CRICOTHYROTOMY

PARAMEDIC

Clinical Statement: A cricothyrotomy may be used in cases where the airway or associated structures are either damaged or obstructed in such a fashion as to make any ALS or BLS methods of airway maintenance impossible.

INDICATIONS:

- Airway Obstructions that cannot be removed by and BLS or ALS techniques
- Traumatic Arrest
- Severe facial fractures
- Unable to intubate due to facial trauma or anatomical abnormalities

COMPLICATIONS:

- Hemorrhage – **<u>may be severe</u>**
- Injury to thyroid or parathyroid glands
- Damage to larynx
- False passage of needle or tube into soft tissue
- Subcutaneous or mediastinal emphysema
- Damage to the esophagus

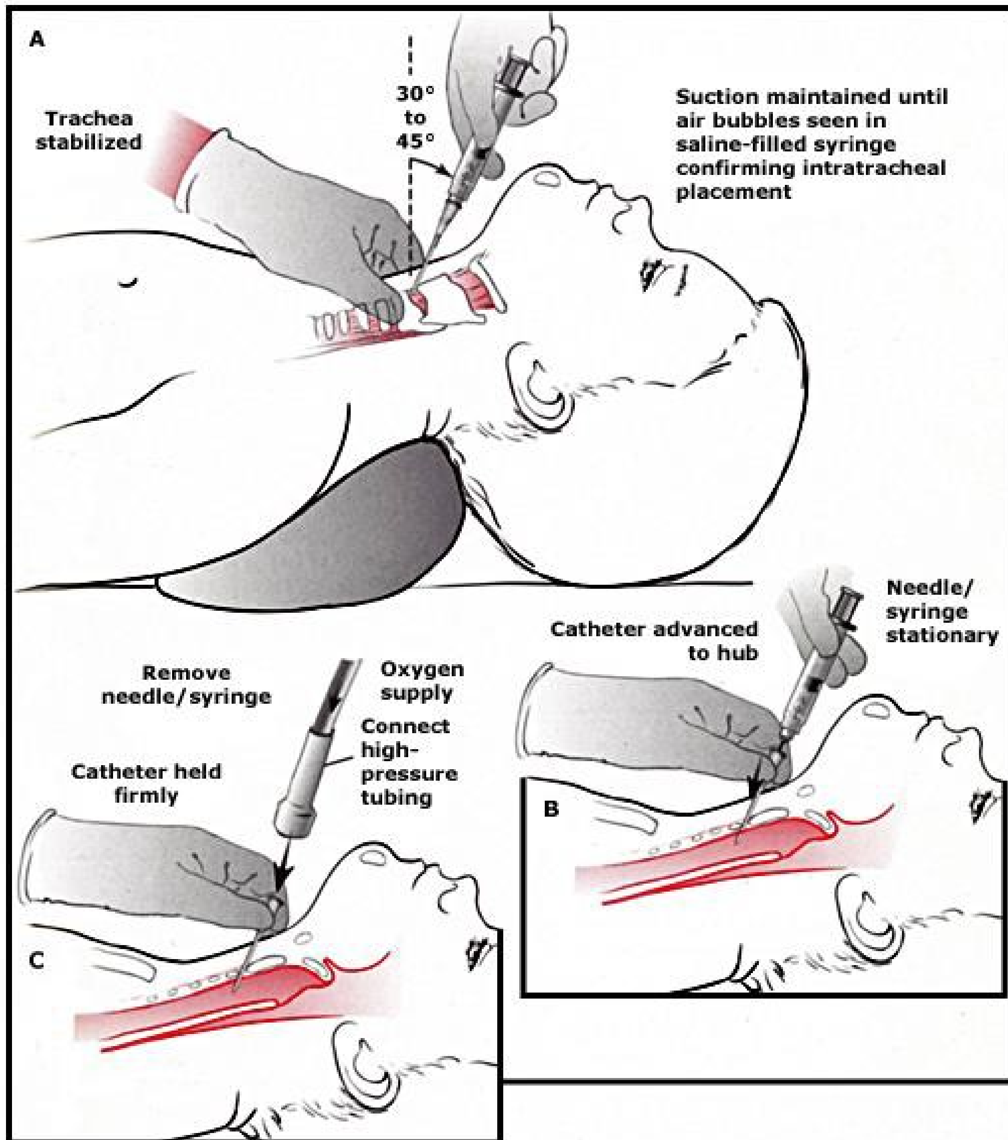
NEEDLE CRICOTHYROTOMY: < 5 years of age

Equipment Needed:

- Gloves and goggles
- Alcohol or Betadine wipes
- Tape
- Pediatric BVM
- ETCO2
- 14g needle
- 10 cc syringe with 3cc normal saline
- #3 ET tube with adapter

Procedure for Needle Cricothyrotomy
➢ Take infection control precautions
➢ Expose the neck, hyperextend if not trauma related.
➢ Identify the cricothyroid membrane
➢ Stabilize the larynx with thumb and third finger while palpating for the V – notch (cricothyroid membrane). Swab clean with betadine or alcohol wipes.
➢ Attach the 10cc syringe filled with 3cc of NS
➢ Puncture cricothyroid membrane at 30 – 45 degrees inferiorly (towards the feet) while aspirating for air bubbles.
➢ Once in trachea, attach # 3 ET adapter to the 14g

➢ Ventilate with BVM while looking for chest rise and fall, auscultating lung sounds, and confirming with ETCO2. ***Allow passive exhalation for a longer period of time than was allowed for ventilation***
➢ Secure with tape
➢ Observe insertion site to ensure no edema, bleeding or subcutaneous emphysema develop around airway



SURGICAL CRICOTHYROTOMY: >= 5 years of age

Equipment Needed:

- Gloves and goggles
- Alcohol or Betadine wipes
- Tape
- Adult BVM
- ETCO2
- Scalpel
- #6 ET tube with adapter
- Boujie
- McGill Forceps

Procedure for Surgical Cricothyrotomy

- Take infection control precautions
- Expose the neck, hyperextend if not trauma related
- Identify the cricothyroid membrane. ***See Figure 1.***
- Stabilize the larynx with thumb and third finger while palpating for the V – notch (cricothyroid membrane). Swab clean with betadine or alcohol wipes.
- With scalpel, make vertical incision over cricothyroid membrane to expose the membrane. Use direct pressure to control bleeding.
- Use thumb and forefinger to spread skin to expose membrane. Incise membrane.
- Using handle of scalpel or McGill forceps, enlarge opening in membrane to place Boujie introducer, then pass # 6 ET tube in trachea.
- Pass ET tube caudally (toward the feet) into opening approximately 1” to 1½” and inflate cuff.
- Using BVM with 100% O_2, ventilate while checking for chest rise and fall, auscultating the chest for breath sounds, and confirm with ETCO2.
- If breath sounds and + ETCO2 present, secure the ET tube to the neck and dress around the incision with an occlusive dressing.
- ET tube may be shortened from the top for easier management, cut off desired amount and reattach the tube adapter for BVM application.

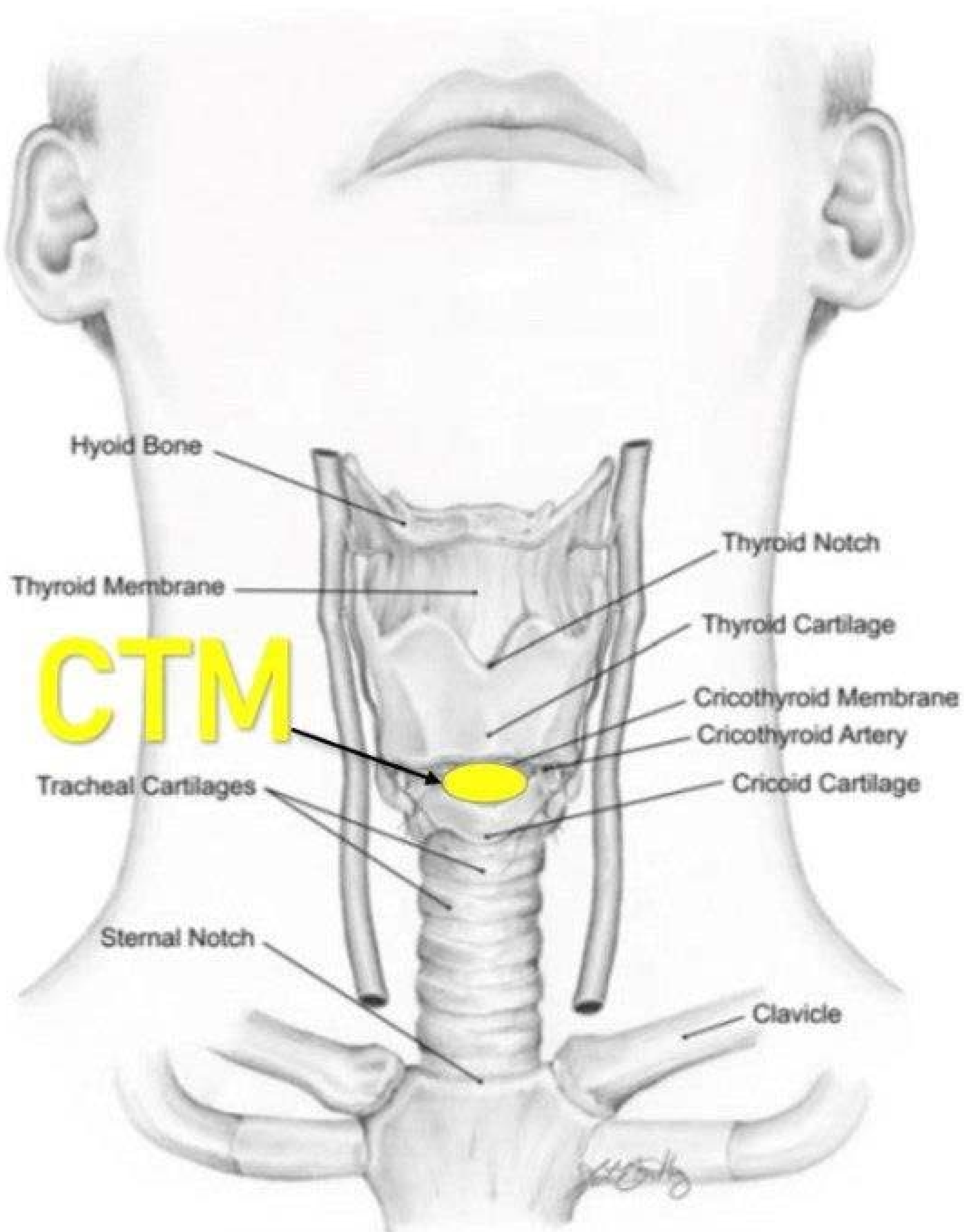


Figure 1. Anatomy of the larynx.