PLEURAL DECOMPRESSION

APPROVED:  
EMS Medical Director  
Interim EMS Administrator

1  Goal/Purpose
1.1  Pleural decompression, a rarely used and highly invasive procedure, is reserved for patients with a suspected tension pneumothorax who are experiencing rapidly deteriorating vital signs.

2  Indications
2.1  Must be present
2.1.1  Severe respiratory distress with hypotension
2.1.2  Diminished or absent breath sounds on affected side
2.1.3  Tracheal deviation away from affected side (late sign)
2.1.4  Rapidly deteriorating vital signs
2.1.4.1  Decreased BP
2.1.4.2  Increased pulse and respirations thought to be due to a tension pneumothorax.

2.2  Other clinical signs
2.2.1  Jugular venous distention
2.2.2  Hyper-resonance to percussion on affected side
2.2.3  Altered LOC
2.2.4  Increasing resistance with bag-mask ventilation

3  Contraindications
3.1  Any condition not due to a tension pneumothorax

4  Special Considerations
4.1  For pediatric patients with suspected tension pneumothorax, contact Trauma Center

5  Equipment
5.1  Pleural decompression kits or:
5.2  The following equipment
5.2.1  Betadine solution and alcohol prep pads

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5.2.2 10-14 gauge 3 inch angiocatheter
5.2.3 10 cc syringe
5.2.4 One-way valve or gloves (Asherman or similar device)
5.2.5 Tape
5.2.6 Saline

6 Pleural Decompression Procedure
6.1 If present, get a second paramedic to confirm findings and agree with performing the procedure
6.2 Locate the second intercostal space in the midclavicular line
6.3 Prep site with alcohol or Betadine solution.
6.4 Insert large bore angiocatheter OVER the superior border of the 3rd rib perpendicular to the spine.
   6.4.1 Advance until a rush of air and/or a distinct “pop” or “give” is felt. **Caution:** avoid the inferior side of the rib while advancing the angiocatheter to limit injury to the neurovascular bundle.
   6.4.2 A 10 cc saline-filled syringe may also be used to confirm placement as bubbles or free air should appear in the syringe.
6.5 Remove the angiocatheter needle.
6.6 Attach the one-way valve device to the catheter, secure to chest with tape.
6.7 Reassess breath sound and continuously monitor cardio-respiratory status.

7 Complications/Special Information
7.1 Lacerated lung
7.2 Pneumothorax
7.3 Subcutaneous emphysema
7.4 Hemorrhage secondary to damage to the intercostal artery or vein
7.5 For pediatric patients with suspected tension pneumothorax contact the pediatric base hospital (Stanford ED)

8 Documentation
8.1 Signs and symptoms along with clinical criteria before pleural decompression
8.2 Treating and confirming paramedic’s names
8.3 Site of the decompression
8.4 Patient’s response and outcome

9 Transport Considerations
9.1 Likely requires transport to a trauma center as indicated