Needle Thoracostomy

LEVEL: Paramedic

Indications

This procedure may be performed on any patient who has evidence of tension pneumothorax, demonstrated by either of the following criteria.

1) Severe/progressive respiratory distress and/or increased resistance to bagging, AND unilateral diminished/absent breath sounds, AND:
   - Hypotension with signs of shock, or
   - Persistent hypoxia despite supplemental oxygen, or
   - Jugular venous distension, or
   - Tracheal deviation (late sign)
2) Any traumatic cardiac arrest with chest or abdominal trauma and undergoing resuscitation should have bilateral needle thoracostomy performed as soon as possible.

Contraindications: None

Needle Decompression is permitted in pediatric patients.

Key procedural considerations

A. Select and identify insertion site
   1) Primary site is the 4th-5th intercostal space in the mid-axillary line of the affected side.
      a) Needle should be placed within the "triangle of safety" (see reference image). Insertion site **must** be above the nipple line as the nipple lies flat against the chest wall with the arm abducted.
      b) In females, the breast can displace the nipple inferiorly. If displaced, the clinician should identify where the nipple would lie if flat against the chest wall. This will be superior to the inframammary fold/crease. When in doubt, a more superior site is preferred.
   2) Alternate site is the 2nd intercostal space in the mid-clavicular line of the affected side.

B. Use appropriate needle size and length

C. Prep site with appropriate disinfectant (e.g. iodine, chlorhexidine, alcohol)

D. Place tip of needle on superior edge of appropriate rib and insert over the superior edge of the rib into the intercostal space

E. Advance needle into pleural space and remove needle. Leave catheter in place.

F. Consider attaching a one-way valve, if available.

Needle Thoracostomy

LEVEL: Paramedic

Reference Images