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## Points for attention for chest tube drainage



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## **I. Why insert a chest drainage tube:**

For patients undergoing thoracic surgery, a chest tube will be placed in the pleural cavity or at the apex of the heart and under the sternum. The purpose is to drain the air and effusion in the pleural cavity or the exudate and blood in the pleural cavity, and to re-establish the negative pressure in the pleural cavity. To promote lung expansion, observe whether there is bleeding or alveolar leak in the chest cavity.

## **II. Points for attention:**

### 1. Location of chest drainage equipment:

- (1) The chest bottle should be placed at least 60 cm below the patient's chest tube insertion position.
- (2) The chest tube will be fixed under the Y-shaped gauze with fabric adhesive tape to prevent twisting and slipping.
- (3) The chest tube junction should be fixed with fabric adhesive tape to prevent the joint from loosening

### 2. Patient position with chest tube.

To promote lung expansion and facilitate drainage of pleural effusions, a semi-sitting position should be used and turning over every 1-2 hours.

### 3. Keep the drainage tube patent

After turning over, make sure that the chest tube is not kinked, fallen off, or pressed against the chest tube, and the chest tube should not be worn or crossed over the bed rails.

4. The water column in the water-sealed bottle should be 2.5 cm below the water surface to prevent air from entering the pleural cavity, destroying the negative pressure in the pleural cavity and causing difficulty in breathing.
5. When the intubated patient moves, make sure that
  - (1) The chest bottle remains upright.
  - (2) All connectors are connected tightly.
6. When the chest bottle is toppled:

Place the chest bottle upright immediately and breathe deeply once or twice in order to expel the air which might get into the pleural cavity when the chest the bottle is toppled.
7. The method of fixing the chest drainage bottle:
  - (1) When getting out of bed, you can use the rope on the chest bottle to fix it or the special fixing frame for the chest bottle.
  - (2) The chest tube sags naturally when getting out of bed, do not hang it on the drip rack.

### **III. Timing of chest tube removal**

1. Assessed by the attending physician: including auscultation, percussion, and chest X-ray when the lungs are well dilated.
2. When the drainage fluid is less than 200mL, the color is light yellow, and there is no air leakage in the pleural cavity, the catheter is extubated according to the doctor's instructions after evaluation by the doctor.

#### **IV. Points for attention when the chest tube is removed:**

1. Sit at the edge of the bed first or lying on the non-intubated side.
2. Breathe deeply twice, then hold your breath after the third deep inspiration; we will remove the chest tube then. It will prevent the air from being sucked into the pleural cavity when the chest tube is removed.
3. Cover the wound with vaseline gauze and fixed it with wide fabric adhesive tape.
4. The chest X-ray will be arranged at 2-4 hours after extubation.
5. If any respiratory distress occurs, inform the medical personnel at once.

#### **V. Points for attention in self-care after chest tube removal**

1. The wound may heal within 7 days. The stitches can be removed after one week.
2. If there are discharge and unusual signs such as redness, swelling, heat, and pain, etc, you must tell medical personnel immediately.
3. Eat clean and fresh food with abundant proteins and vitamins. They may facilitate the wound healing. No particular food is forbidden.
4. Prevent upper respiratory tract infection or any situations that may irritate the bronchi to avoid severe coughing.
5. If there is violent chest pain or difficulty in breathing, you must inform the medical personnel immediately.

## VI. Conclusion

A chest tube is placed to drain air or liquid, so that the lungs can expand completely. The care and precautions during chest tube placement are not only for medical staff to pay attention to at any time, but also for the care of patients and their families.

## VII. Reference

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Let's take the quiz to make sure you understand

1. For patients undergoing thoracic surgery, chest tubes are placed after surgery for the purpose of draining air and fluid in the pleural cavity or exudate and blood in the pleural cavity, re-establishing negative pressure in the pleural cavity to promote lung expansion, and observing the pleural cavity. Whether there is bleeding or alveolar air leakage, etc.

Yes  No  Don't know

2. When getting out of bed, you can use the rope on the chest bottle to fix it, or use a special fixing rack for the chest bottle.

Yes  No  Don't know

3. If the drainage fluid is less than 500mL, the color is light yellow, and there is no air leakage in the pleural cavity, the tube can be extubated according to the doctor's evaluation.

Yes  No  Don't know

4. If there are any abnormalities such as secretions, redness, swelling, heat and pain around the pipeline or the wound, please inform the medical staff immediately.

Yes  No  Don't know

5. After extubation, the cloth glue can be removed after 24 hours, and the dressing can be changed to normal (using water-soluble betadine and normal saline).

Yes  No  Don't know