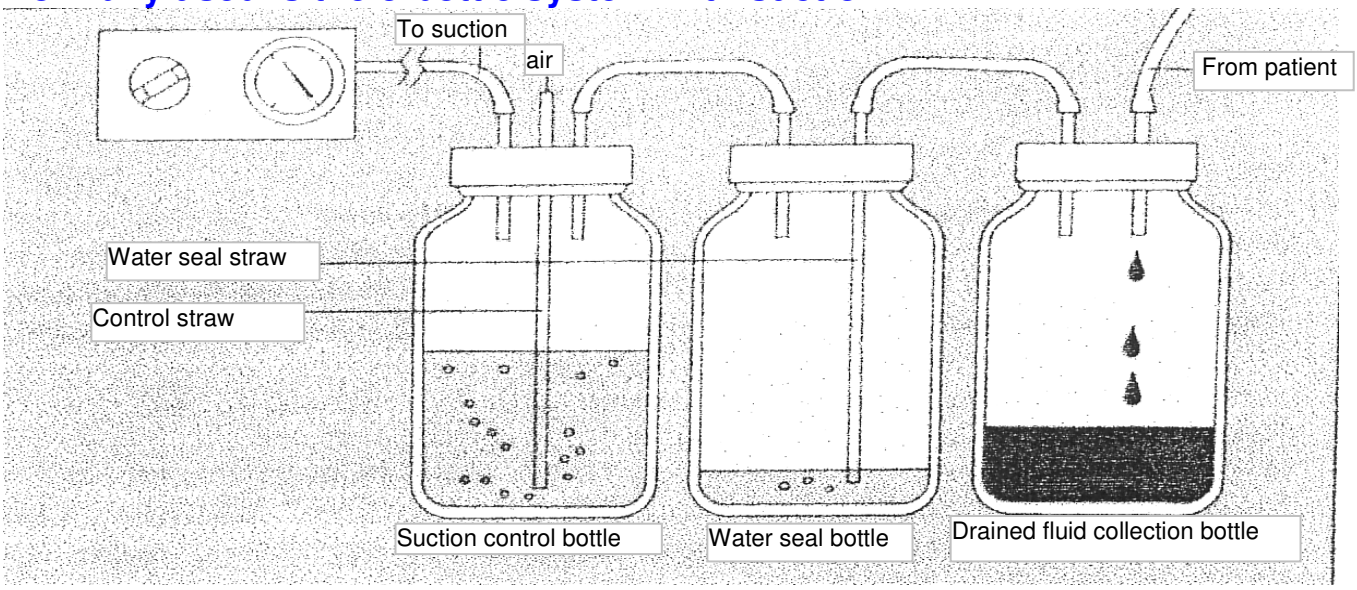
CHEST DRAIN SYSTEMS and THORACOCENTESIS

Normally used is the 3-bottle system with suction



1st bottle:

fluid drained from the patient slowly fills up this chamber

2nd bottle

water seal bottle: functions as a valve.

2 cm of water is usually not too much (i.e allows air to escape the first bottle) but still enough to prevent anything getting sucked back into the patient (i.e water being pulled up the seal straw counteracts the pressure generated in the first bottle)

3rd bottle

suction applied through 20 cm of water (limits the negative pressure applied to the pleura)- current machines have a dial instead of a water level.

How to assess:

What is draining?

- **Air, pus, blood, serous fluid**

How much has drained out?

Look at the insertion site:

- **Infected?**

Auscultate the insertion site:

- **Hissing leak?** If yes, tighten the connection and re-tape (DONT JUST ADD MORE TAPE!)

Bubbling in the water seal:

- When off suction, the bubbles should only be associated with coughing and breathing.
- ON SUCTION the bubbling is continuous. Sudden absence = blockage.
- Bubbling will SLOWLY disappear as the lung re-expands

SWING:

- Swing is the rise and fall of water in the tube adjacent to the water seal chamber.
- Level rises with inhalation and falls with exhalation. THE REVERSE is seen in respirated patients
- SWING DECREASES AS LUNG RE-EXPANDS
- TO VIEW PROPERLY, DISCONNECT SUCTION TUBE.

In brief:

THE MORE ACTIVE THE BOTTLE, THE MORE STUFF THERE IS TO DRAIN. As lung re-expands, the bottle calms down.

Look at SWING, BUBBLE PATTERN, INSERTION SITE, FLUID QUALITY, FLUID VOLUME,

MANAGEMENT

- Sit patient upright to enhance thoracic movement.
- Chest drain always positioned below chest level.
- Give analgesia to facilitate normal breathing
- Oxygen until normal Sats
- Physiotherapy regularly to assist with secretion clearing
- Encourage mobility

It is normal to drain 200 – 300 mls in 24 hrs after surgery.
- **OVER 100 mls per hour is DANGEROUS**

OBSERVATIONS

- ABGs immediately post-op
- Hourly blood pressure and sats for first 4 hrs
- then, 4-hourly blood pressure and sats (looking for infection and shock)
- hourly respiratory rate if on narcotic infusion
- daily sats if stable (at 6am)

MANAGEMENT OF WOUND:

- remove dressing 24hr post-op
- paint suture lines with betadine and expose to the open air
- dress with special “drain sponge”