Needle Cricothyroidotomy

Procedure

Douglas County KS EMS System **March 2022**

Approved Provider: Paramedic
Reference Protocols: None

Background

- This procedure is intended to be a last resort in the pediatric patient after all other interventions have failed.

Indications

- Patients under 13 years old or without signs of adolescence that require emergency airway control
- Adult patients after a failed cric attempt

Contraindications

- Patients in whom ventilation & oxygenation are adequate or in whom another airway can be obtained
- Significant trauma or damage to larynx

Precautions

- May not be able to be performed if provider is unable to identify landmarks due to underlying anatomical abnormality (trauma, infection, tumor or severe goiter).

Needle Cricothyroidotomy Procedure (Fig. 1 & 2)

- Select a large-bore needle (14- 10 gauge).
- Cleanse the site
- While the dominant hand holds the syringe and needle containing saline, with the needle angled towards the feet at 30-45° to the skin, hold and stabilize the larynx with the nondominant hand. Stabilize the cricoid cartilage with the thumb and middle fingers of the nondominant hand and palpate the cricothyroid membrane with the nondominant index finger.
- Insert the needle through soft tissues, skin, and the cricothyroid membrane.
    - Consider that the cricothyroid membrane should be punctured in the inferior aspect (nearer the cricoid cartilage than the thyroid cartilage) to avoid puncturing the cricothyroid arteries.
- While exerting negative pressure on the barrel of the syringe, insert the needle through the cricothyroid membrane into the larynx.
- If much resistance is encountered when the needle or catheter is passing through the skin, subcutaneous tissue, or cricothyroid membrane, kinking or bending of the catheter may occur unless a stiff catheter is used.
    - In rare cases small nick in the skin may be needed to facilitate passage through the dermis into the subcutaneous tissue
- The proximal end of the cannula must be snug or tightly fitting and securely held around the puncture wound opening.
- Secure the cannula end by placing a circumferential tie around the neck. If the cannula is not securely held in place, subcutaneous emphysema may result, the cannula may be dislodged from the larynx, or both.

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Ventilation Procedure (Fig. 3)

- Gather supplies
  - 7.0 ET tube connector
  - 3 cc syringe
  - BVM
- Take plunger out of the syringe
- Insert ET tube connector into barrel of the 3cc syringe
- Connect syringe to IV catheter in trachea
- Connect BVM to ET connector
- Ventilate patient

Complications

- Subcutaneous emphysema and/or barotrauma (pneumothorax or pneumomediastinum)
- Bleeding
- Catheter-related problems (obstruction/kinking of the catheter, catheter displacement, or unsuccessful needle/catheter placement)
- Inadequate ventilation

Documentation

- Record the indication and the total time procedure took to perform

Notes

- Needle cricothyroidotomy is recommended only as a transient resuscitative measure for emergencies in which supraglottic airways, endotracheal intubation or other ventilation methods are not feasible/successful.
  - This group of patients may include those with upper-airway foreign bodies or neoplasms, maxillofacial trauma, laryngeal edema, or infection
- **Needle cricothyroidotomy is not a definitive airway. Patient must be transported rapidly to higher care for placement of surgical airway**

Fig. 1

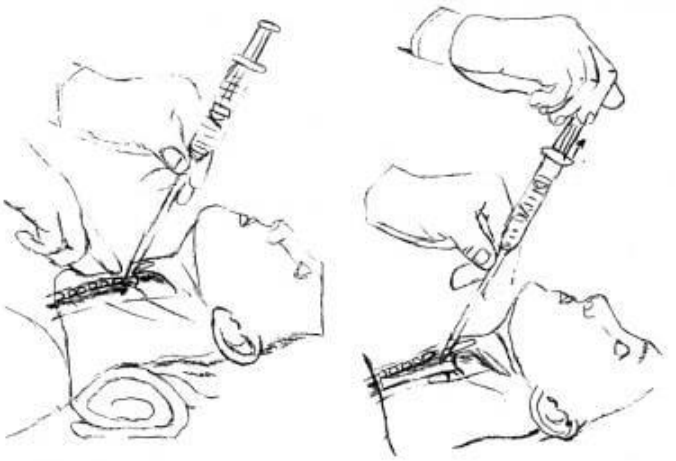

Fig. 2

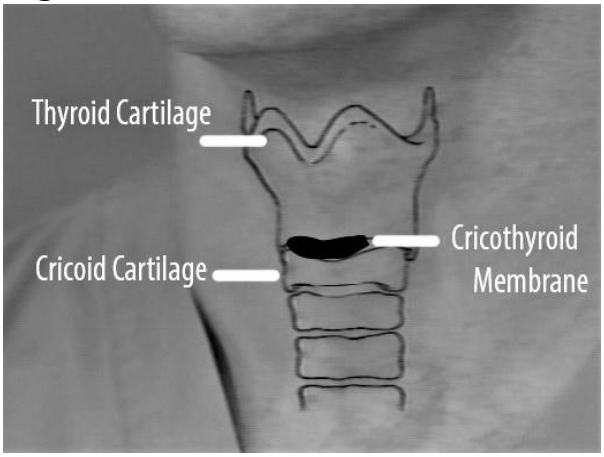

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Fig.3