What are Chest Tubes used for?

Pneumothorax:
a collection of air
in the pleural space.

What are Chest Tubes used for?

Tension Pneumothorax:
Air enters the pleural space from
the lung or airway, with no way to leave
A Medical Emergency!

What are Chest Tubes used for?

Hemothorax: a collection of blood in
the pleural space.

WHAT ARE CHEST TUBES USED FOR?

Pleural Effusion:
accumulation of fluid
will collect between the visceral and parietal pleura.
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**What are Chest Tubes used for?**

**Empyema:** accumulation of pus in the pleural space

**What do I need to do when a chest tube is placed?**

**Equipment**
- Thoracotomy or chest tube insertion tray
- Chest tubes
- Collection device
- Occlusive dressing
- Banding gun and bands

**Step 1:** Fill water seal to 2cm line
**Step 2:** Set dry suction control to ordered setting
**Step 3:** Connect drainage line to patient
**Step 4:** Connect suction to chest drain and adjust regulator until bellow expands (usually 80 mmHg)

**Where exactly is a chest tube placed?**

Disruptions of Organ Systems in Critical Care: Pulmonary, GI, Renal, & Endocrine
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Where exactly is a chest tube placed?

The chest tube is finally in!

Keep collection device below the level of the chest for gravity drainage

Water Seal VS. Suction

**Water Seal**
- Acts as a one-way valve; air can leave the chest cavity but not enter
- Water should rise and fall in the water seal chamber (tidaling) with respirations due to pressure changes in the intrapleural space
- Allows for assessment of an air leak
- Order to place on water seal = gravity drainage without suction

**Suction**
- Normal intrapleural pressures:
  - Inhalation – 4cm H2O, Exhalation – 10cm H2O
- Using suction helps overcome an air leak by improving the rate of air and fluid flow out of the patient. Adjust suction to the amount of suction imposed on the patient
- When drainage system is connected to wall suction, the orange bellow should be extended (wall regulator should be set to at least 80 mmHg)

PAWS Study

What exactly is an air leak?

No bubbling in the water seal?
- If there are no air bubbles observed going from right to left in the air leak monitor, there is no patient air leak.

Bubbling present in the water seal?
- Whenever constant or intermittent bubbling is present in the water seal air leak monitor, this will confirm an air leak is present.
How do I care for a patient with a chest tube?

- Assess cardiopulmonary status and vital signs every 2 hours and as needed
- Assess for air leaks and tidaling in the water seal chamber according to respiratory pattern
- Maintain tube patency, ensure no kinks or dependent loops are present and that connections are banded
- Monitor and record drainage (>200 ml/hr is excessive)
- Inspect insertion site for infection and subcutaneous air, change dressings per orders/facility protocol
- Encourage TCDB and ambulation, medicate for pain as needed

How can I tell if the chest tube port is out of the chest?

Should I ever clamp a chest tube?
What if it gets pulled out by mistake?

What is subcutaneous air?

What is chest tube “stripping”?

What else can happen?

- Sudden cessation of chest drainage
- Collection chamber full
- Fluid rising in water seal chamber
- Drainage system is knocked over
- Patient transport
- Specimen collection
Golden Rules of Chest Drainage

• Chest drainage does not normally abruptly start or massively increase.
• Chest drainage does not normally abruptly stop or massively decrease.
• Be concerned if more than 200 ml of blood drains after the first hour post-op hour

chest tube removal

1. Explain procedure to patient and assist into a fowlers or semi-fowlers position
2. Pre-medicate for pain if indicated
3. Remove dressing and cleanse site
4. Instruct patient to take a deep breath and exhale completely prior to removing tube, then place a sterile occlusive dressing
5. Obtain chest x-ray to ensure continued inflation of the lung
6. Observe patient closely for signs of pneumothorax development

REFERENCES

