SKILLS

NEEDLE THORACOSTOMY (S07)

FR/EMR	EMT	PARAMEDIC

Tension pneumothorax is the progressive build-up of air within the pleural space, usually due to a lung laceration which allows air to escape into the pleural space but not to return. Positive pressure ventilation may exacerbate this one-way-valve effect.

The signs of a tension pneumothorax are tachycardia, tachypnea, hypoxia, hypotension, hyper-expanded chest, a hyper-expanded chest that moves little with respiration, distended neck veins, and deviation of the trachea away from the side with the tension.

The following equipment will be needed to perform a needle thoracostomy;

1. 14-16 ga IV catheter, at least 2 inches in length
2. Syringe, 10cc or larger
3. Finger from nitrile glove
4. Betadine and alcohol swabs
5. Tape

Indication

1. Patient with signs and symptoms of tension pneumothorax.
2. Traumatic cardiac arrest, especially if Pulseless Electrical Activity (PEA) is present.

Procedure

1. Locate insertion site, on affected side(s) between 2nd & 3rd intercostal space midclavicular line, OR between 4th & 5th intercostal space midaxillary line. Place catheter above the rib to avoid the intercostal artery.
2. Prepare the insertion site with betadine then alcohol swabs.
3. Attach IV catheter to syringe and withdraw plunger half way.
4. Insert needle perpendicular to the chest wall until a “pop” is heard.
5. Advance catheter over the needle.
6. Withdraw needle and syringe.
7. Secure finger from nitrile glove to the hub of the catheter, this will function as a one way valve.
8. Secure the hub of the catheter as appropriate.
9. Reassess patient.

Complications

1. Reassess the patient often as catheters are prone to blockage, kinking, dislodging and falling out.
2. Lung laceration with the needle, especially if no pneumothorax is present initially.
3. Air embolism.