

PRELIMINARY REVIEW ON - THORACENTESIS

Nitasha Sharma ¹, Ravi Bishnoi ²

Nursing officer ¹, Senior Nursing Officer ²

All India Institute of Medical sciences, Raebareli, Uttar pradesh

Introduction

Insertion of a needle into the pleural space to remove accumulated fluid & air using aseptic technique.

Purposes

1. To remove air & fluid from pleural cavity
2. To decrease pressure on the lung tissue
3. To aspirate pleural fluid for diagnostic studies
4. To instill medication into pleural space
5. To perform pleural biopsy

Indications

- Pleural effusion
- Empyema.

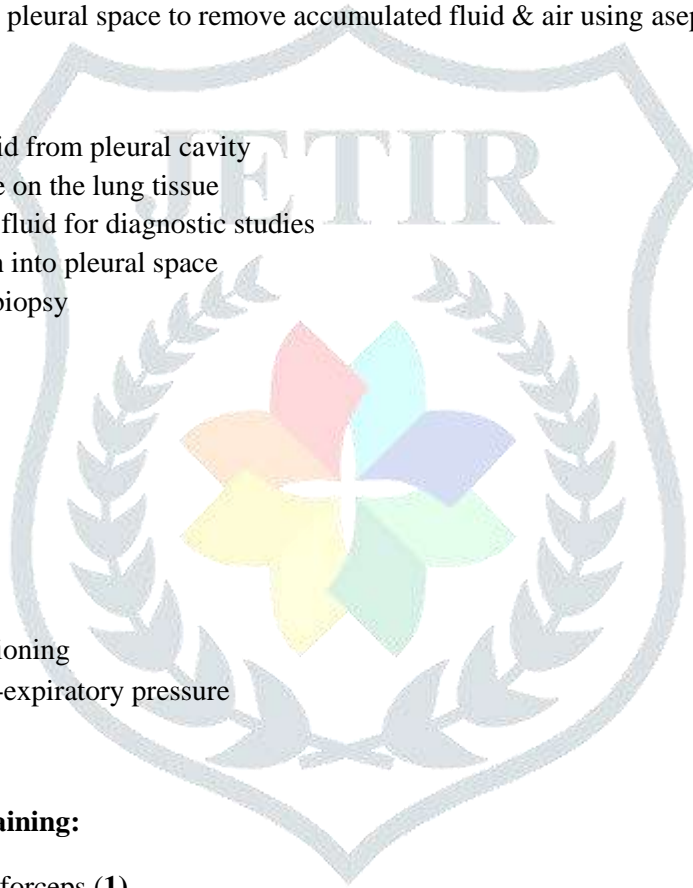
Contraindications

- Emphysema
- Only one lung functioning
- Use of positive end -expiratory pressure

List of articles required

Pleural aspiration set containing:

- a. Sponge holding forceps (1)
- b. 5ml syringe with needle
- c. 20ml syringe with Leur-Lock
- d. Aspiration needles (no. **16G**)
- e. Small bowls (2)
- f. Dissecting forceps(1)
- g. Artery forceps (1)
- h. Specimen bottles & slides
- i. Gown, mask & gloves
- j. Sterile dressing towels
- k. Cotton swabs, gauze pieces & pads
- l. Scalpel blade



Clean Tray

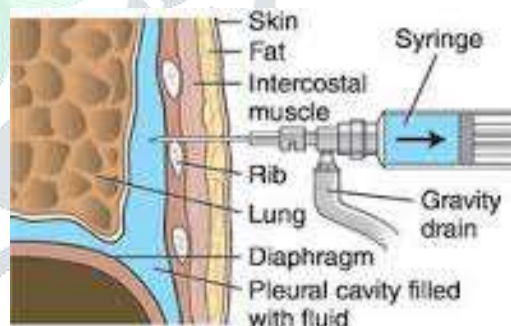
- Mackintosh & towel
- Kidney tray
- Spirit, iodine,
- Tincture benzoin
- Lignocaine 2%
- Adhesive plaster & scissors

ADDITIONAL ARTICLES

- Cardiac table
- Additional pillows

Preparation of client, articles & unit

- Explain procedure to the client & to his relatives to win his confidence & cooperation
- Chest X ray should be taken before thoracentesis is done , to diagnose the location of the fluid in the pleural cavity
- The site of thoracentesis should be shaved, cleaned & painted with skin antiseptics before sending the client to the operation room.
- Check the vital signs & record it on the nurse's record for reference in the post procedure period
- Mild sedative may be given to the client before sending him to the operation room
- Get written consent from the client or his relatives
- Change the client's garments with the hospital dress
- Maintain privacy of the client with screen & drapes
- Arrange all the articles at the bedside of the client
- If the client had his chest x ray taken, it should be fixed on x ray viewer in the operation room for reference to the physician.



Procedure

S.No	Nursing action	Rationale
1	Identify the patient & explain the procedure to the patient & relatives. Explain that during the procedure patient may experience sensation of deep pressure when fluid is aspirated	Wins confidence & cooperation from patient.
2.	Review the chest X-ray	X-ray shows localization of fluid & air in pleural cavity for determining puncture site.
3.	Obtain informed consent	Avoids legal problem
4.	Instruct patient that he should not move during	Any movement or coughing during procedure

	procedure.	can cause injury to vital organs or blood vessels.
5.	Position the patient comfortably <ul style="list-style-type: none"> • Sitting on the edge of bed with the feet supported, arms & head on pillow over the cardiac table • Straddling a chair with arms & head resting on the back of the chair • Lying on the unaffected side, with the bed elevated 30-40 degree if patient is unable to assume sitting position. 	An upright position facilitates localization of fluid at the base of the chest.
6.	Expose the chest. The physician determines the site for aspiration by visualizing chest X ray & performing chest percussion. If air is to be removed the site is usually in 2nd & 3rd intercostal space. If fluid is to be aspirated then site is usually in the 8th & 9th intercostal space.	Fluid usually localizes at the base of the chest.
7.	Clean the site with antiseptic solution & assist the physician in administering local anesthesia.	Reduces risk of infection
8.	The physician introduces the thoracentesis needle. Instruct the patient to hold his breath when needle is inserted.	Respiratory movement can cause risk of puncture to vital organs
9.	When needle is in pleural space, physician aspirates pleural fluid with the syringe. Assist in collecting specimen in sterile containers. <ul style="list-style-type: none"> • A 20 ml syringe with a 3 way adapter is attached to needle. The tubing which leads to the receptacle is attached to the third port of the three way adapter. • If a considerable quantity of fluid is to be removed, the needle is held in place on the chest wall. 	The three way adapter helps in preventing air from entering the pleural cavity when large volume of fluid is removed.
10	For therapeutic purpose usually 1000-1200 ml of fluid is removed & for diagnostic purpose 30-60 ml of fluid is removed.	
11	After needle is withdrawn, apply tincture benzoin seal & pressure dressing over the site.	
12	Position patient in bed with affected side up. He should remain in bed for 4-6 hours after procedure.	This position minimizes risk of possible fluid leakage.
13	Monitor vital signs every half an hour for 4-6 hours or till steady. Observe patient for complications such as shock, fainting, low blood pressure, rapid pulse, rapid respiration, uncontrolled cough & blood tinged frothy sputum. Check breath sounds in all lung fields.	Complications may occur because of accidental puncture of vital organs or blood vessels.
14	Record the procedure, with total amount of fluid withdrawn, color, nature & signs of complications.	
15	Send labelled specimen to the laboratory.	
16	Instruct patient to do deep breathing & coughing exercises. Demonstrate & teach these exercises to the patient.	Deep breathing & coughing promotes lung expansion
17	Have a chest X-ray if indicted.	
18	Wash articles used for thoracentesis in cold water & then in warm soapy water. Rinse, dry & send for autoclaving. Wear gloves while washing.	

Complications

- Pneumothorax
- Pulmonary edema
- Tension pneumothorax

After care of client, articles & unit

1. Apply sterile dressing & pressure on the site as soon as the needle is withdrawn.
2. Provide comfortable position to the client
3. Observe for any kind of complications
4. Client should be asked for deep breathing exercises which will help to expand the lungs
5. Puncture site should be treated specially to prevent contamination of the wound. It should not get wet
6. Container with aspirated fluid should be labeled & sent to the laboratory
7. Chest X ray must be taken to see the effects of the procedure
8. Wash & clean all the article used for thoracentesis first in cold water, then with warm soapy water



References-

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