NOTE: This is a restricted procedure. A service and paramedic will require specific authorization from the Board prior to utilizing this procedure and skill.

Standard Surgical Cricothyrotomy

Purpose:

► To establish an emergency airway through an opening made directly into the trachea.

Indications:

- Situations where a patient cannot be ventilated and oxygenated due to an upper airway obstruction that cannot be relieved by traditional non-surgical methods (Example: upper airway burns with edema).
- ► Where direct laryngoscopy and other rescue airways have failed or are impossible due to maxillofacial trauma or severe bleeding that obscures anatomic landmarks.
- Situations where the medical crew deems that standard surgical cricothyrotomy is the best approach for airway management given the circumstances of the individual case.

Contraindications:

- Endotracheal intubation can be accomplished or a rescue airway results in adequate ventilation and oxygenation.
- ► Transection of the trachea with retraction of the distal end into the mediastinum.
- Fractured larynx or significant damage to the cricoid cartilage or larynx.
- ► Massive neck edema.
- ► Children < 12 years of age.
- Coagulopathy / bleeding diathesis.

Complications:

- Inadequate oxygenation leading to hypoxia and death
- ► Bleeding
- Aspiration
- Creation of a false passage into neck tissues.
- Subglottic stenosis / edema.
- Laryngeal stenosis.
- ► Laceration of the esophagus.
- ► Laceration of the trachea.
- Mediastinal emphysema
- Vocal cord paralysis or hoarseness.

NOTE: This is a restricted procedure. A service and paramedic will require specific authorization from the Board prior to utilizing this procedure and skill.

Standard Surgical Cricothyrotomy continued

Procedure:

- Continue ventilation and oxygenation attempts with oral/nasal airways and BVM with 100% oxygen while preparations are being made.
- Place patient supine with neck in a neutral position. Palpate the thyroid notch, cricoid cartilage, cricothyroid membrane, and sternal notch for anatomic landmark orientation. Assemble the necessary equipment:
 - #10 scalpel blade with handle
 - #5.0 or #6.0 cuffed ETT or tracheostomy tube
 - Prep solution: betadine or alcohol
- Prep the anterior neck with betadine or alcohol.
- Stabilize the thyroid cartilage with the non-dominant hand and maintain stabilization until the trachea is intubated.
- Make a 2-3 cm vertical midline incision from the mid thyroid cartilage down over the cricoid cartilage. Use care not to transect the cricoid cartilage. Note: Bleeding may be brisk, continue the procedure.
- ► With the index finger of the dominant hand, separate the incision skin edges and identify the cricothyroid membrane.
- A midline, short horizontal stabbing incision is made about 1 cm wide in the lower portion of the cricothyroid membrane near the cricoid cartilage. Use care not to transect the cricoid cartilage.
- Using the handle of the scalpel, widen the incision in the cricothyroid membrane by rotating the handle 90 degrees.
- Insert the ETT through the incision in the cricothyroid membrane and direct the tube distally into the trachea, being careful not to perforate the posterior tracheal membraneous wall.
- ► Inflate the cuff and ventilate the patient.
- ► Confirm ETT position by two clinical methods and ETC02.
- ▶ Secure the ETT. Consider using a C-collar, CSID/LSB to limit head movement.
- Confirm ETT position after each patient movement and on transfer of care to another provider.
- ► Use 4X4's and direct pressure to control bleeding.

References

- 1. ATLS text. 7 th edition. 2004. Am College of Surgeons. Chapt 2. Pg. 66.
- 2. Stewart C. Advanced Airway Management. Brady. 2002. Chapt. 8. Pg. 124-135.