PleurX® Catheter: Peritoneal Drainage of Malignant Ascites

Site Applicability PHC

Practice Level

Basic: Registered Nurses.

LPNs are responsible for notifying the RN of any abnormal vital signs or distress

Quick Links

1. Method 1 – Drainage with vacuum bottle
2. Method 2 – Drainage with urinary drainage bag
3. Dressing Change
4. Suture Removal (Elsevier Search "Sutures" Use Google Chrome)

Need to Know

Ascites is an abnormal accumulation of fluid in the peritoneal cavity due to advanced cancer (Stukan, 2017).The peritoneal cavity is the space between the two membranes that separate the organs in the abdominal cavity from the abdominal wall. Normally, there is only a very small amount of fluid in this space; however, in certain conditions fluid can accumulate causing abdominal distension. The most common cancers associated with malignant ascites are adenocarcinomas of the ovary, breast, colon, stomach, pancreas, liver, lung, and kidneys (Stukan). It is believed that the ascites is caused by malignant cells metastasizing to the peritoneum and is associated with poor prognosis (Stukan) Indwelling catheters for malignant ascites are safe and effective for refractory ascites and allow drainage to be done at home or in a hospice setting. Significant improvement in symptom control and quality of life is associated with peritoneal drains and can be considered at any time in one's cancer trajectory (Burleigh et al, 2016).

Symptoms caused by ascites include: abdominal discomfort & pain, tightness & bloating, early satiety, gastric reflux, dyspnea, nausea & vomiting, constipation, fatigue and mobility difficulties (Stukan)

Paracentesis is a procedure that removes the fluid that has collected in the peritoneal cavity. Removal of fluid can help relieve related symptoms. Depending on the situation, the paracentesis tube can be left in for hours or for weeks/months for ongoing intermittent drainage.

Recommended maximum drainage per day is 2 to 3 liters.

Prior to the insertion of an indwelling PleurX® peritoneal catheter:

If the expectation is that the patient will be followed and supported in the community by home care nursing and/or Home Hospice the following is required:

1. Considerations **prior** to the insertion of an indwelling PleurX peritoneal catheter:
   - Ascites contributes to adverse symptoms
   - Pharmaceutical management alone is insufficient for symptom relief
   - Patient must have malignant ascites only, at this time
   - It is difficult for the client to attend an outpatient clinic
   - A caregiver is available, as needed, to support home peritoneal drainage
   - The client and family are in agreement that upon discharge, the monitoring of vital signs and laboratory work related to the peritoneal catheter will be done only on an as needed basis
   - Ct is in agreement with treatment plan as per goals of care conversation
2. Refer to TST for patients with a PleurX to notify community nurses that patient will be coming home with one insitu. Doctors must complete the AOA2 form for drainage frequency and volumes.
3. PleurX is only funded under the BC Palliative Benefits Program. If the patient does not qualify for BCPBP, a discussion regarding funding prior to insertion is warranted.
4. A physician who will provide ongoing care in the community must be identified. Prior to discharge, the following orders must be completed:
   - Frequency of drainage including an order for prn drainage if necessary.
   - Maximum volume of drainage permitted per day
   - Who is to be called to discuss troubleshooting or complications related to the PleurX peritoneal catheter
   - Order for suture removal
   - Order for breakthrough medication if needed

While in hospital, the peritoneal catheter may be drained using either vacuum bottle (Method 1) or urinary drainage bag (Method 2). Method 2 is preferred for abdominal drainage.

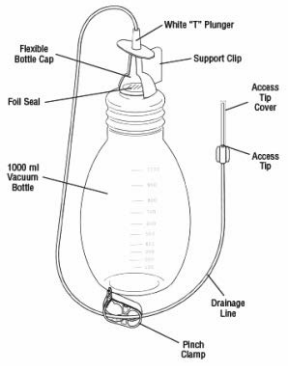
Procedure – Method 1 Using PleurX drainage kit with vacuum bottle

Equipment & Supplies:

- 1 PleurX® procedure pack. Each pack contains:
  - Vacuum bottle (500 mL or 1000 mL)
  - Drainage line
  - Sterile gloves
  - Valve cap
  - 4x4 gauze
  - Transparent dressing

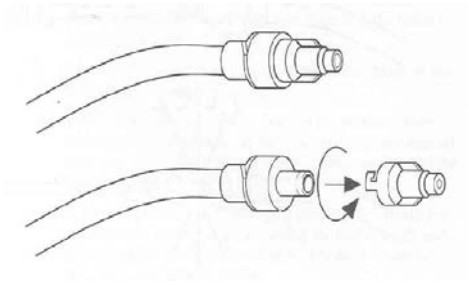
- Foam pad

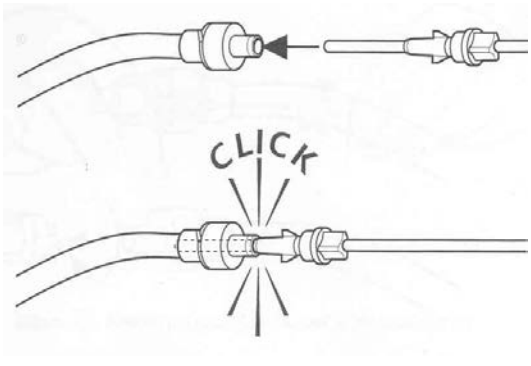
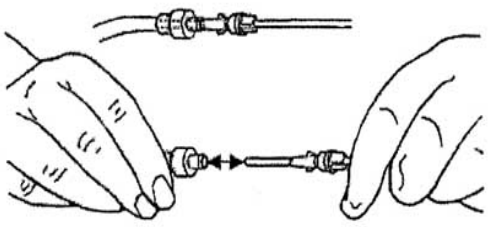
- 2 Chlorhexidine pads
- 1 Chlorhexidine swab stick
- 1 drain gauze
- 1 pair clean gloves
- Blue pad
- Garbage bag

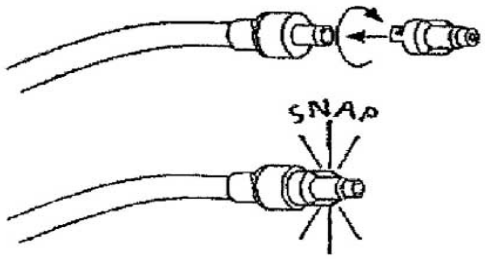


Drainage Procedure

STEPS	RATIONALE
1. Assess need for breakthrough medication prior to initiating procedure.	Some patient's experience discomfort during draining, therefore and assessment is required
2. Position the patient in a comfortable position, and place a blue pad under the patient.	To protect the bedding and the patient's clothing from potential soiling
3. Wash hands and put on clean gloves	
4. Remove old dressing and discard into garbage bag.	
5. Remove gloves, discard, and wash hands again	
6. Assess PleurX® catheter insertion site for redness, swelling, and drainage around catheter. Report any concerns to the physician	

7. Open procedure pack and peel open Vacuum Bottle package, maintaining sterile fields • Tear open chlorhexidine pads but do not remove pads from the pouches. Place them on the sterile field a short distance from sterile items. • Open chlorhexidine swab and add to sterile field • Open the package containing the new valve cap for the catheter and place the cap on the sterile field • Place vacuum bottle on the sterile field — Check that the support clip is in place and that the foil seal is not broken. If the support clip is not in place and the foil seal is punctured you will need a new vacuum bottle — Make sure that the clamp on the tubing is closed • Remove paper from the tubing and discard	
8. Put on sterile gloves	
8. Prepare PleurX® catheter: • Hold the PleurX® catheter firmly in your non-dominant hand. Using a gentle counter-clockwise twisting motion, remove cap from catheter valve and discard	
9. While holding the base of the catheter valve in one hand, clean around the valve opening with a chlorhexidine pad.	
10. Remove plastic protector sheaf from the tip of the drainage line	

11. Insert the tip of the drainage line into the catheter valve – you will feel and hear a click when they lock in place. Ensure that the valve and access tip are fully engaged. If they are not, it is possible for them to be accidentally separated. If this should occur, a new drainage set should be used to avoid potential contamination of the PleurX® catheter	
13. Activate the suction: • Remove the plastic support clip by pulling on the 'wing' and push the white T plunger through the foil seal	
14. Open the pinch clamp on the drainage tubing. Use the pinch clamp to control the rate of the fluid removal: • Set the clamp to have a steady flow of fluid make sure the fluid is not flowing too rapidly as this may cause increased pain. • Stop procedure if symptoms of pain or shock appear and wait until they subside before starting to drain the catheter again. Restart drainage very slowly by keeping pressure on the clamp to control the rate of flow. • Remove only the amount of fluid directed by the physician. • If drainage slows or stops suddenly, ask patient to change position to see if further drainage can be stimulated. • When drainage complete, close the pinch clamp	
15. Disconnect the vacuum bottle set by pulling the access tip out of the catheter valve with a smooth action	

16. Wipe the external surface of the catheter valve with a chlorhexidine pad and let dry for 1 minute	
17. Place a new valve cap over the catheter. Gently twist the valve clockwise until it snaps into its locked position. Do not force the valve cap on, as the catheter valve is easily broken and cannot be repaired – the PleurX® tube would have to be replaced	

Method 2 – Using PleurX® drainage tubing and urinary drainage bag

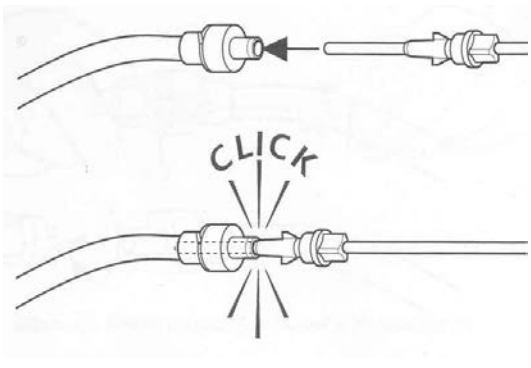
Equipment and Supplies:

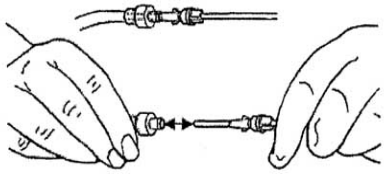
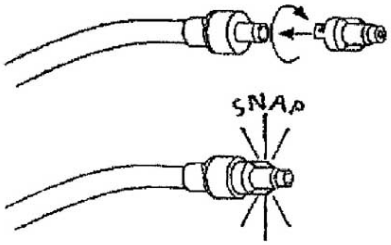
- 1 Urinary drainage bag (2000 mL capacity)
- 1 PleurX® drainage line set (line only)
- 1 PleurX® valve cap
- 1 standard dressing tray
- 1 pair sterile gloves
- 1 pair clean gloves
- 1 drain gauze
- 2 4 x 4 packages
- 2 large Tegaderm
- Tape
- 1 pair sterile scissors
- 2 chlorhexidine swabs
- 1 Chlorhexidine swab stick
- Blue pad

Drainage Procedure

STEPS	RATIONALE
1. Assess need for breakthrough medication prior to initiating procedure.	Some patient's experience discomfort during draining, therefore and assessment is required
2. Position the patient in a comfortable position, and place a blue pad under the patient	To protect the bedding and the patient's clothing from potential soiling
3. Wash hands and put on clean gloves	
4. Remove old dressing and discard	
5. Remove gloves, discard, and wash hands again	
6. Assess PleurX® catheter insertion site for	

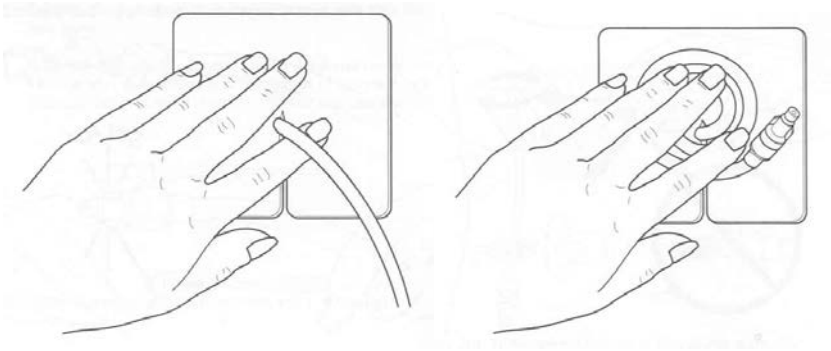
	redness, swelling, and drainage around catheter. Report any concerns to the physician	
7.	Open standard dressing tray	
8.	Prepare dressing tray & sterile field: • Tear open chlorhexidine pads but do not remove pads from the pouches. Place them on the sterile field a short distance from sterile items. • Open chlorhexidine swab pack and add swabs to sterile field • Open PleurX® drainage line and add to sterile field • Open PleurX® valve cap and add to sterile field • Open sterile scissors and place on sterile field • Open the urinary drainage bag package and place the connector end of the tubing on the sterile field	
9.	Put on sterile gloves	
10.	Using the sterile scissors, cut the urinary drainage bag tubing just distal to the connector and place the cut end of the tubing on to the sterile field	
11.	Insert the white adapter end of the PleurX® drainage tube into the cut end of the urinary drainage bag tubing and secure well. Clamp the drainage line.	
12.	Remove the valve cap from the end of the PleurX® catheter and discard.	
13.	Cleanse the end of the PleurX®catheter with a chlorhexidine swab and let it dry for 1 minute	

14. Insert the tip of the drainage line into the catheter valve – you will feel and hear a click when they lock in place. Ensure that the valve and access tip are fully engaged. If they are not, it is possible for them to be accidentally separated. If this should occur, a new drainage tube should be used to avoid potential contamination of the PleurX® catheter	
15. Release the clamp on the drainage line to begin drainage. • Set the clamp to have a steady flow of fluid. Make sure the fluid is not flowing too rapidly as this may cause increased pain. • Stop procedure if symptoms of pain or shock appear and wait until they subside before starting to drain the catheter again. Restart drainage very slowly by keeping pressure on the clamp to control the rate of flow. • Remove only the amount of fluid directed by the physician. • If drainage slows or stops suddenly, ask patient to change position to see if further drainage can be stimulated.	
16. Cover catheter insertion site with 4x4 gauze and secure to abdomen to prevent accidental pulling.	
17. When drainage is complete, clamp the PleurX® drainage line and begin preparations for disconnection and dressing the insertion site. If further drainage is required, attach another urinary drainage bag and dispose of the full drainage bag into a biohazard waste container.	

18. Disconnect the PleurX® drainage tubing from the PleurX® catheter by pulling the access tip out of the catheter valve with a smooth action	
19. Wipe the external surface of the catheter valve with a chlorhexidine swab and let dry for 1 minute.	
20. Place a new valve cap on the PleurX® catheter tip. Gently twist the valve clockwise until it snaps into its locked position. Do not force the valve cap on, as the catheter valve is easily broken and cannot be repaired – the PleurX® tube would have to be replaced	

Applying New Dressing

1. Cleanse around the catheter site with the chlorhexidine swab stick. Let dry for one minute.
2. Place the foam catheter pad around the catheter and onto the patient's skin - feed the catheter through the opening in the pad. Coil the catheter on top of the foam pad. Cover with 3 to 4 gauze pads and cover with a large transparent dressing.



3. Assess the patient's response to the procedure:
   - General condition
   - Vital signs
   - The patient's report of how they are feeling
   - Drainage description
4. Discard the vacuum bottle(s) or urinary drainage bags:
   - Place in biohazardous waste garbage bag (yellow)

Documentation

Record VS as required on clinical record

Record all assessment and interventions in the Interdisciplinary Notes or the 24 hour Flow Sheet as appropriate. Consider documenting the following:

- Amount and colour of drainage
- Patient comfort before, during, and after drainage
- Medications required to maintain comfort before and after drainage
- Condition of the catheter insertion site and integrity of the peritoneal catheter
- S&S of infection

Patient and Family Education

1. Patient, family and caregivers are involved in the decision making process regarding goals of care and reasons for peritoneal drainage and catheter insertion.
2. Explain purpose of peritoneal catheter and drainage to patient and family as necessary.
3. Encourage patients to request analgesics as needed
4. Teach patient to report to nurse any unusual symptoms
5. If appropriate, provide the family/patient with:
   - the PleurX® catheter drainage kit *Instructions for Use* manual
   - the PleurX® catheter drainage kit video

Related Documents

1. PleurX Drainage Kits – Instructions for Use (Equipment Manuals)

References

1. PleurX Drainage Kit Instructions for Use (2014). Carefusion Corporation, 75 North Fairway Drive, Vernon Hills, IL, USA.
2. PleurX Drainage Video, BD web site http://www.bd.com/en-ca/products/medical-surgical-systems/pleurx-drainage-system
3. Vancouver Coastal Health Clinical Practice Document (CPD-888). Abdominal paracentesis-intermittent drainage of abdominal ascites using the Pleurx catheter and MedQuest drainage (2017) supplies.
4. Burleigh, J., Mehta, Z., & Ellison, N. (2016). Tunneled Indwelling Catheters for Malignant Ascites #308. *Journal of Palliative Medicine, 19*(6), 671-672.
5. Stukan, M. (2017). Drainage of malignant ascites: patient selection and perspectives. *Cancer Management and Research*, *9*, 115-130.

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