 ISPD guidelines on creating and maintaining optimal PD access

Preoperative Preparation

Anticoagulation:

Periprocedural anticoagulation: case-by-case basis, cardiology or hematology consultation

- **Warfarin** or **other anticoagulant** should be held for 5 days prior to the procedure
- **LMW heparin**, also should be held for 48 hours prior to the procedure.
- **Antiplatelet drugs (aspirin, clopidogrel, prasugrel)** and **NSAIDs** should ideally be held for 5 to 7 days prior to the procedure.
- **All restarted the day after** uncomplicated catheter insertion.

Preoperative Preparation

Skin Preparation:

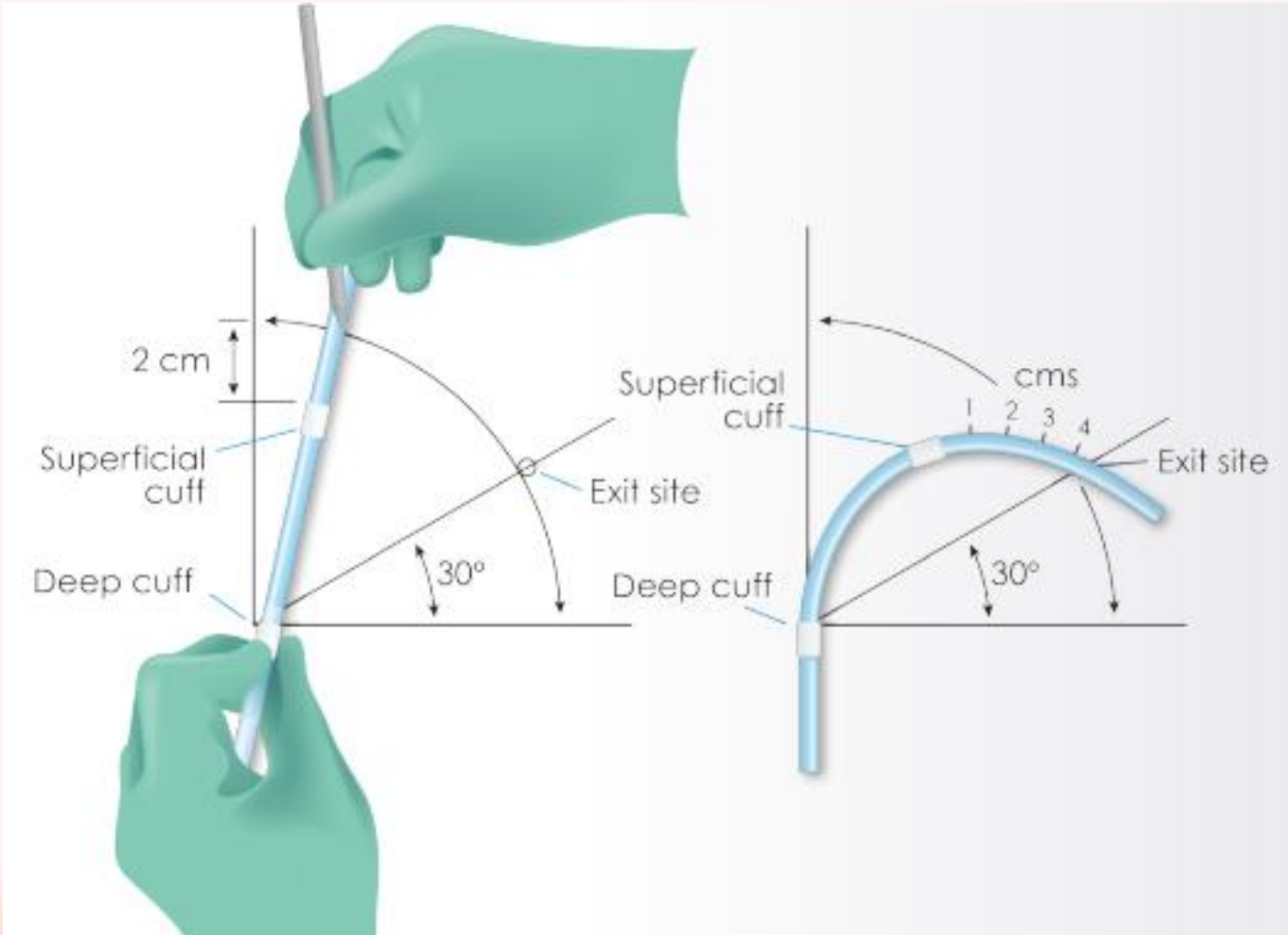
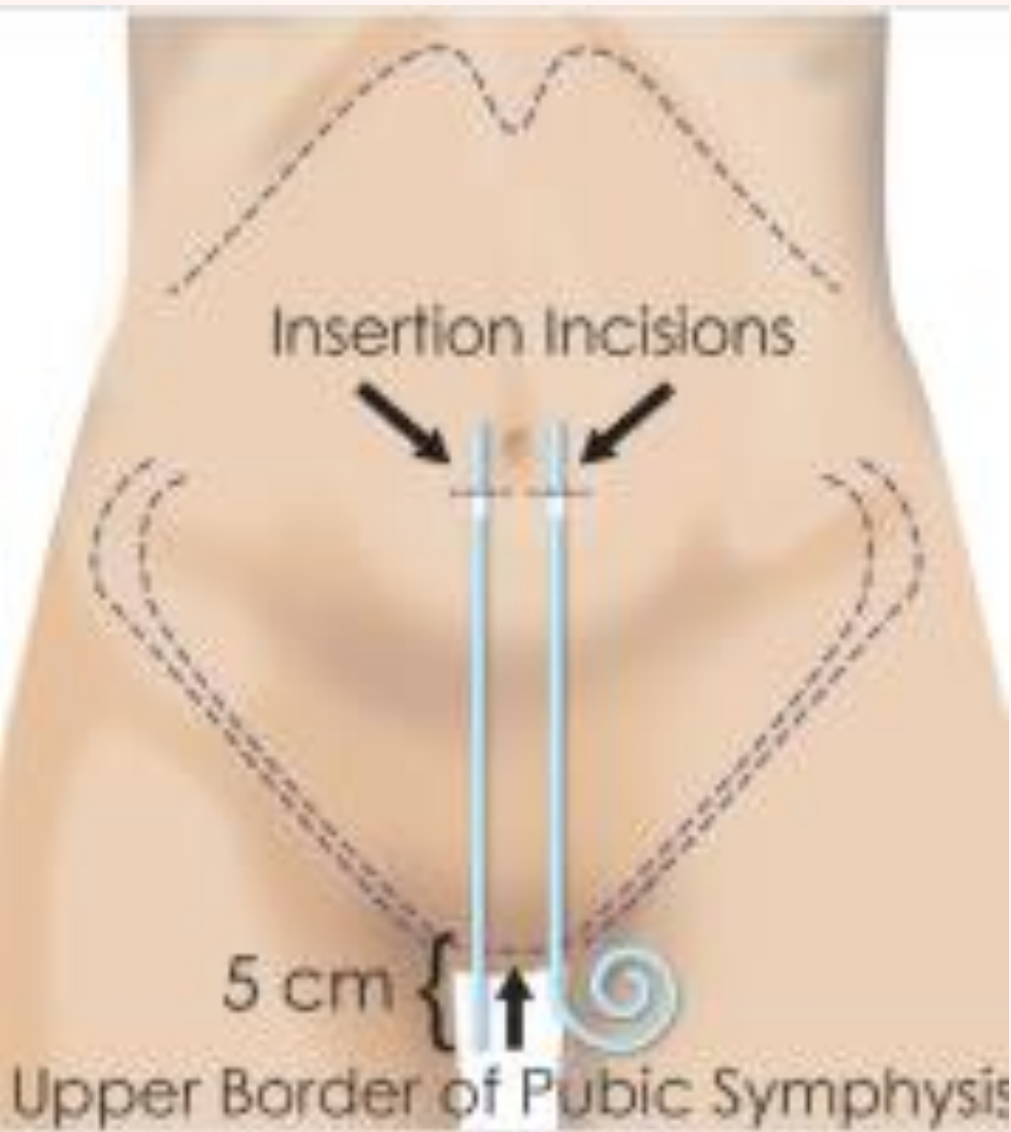
- **Antiseptic soap** the night before PD catheter insertion.
- Carefully **mark the skin** with a marker pen prior to the procedure
- Check this site in both **sitting and standing** positions.
- Exit site should be visible to the seated patient to facilitate exit site and catheter care.
- **Not coincide** with the **beltline**.
- **Abdominal hair** should be **clipped**, ideally prior to the patient's shower.

Preoperative Preparation- Prophylactic Antibiotics

- **2 grams IV cefazolin** (3 grams for those ≥ 120 kg), **60 minutes** prior to the procedure.
- **Allergic to cephalosporins or colonized** (or risk for colonization) **MRSA, IV vancomycin, 60 to 120 minutes** prior to the procedure (**15 mg/kg**; not to exceed 2 g).
- **Reduction in the risk of early peritonitis** (<1 month after surgery; relative risk [RR] 0.35, 95% ci 0.15-0.80).
- The ISPD acknowledges **no data exist** regarding the **effectiveness** of **eradication of *Staphylococcus aureus* nasal carriage** (e.g., intranasal mupirocin) prior to PD catheter insertion.

Preoperative mapping

- Preoperative mapping landmarks on the patient's abdomen can be helpful to ensure optimal catheter placement.
- The catheter should be placed in the paramedian left or right side



patient preparation for PD

CATHETER SIZE

- The pubic symphysis is used as an anatomical landmark to help plan catheter length and cuff positioning (using a dummy catheter).
- This patient's beltline is below the umbilicus.
- The deep cuff and exit site positions were chosen above the umbilicus and checked in sitting, standing, and lying positions.

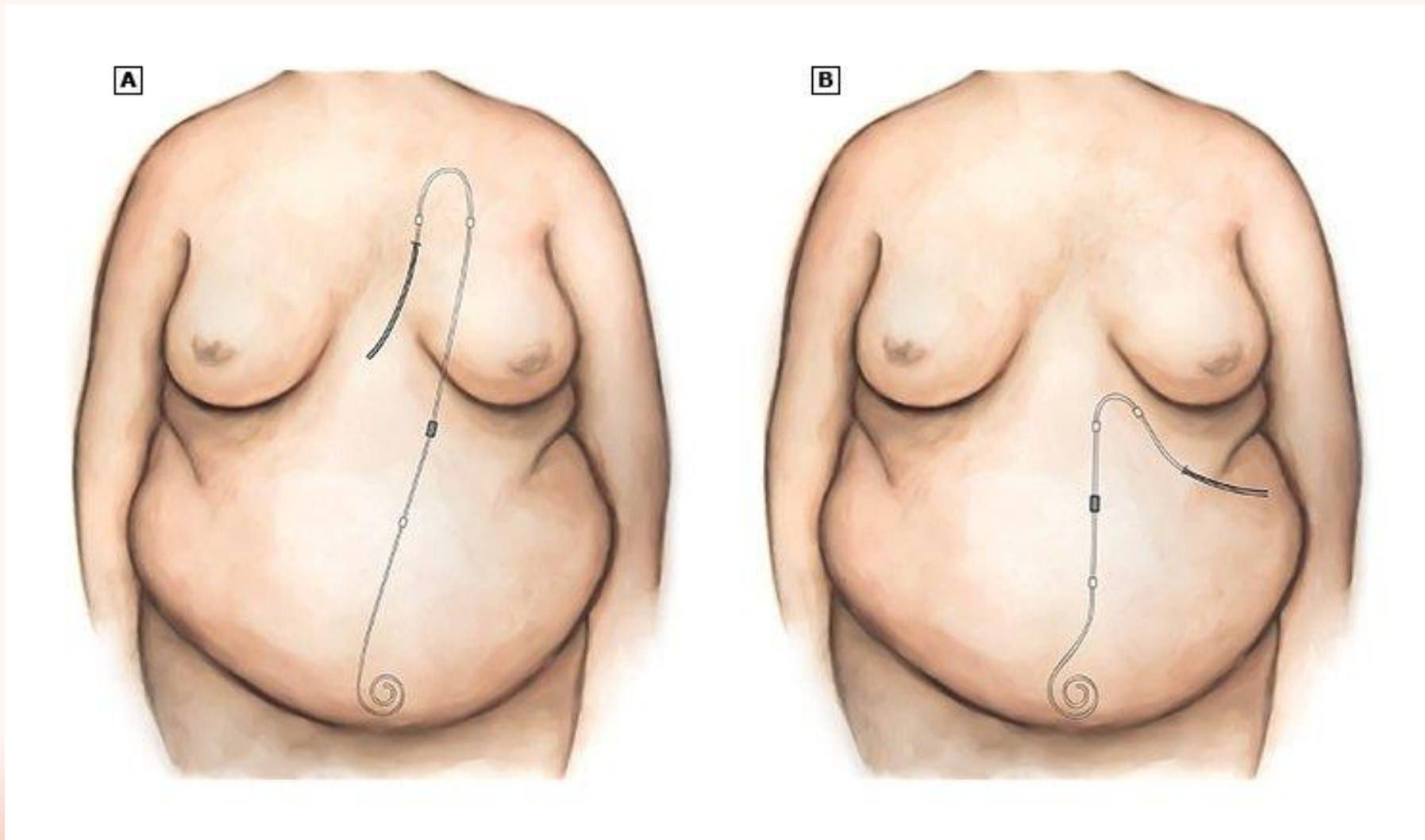


CATHETER SELECTION

Our preferred catheter for most patients

- Double-cuffed
- **Straight or swan-neck** subcutaneous configuration
- Coiled intra abdominal segment
- Extended catheter for some patients





Preoperative Medical Optimization

Surgical placement of the PD catheters need preoperative testing with anesthesiology to determine the type of anesthesia that would be suitable for the procedure.

PATIENT PREPARATION

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Postplacement Care

- Dressing change
- Catheter flushing
- Patient restrictions

Postplacement Care-1. Dressing Change

Nonocclusive dressings over the exit and incision sites: immobilize the catheter and drainage of blood or dialysate without pooling.

The **transfer set** secured on top, **covered separately**: easy access for flushing.

The **dressing change weekly** at the dialysis unit by trained PD nurses until initiating pd.

Initial two weeks after catheter placement, the wound is **only** cleaned with **normal saline** before the dressing is applied.

After two weeks, the wound is cleaned with **normal saline and mupirocin** cream before dressing the wound.



patient preparation for PD

Postplacement Care- 2. Catheter Flushing

The 2019 -ISPD guideline:

Putative **benefits of flushing** new catheter:

- Prevention of catheter **obstruction by blood or fibrin**
- Identification of **nonfunctional catheters**.

Infusing **500 to 1000 mL of saline** into the peritoneal cavity and draining it back out **until the effluent is clear**.

There should be **unimpeded inflow and outflow**.

At the end of the flushing procedure, a **100 to 200 mL residual volume** should be left behind in the abdomen.

Postplacement Care- 2. Catheter Flushing..

Blood in the returned irrigant:

- Flushing within 24 hours and every 24 hours until irrigant is clear.
- Bleeding or fibrin or clots in the fluid from flushing: 500 to 1000 units of heparin to each liter of dialysate:
- Once cleared, flushing weekly until PD is initiated.
- If the catheter is not used during the first month, flushing can be converted to two- to four-week intervals.

Postplacement Care-3. Patient Restrictions

- ❑ Optimal healing of wounds:
 - Bathing, showering, or swimming for two to four weeks
- ❑ Before getting wet; E.S. examination by an experienced PD nurse:
 - Drainage, erythema, or crusting.
 - Approximation of the edges of the skin and healing around the catheter
- ❑ The dressing removed before entering the water.
- ❑ Antibiotic cream such as mupirocin or gentamicin by a new dressing after exit from the water.

Postplacement Care-3. Patient Restrictions..

■ **Swimming:**

- The exit-site covered with an occlusive bandage or an ostomy bag.
- After swimming, the exit-site cleaned with soap and water before applying the antibiotic cream and new dressing.

Exercise:

- **Four weeks after PD** catheter placement, including weight-lifting.
- Exercise with a **dry abdomen**.
- Some clinicians ask the patient to wear a **wet suit** during vigorous exercise or water sports to protect the catheter and the exit site.





BEST PRACTICES IN PATIENT PREPARATION FOR PERITONEAL CATHETER IMPLANTATION

1. Preoperative assessment performed by a multidisciplinary peritoneal dialysis access team to select the most appropriate catheter type, implantation technique, insertion site, and exit-site location
2. Implement bowel program to prevent perioperative constipation
3. Shower on the day of procedure with chlorhexidine soap wash of the planned surgical site
4. If hair removal is necessary, use electric clippers

BEST PRACTICES IN PATIENT PREPARATION FOR PERITONEAL CATHETER IMPLANTATION

5. Empty the bladder before procedure; otherwise, Foley catheter should be inserted
6. Single preoperative dose of prophylactic antibiotic to provide antistaphylococcal coverage
7. Catheter flow test performed to confirm acceptable function
8. Exit site protected and catheter immobilized by non-occlusive dressing

Hope good future for PD patients

