

Procedure 702

Pleural Decompression

Rev: 2/18

❖ Indications:

- When clinical findings reveal a tension pneumothorax (severe respiratory distress, diminished breath sounds on the affected side, tracheal deviation) with rapidly deteriorating vital signs.
- Situations that raise suspicion for a tension pneumothorax are penetrating trauma, particularly to the chest or upper abdomen.
- Respiratory and cardiovascular findings may include the following:
  - Respiratory distress (considered a universal finding) or respiratory arrest.
  - Tachypnea (or bradypnea as a preterminal event).
  - Asymmetric lung expansion - A mediastinal and tracheal shift to the contralateral side can occur with a large tension pneumothorax.
  - Distant or absent breath sounds - Unilaterally decreased or absent lung sounds is a common finding, but decreased air entry may be absent even in an advanced state of the disease.
  - Tachycardia - This is the most common finding. If the heart rate is faster than 135 beats/min, tension pneumothorax is likely.
  - Hypotension - This should be considered as an inconsistently present finding; although hypotension is typically considered a key sign of a tension pneumothorax, studies suggest that hypotension can be delayed until its appearance immediately precedes cardiovascular collapse.
  - Jugular venous distention - This is generally seen in tension pneumothorax, although it may be absent if hypotension is severe

❖ Equipment:

- Pleural decompression kit.
- Chlorhexidine swab.
- 3 1/4 inch, 14 gauge angiocatheter.
- One-way valve.

❖ Procedure:

- Approved Sites:
  - 2<sup>nd</sup> to 3<sup>rd</sup> intercostal space, mid-clavicular line.
- Prep site with chlorhexidine.
- Firmly but carefully insert the needle at a 90-degree angle just over the superior aspect (superior border) of the rib, through the skin and pleura until air escapes or a distinct "give" is felt.
  - The undersurface of the rib should be avoided to limit injury to the neurovascular bundle.

*David Ghilarducci MD*

David Ghilarducci MD  
EMS Medical Director

Procedure 702

Pleural Decompression

Rev: 2/18

- Air should be freely aspirated (if not, you are not in the pleural space).
- Remove the needle.
- Attach a one-way valve. Secure with tape.
- Recheck breath sounds and continuously monitor cardio-respiratory status.
- ❖ Complications:
  - lung laceration.
  - pneumothorax.
  - hemorrhage secondary to damage to the intercostal artery or vein
- ❖ All patients with needle thoracostomy are considered *in extremis* and will be transported to the time closest receiving hospital.



David Ghilarducci MD  
EMS Medical Director