

**REGION I EMERGENCY MEDICAL SERVICES
STANDING MEDICAL ORDERS
EMT – Paramedic**

SMO: Needle Cricothyrotomy

Overview: To relieve life-threatening upper airway obstructions in situations where manual maneuvers to establish an airway and attempts at ventilation have failed and when endotracheal intubation is not feasible.

OBJECTIVE FINDINGS

- Pt unconscious
- Unable to ventilate despite attempts to relieve obstruction.
- Patient's skin color may be pale, cyanotic, ashen
- Possible facial trauma restricting normal intubation as an option

EQUIPMENT NEEDED:

- Universal Precautions for blood and body fluid exposure
- Betadine and alcohol swabs
- 14 gauge or larger catheter-over-needle IV device
- Adapter from 3.0 mm ET tube
- 10 cc syringe with 5 cc sterile H₂O or saline
- Pediatric BVM Device
- Stethoscope

PROCEDURE

- Unless contraindicated by trauma, place a small roll under patient's shoulder to slightly extend neck.
- Locate cricothyroid membrane by tilting patient's head back and palpating for the V-notch of the thyroid cartilage (Adams Apple).
- Prepare the skin with antiseptic solution and maintain aseptic technique.
- Stabilize the thyroid cartilage between thumb and middle finger of one hand.
- Press index finger of same hand between the thyroid and cricoid cartilage to identify cricothyroid membrane.
- Using index finger as a guide, rest middle or ring finger of hand holding needle/cannula on the skin to stabilize and prevent needle from penetrating membrane too deeply.
- Make a puncture in the midline with a smooth motion.
- Insert cannula at a 45 - 60° angle.
- After entry into trachea, begin removing needle and advancing cannula into place.
- Advance cannula into trachea at 45° angle with tip toward patient's feet. Care must be taken not to kink the catheter when removing the needle and syringe.
- Draw back on the syringe to aspirate an air bubble to confirm placement in the trachea.
- Tape cannula securely in place and hold the hub of the catheter to prevent accidental dislodgement while providing ventilation.
- Attach 3.0 mm ETT adaptor to end of catheter.
- Ventilate with 100% oxygen using the pediatric BVM via the ETT adaptor. Allow for exhalation after each ventilation. The ratio of inhalation to exhalation should be 1:4 (a second needle can be inserted into the membrane to aid in exhalation of CO₂).

7/04

Reviewed:

Revised:

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PROCEDURE (cont)

- ___ Further check airway placement by ventilating and watching chest rise as well as listening for air exchange at site and observing patient for improved color and respiratory condition.
- ___ Continue to assess for adequate air exchange.
- ___ Provide update of patient's status to hospital and transport immediately.

Documentation of adherence to protocol:

- ___ reason for procedure including physical findings
- ___ attempts to secure the airway by less invasive means (if applicable). If you did not make any attempt to secure the airway with any other way document why you did not.
- ___ size catheter used
- ___ method of ventilation and O2 liter flow
- ___ additional catheters placed to assist exhalation (if applicable)
- ___ results of procedure including patient's physical condition
- ___ total length of time the transtracheal catheter served as the only airway

PRECAUTIONS AND COMMENTS

- ___ Complications
 - False placement
 - Bleeding
 - Damage to larynx and vocal cords
 - Subcutaneous emphysema
 - Mediastinal emphysema
 - Esophageal perforation
 - Thyroid perforation, hematoma (placement of needle has been distal to cricothyroid membrane too low)
- ___ This method of ventilation cannot be used for more than 20-30 minutes. If transport time will exceed this time frame or if the patient shows signs of hypoxia, consider surgical cricothyroidotomy.

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