Pneumothorax

These are now rare. Factors that may increase their likelihood include:

- Delayed surfactant treatment
- Use of CPAP alone in moderate-severe RDS
- Use of long inspiratory times
- Infant breathing against the ventilator
- Failure to wean the ventilator pressures and rate as lung function improves

Diagnosis

- Consider pneumothorax in any infant who deteriorates (**rising oxygen requirement**) rapidly whilst on the ventilator but remember that it is rare
- The mainstay of diagnosis is the chest x-ray
- Try to stabilise the infant until an x-ray is obtained
- Occasionally when infants are severely collapsed the cold light may be used to aid diagnosis
- Do not needle the chest on the basis of a cold light examination unless you don't think that you can wait for an x-ray

Treatment

- Not all pneumothoraces require drainage
- If the infant is stable, discuss the management with the consultant
- If the infant is unstable, a blue butterfly may be inserted into the anterior chest wall in the 2nd interspace, mid clavicular line, and air can be aspirated using a 20ml syringe and a three-way tap
- Aspiration of the free air almost always stabilises the infant sufficiently to allow the chest drain insertion to be done in a carefully controlled fashion
- Chest-drains should be inserted by some-one experienced in doing so or under the supervision of such a person.
- Infants should be given an intravenous bolus dose of morphine and local anaesthesia with 1% lidocaine
- Aim to insert the drain into the 4th –5th intercostal space in the mid-axillary line
- Drain insertion into the mid clavicular can result in scars which may cause upset later, particularly in females
- Aim to direct the drain tip anteriorly for draining air and posteriorly for draining fluid
- Make sure that the drain is fixed firmly in place and is unable to slip out
- Once inserted, the tube should be attached to an under-water sealed drain bottle. The water bottle should be prefilled to the specified line and no higher. The drainage tube should not be more than 3cm under the water (this equates to 3cm of water pressure needed to release gas/fluid)
- We do not routinely apply suction to chest drains or use Heimlich/flutter valves

Assessment

- Bubbling in the drain bottle indicates ongoing airleak
- Swinging of the fluid level in the bottle indicates a patent drain
- A static fluid level in the bottle indicates drain-tube occlusion

Removal

- Drains are usually removed when they have not bubbled for 24 hours
- Sometimes the drain my be clamped for several hours and a repeat x-ray obtained to ensure that no further free air is accumulating
- When the drain is removed, close the wound using a steristrip rather than a purse-string suture as the cosmetic result is better.

Updated for accuracy by David Quine, 6 8 25