Thoracentesis

PROCEDURE

STEPS

1. Select site: 4th intercostal space, anterior axillary line, superior to the 5th rib (preferred)
2. Alternatives: 5th intercostal space anterior axillary (superior to 6th rib), or 3rd intercostal midclavicular
3. Insert needle at 90 degrees into skin over the selected site
4. Advance through the parietal pleura until air escapes
5. Change angle to 45 degrees toward the head
6. Advance the catheter, removing the needle
7. Reassess frequently for redevelopment and repeat as needed

IF IT GOES WRONG

- Complication: laceration of intercostal vessels
- Complication: creation of a pneumothorax
- Complication: laceration of lung tissue
- Complication: risk of infection

BEFORE YOU START

- Indication: pneumothorax — procedure removes air from the thoracic cavity
- Signs: increased ventilatory pressure, difficulty ventilating with an open airway
- Absent lung sounds on affected side; JVD (may be absent with massive blood loss)
- Hypotension with no radial pulses; increasing respiratory distress; decreased SpO2
- Traumatic cardiac arrest with chest pathology
- Contraindications: none in the presence of a tension pneumothorax
- Hemothorax is also covered on the original page

KIT YOU NEED

- Needle decompression device — SPEAR or Turkel
- Depth landmarks: skin-to-rib depth averages 2.11 in; rib-to-parietal pleura averages 0.2 in
- Color band shows RED until through the parietal pleura, then GREEN — advance catheter off device
- Control needle depth: hold with 2 fingers; initially 3 cm beyond exterior of targeted rib
- Needle should not extend much beyond the pleural 'pop'

Take Home Message:

For tension pneumothorax there are no contraindications — decompress at the 4th intercostal space, anterior axillary line, above the 5th rib.