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PALLIATIVE CARE PROGRAM

PROCEDURE FOR MAINTENANCE AND DRAINAGE OF INDWELLING THORACENTESIS CATHETER FOR COMMUNITY PALLIATIVE CARE PATIENTS

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PROCEDURE FOR MAINTENANCE AND DRAINAGE OF INDWELLING THORACENTESIS CATHETER FOR PALLIATIVE CARE PATIENTS IN THE COMMUNITY

PART I: Drainage of an Indwelling Thoracentesis Catheter

PART II: Dressing Change

PART III: Patient and Family Teaching

PART IV: Damaged or Accidental Removal of Catheter

PURPOSE To provide an evidence-based and standardized approach to support nursing practice in the maintenance and drainage of an indwelling thoracentesis catheter in the community.

BACKGROUND For a small number of patients registered with the WRHA Palliative Care Program a device/procedure to assist with the intermittent drainage of fluid from the pleural space surrounding the lung may be helpful in the relief of dyspnea. Such a device would allow for intermittent drainage of pleural fluid to be done as needed in the community setting.

INDICATIONS Use of a tunneled indwelling Thoracentesis catheter (See Appendix A) would be considered when the following criteria are met:

1. The patient is aware of the potential risks and side effects associated with the insertion of an indwelling thoracentesis catheter.
2. The patient and/or family are willing and able to learn how to care for the device particularly if it should become removed/dislodged or have a crack/leakage in the catheter tubing.
3. Approval for managing an indwelling thoracentesis catheter in the community has been obtained from the WRHA Palliative Care Program Director, Medical Director or their designate.

POSSIBLE COMPLICATIONS

1. Issues with the catheter system, which may include:
 - migration of the catheter tube
 - blocked or defective catheter or valve tip
 - removal of the catheter tube, or
 - leakage from the catheter tube
2. Infection
3. Respiratory compromise (pneumothorax or re-expansion pulmonary edema)
4. Damage to the lung or surrounding tissues
5. Hemodynamic instability (hypotension)



PART I: Drainage of an Indwelling Thoracentesis Catheter

A physician must order the amount of fluid to be removed and how often the fluid is to be drained from the pleural space. The maximum amount of fluid that can be drained at one time for thoracentesis is 1000 mL. The time required to complete drainage procedure may vary from patient to patient and will be determined by comfort level. Nursing assessment is required throughout the procedure to ensure patient is tolerating the rate of drainage.

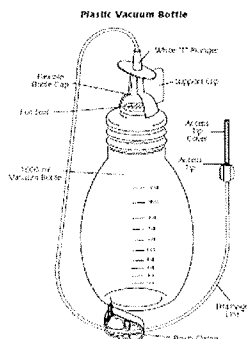
1. Obtain necessary equipment and supplies including:
 - a. Pleurx® plastic vacuum bottle with attached drainage line [see Appendix A and B]
 - 1000 mL bottle (catalog number: 50-7210) - **Method A**
 - or**
 - 2 - 500 mL bottle (catalog number: 50-7500) - **Method B**
 - b. 2 – Alcohol swabs (70% isopropyl alcohol)
 - c. 4 - Pair non-sterile gloves
 - d. 1 - Sterile valve cap (catalog number – 50-7235)
 - e. 2 - 2% Chlorhexidine/70% Alcohol swab stick
 - f. 4 – 4x4 gauze
 - g. 2 - Drain sponges
 - h. 1-2 Moisture occlusive dressings
2. Explain procedure and expected outcomes to patient.
3. Take patients vital signs – heart rate, respiratory rate and blood pressure. If there are any concerns about the patient’s ability to tolerate drainage procedure, call Palliative Care Coordinator or MD.
4. Wash hands thoroughly for 30 seconds, and subsequently throughout the procedure as clinically indicated. In some settings, cleansing hands with sanitizer may be more appropriate.
5. Open alcohol swabs.
6. Open vacuum bottle packaging.



7. Preparing for drainage

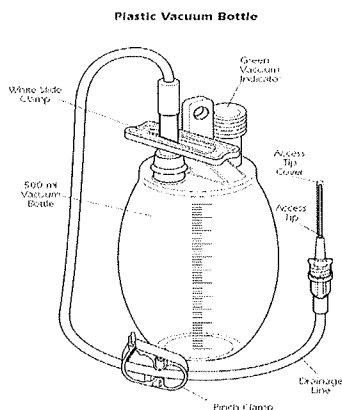
Method A:

- Squeeze the pinch clamp on the drainage line attached to the drainage bottle, to ensure it is completely closed.



Method B:

- Ensure the white slide clamp on top of bottle is closed.
- Squeeze the pinch clamp on the drainage line attached to the drainage bottle, to ensure it is completely closed.



8. Apply non-sterile gloves.

9. Remove outer dressing, being careful not to pull/dislodge catheter.

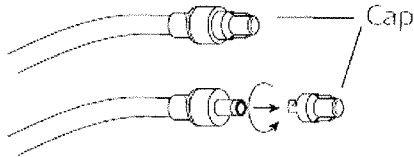
10. Assess catheter exit site for evidence of:

- Pain or tenderness.
- Inflammation or redness.
- Edema.
- Induration.
- Leaking of fluid.
- Exudate.

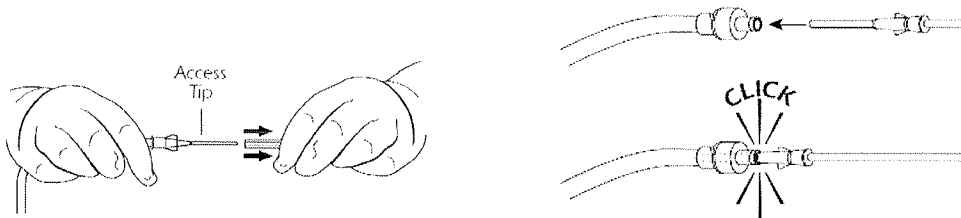
If any of the above present, notify the physician after completion of drainage.



11. Remove soiled gloves and apply new pair of non-sterile gloves.
12. Hold the base of the catheter valve and remove the cap by twisting it counterclockwise and gently lifting off. Discard cap.



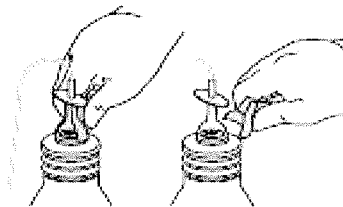
13. Clean around the valve opening with an alcohol wipe for 30 seconds being careful not to touch the valve opening with your gloved hand. Discard the wipe.
14. While holding the valve, pick up the access tip at the end of the drainage tubing and remove the cap, ensuring that the valve opening and the access tip remain sterile.
15. Insert the access tip into the catheter valve until a "click" is heard.



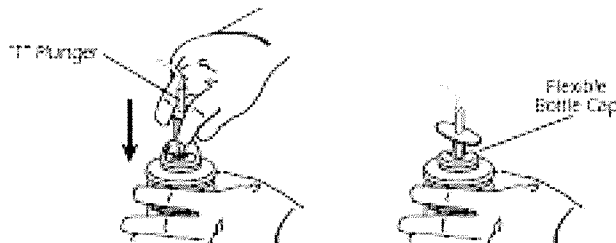
16. Initiate drainage.

Method A:

- Remove the white support clip (attached to top of vacuum bottle) by grasping the upper part of the flange and pulling outward.



- Hold the bottle steady with one hand and push down the white "T" plunger with the other hand to puncture the foil seal.

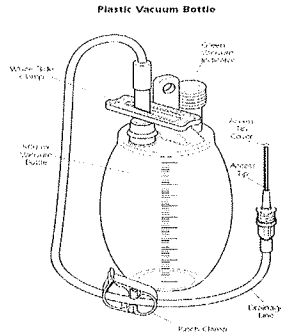


- Slowly release the pinch clamp on the drainage line to begin drainage.



Method B:

- Push the white slide clamp on the top of the vacuum bottle to open (no longer pinches tubing).



- Slowly release the pinch clamp on the drainage line to begin drainage.
- Should a second bottle be required in order to drain more than 500 mL, the pinch clamp should be closed. Repeat from Step 16 onward, using a new 500 ml drainage bottle and first ensuring:
 - Ensure the white slide clamp on top of bottle is closed.
 - Squeeze the pinch clamp on the drainage line attached to the drainage bottle, to ensure it is completely closed.
- If sterile technique is maintained there is no need to clean the valve again, when connecting the new access tip/bottle to the valve.

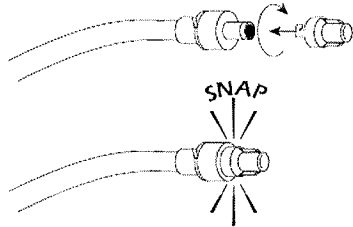
For both Method A and B:

*** If the patient coughs or experiences shortness of breath, discomfort or pain while the fluid is draining, close the pinch clamp. If symptoms subside, resume procedure very slowly by gradually opening the pinch clamp and keeping pressure on the clamp to control the rate of flow. If symptoms re-occur, stop the procedure immediately by closing pinch clamp, and go to step #22. It may be necessary to re-evaluate the procedure; contact physician to discuss.

21. Discontinue drainage for Method A and B when the maximum amount of fluid ordered to be drained is reached or drainage is complete, squeeze the pinch clamp on the drainage line completely closed.
22. Discard gloves and perform hand hygiene.
23. Open new valve cap packaging, ensuring that the cap lies within the sterile packaging.
24. Apply new pair of non-sterile gloves.
25. Hold the base of the catheter valve and gently pull the access tip out of the valve.



26. Clean around the valve opening with a new alcohol swab for 30 seconds, being careful not to touch with gloved hand.
27. Maintaining sterility of inside of new valve cap and valve opening, place the new sterile cap on the catheter valve and twist it clockwise until the cap snaps into its locked position.



28. Remove gloves

PART II: Dressing Change

1. Wash hands thoroughly for 30 seconds.
2. Open supplies maintaining sterility of the gauze, drain sponges and chlorhexidine swabs.
3. Apply new pair of non-sterile gloves.
4. Clean around the catheter site with 2%Chlorhexidine/70%Alcohol swab stick starting at the catheter and moving outward. Repeat with second swab stick.
5. Place the trachea sponge around the catheter and coil the catheter on top of the pad.
6. Place the four 4x4 gauze on top of the catheter.
7. Cover entire area with moisture occlusive dressing ensuring that sealed onto skin around entire periphery of gauze dressing.
8. Assess patient's status during and post procedure including Vital Signs.
9. Complete required documentation including time, type and amount of fluid drained, any adverse effects or difficulties encountered, and condition of catheter insertion site.
10. Follow the WRHA procedure for disposal of fluid (see Appendix B & C).
12. Remain with the patient for 30 minutes if this is the initial procedure in the home.

PART III: Patient and Family Teaching

1. Assess and teach patient and family to perform the above drainage procedure and dressing change if and when able.
2. Assess and provide instruction to patient and family regarding when to contact health care team and what to do in event that catheter accidentally falls out or is damaged/cracked/leaking (as per procedure below).



PART IV: Damaged or Accidental Removal of Catheter

Equipment and supplies for the following emergencies procedures must be readily available at all times. Nursing staff, patient, and family must organize the emergency supplies/equipment and be aware of where they are kept and actions to be taken.

Procedure for accidental removal of catheter:

1. Supplies required:
 - a. Jelonet (or other non-medicated paraffin gauze dressing)
 - b. 4 – 4x4 gauze
 - c. 1 Roll of tape
 - d. 1 Pair of non-sterile gloves
2. Apply non-sterile gloves.
3. Apply jelonet over exit site (open wound).
4. Place four 4x4 gauze over jelonet
5. Hold gauze securely in place with tape.
6. If nurse present assess and document patient's status – (heart rate, respiratory rate and blood pressure).
7. Phone physician for further direction and/or proceed to St Boniface Emergency.

Procedure for damaged (cracked/cut/leaking) catheter:

1. Supplies and equipment required:
 - a. 1 Pair appropriate forceps for catheter tubing OR a clamp for catheter tubing
 - b. 1 Pair of non-sterile gloves
2. Apply non-sterile gloves.
3. Clamp the catheter closed between the patient and where the catheter is damaged/cracked.
4. If nurse present - assess & document patient status (heart rate, respiratory rate and blood pressure).
5. Phone physician immediately for further direction or proceed to St Boniface Emergency.



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REFERENCES

Denver Biomedical, Inc. Pleurx Drainage Kit Instruction for Use Pamphlet.

Denver Biomedical, Inc. Pleurx Drainage Instructions Poster.

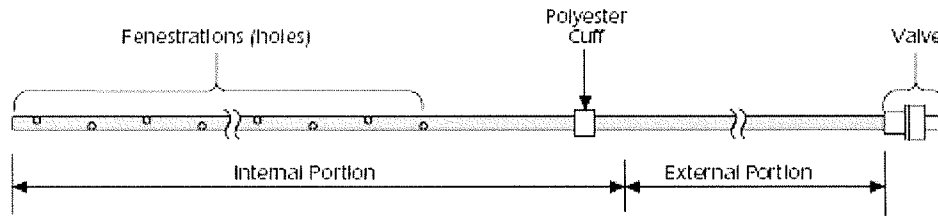
Denver Biomedical, Inc. Pleurx Patient Education Video.

Kachuik, L (2007). Report: The Ottawa Hospital Pleur-X Pilot Program. Ottawa.

www.denverbiomedical.com



Appendix A Pleurx® Pleural Catheter Device

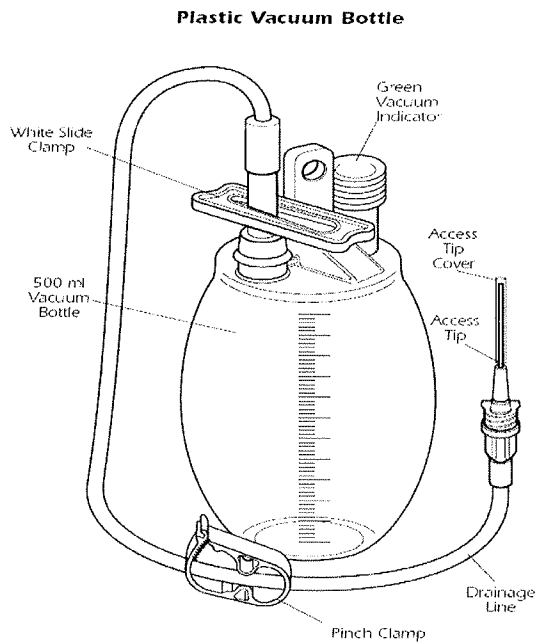


Pleurx Catheter



Appendix B

Procedure for Emptying Pleurx® 500 mL Plastic Vacuum Drainage Bottle

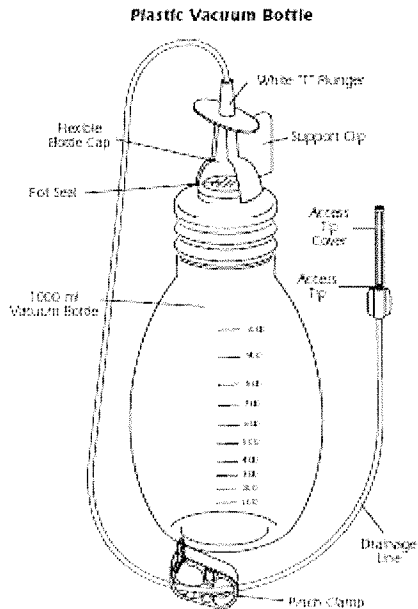


1. Following the Pleurx Drainage Procedure, the nurse should put on a disposable gown, disposable gloves and disposable facemask with eye shield
2. Placing 500 ml bottle on surface for support – with a pair of scissors, cut off the green vacuum indicator tube and the green rubber tube connected to the drainage line.
3. Using gloved hands, empty the bottle into the toilet, tilting the bottle in such a way to allow air to re-enter the bottle through one of the cut tubes.
4. Discard bottle, tubing, gown, gloves, and face mask with shield in garbage bag.
5. Wash hands and document care.



Appendix C

Procedure for Emptying Pleurx® 1000 mL Plastic Vacuum Drainage Bottle



1. Following the Pleurx Drainage Procedure, the nurse should put on a disposable gown, disposable gloves and disposable facemask with eye shield
2. Placing 1000 ml bottle on surface for support – rotate the “T” Plunger used for puncturing the foil seal to create the largest possible opening in the seal



3. Using gloved hands gently but firmly twist off the entire flexible bottle cap/tubing .
4. Gently pour the liquid from the bottle into the toilet, tilting the bottle just enough to allow the liquid to run out but allowing a space for air to re-enter the bottle above the liquid pouring out.
5. Discard bottle, tubing, gown, gloves, face mask with shield in garbage bag.
6. Wash hands and document care.