Cricothyrotomy (Open)

Indication: Patients aged 13 years or older with **failure to oxygenate and ventilate by any less invasive means (BVM, EGD, or ETI) in whom respiratory arrest is impending or present.**

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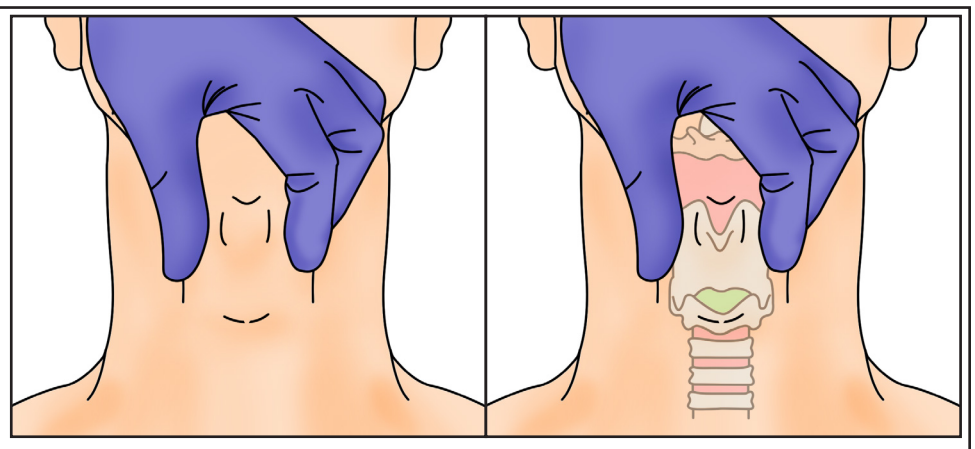
1. **Prepare scalpel, bougie, endotracheal tube, and suction.**
   This procedure produces a lot of blood that can obscure visualization. Suction operated by an assistant is highly recommended for success.

2. **Perform a "laryngeal handshake"** with the non-dominant hand to identify and retain landmarks throughout the procedure.
   The cricothyroid membrane is ALWAYS inferior to the "Adam's Apple", which is the most prominent part of the thyroid cartilage. In women and individuals with thick necks, this prominence may not be as palpable. Take caution not to incise above the thyroid cartilage (thyrohyoid membrane), since this incision will be above the vocal cords.

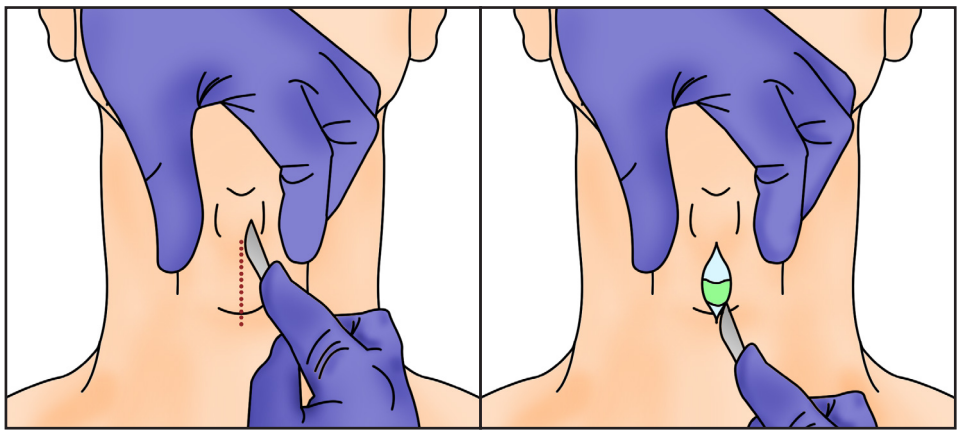
3. **Cleanse the skin** over the cricothyroid membrane with an antiseptic.

4. While stabilizing the larynx with the non-dominant hand, **create a vertical incision over the cricothyroid membrane**.
   The vertical incision should be deep enough to expose the cricothyroid membrane and long enough to give adequate access (at least 2-3cm).



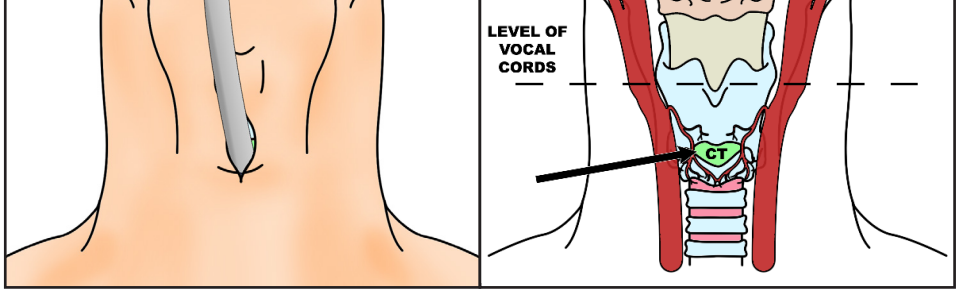
5. Once the skin has been incised, **perform a horizontal "stab" incision** through the midline of the cricothyroid membrane.
   It is recommended that this incision not be extended beyond the stab, as there is potential to lacerate the superior thyroid arteries on either side. The stab incision should be made with the blade directed slightly towards the feet to avoid damaging the vocal cords that are superior to the cricothyroid membrane.

6. Remove the scalpel and **insert a gloved finger perpendicularly into the wound to dilate it** and serve as a placeholder.
   Be cautious not to dilate into the soft tissue, which will create false tracts.



7. **Guide a bougie** through the incision and into the trachea, using the finger as a guide.
   The bougie does not need to be inserted deeply or it may traumatize the smaller airways.

8. Using the bougie as a guide, **thread an endotracheal tube into the trachea** until the cuff disappears (no greater than 2-3cm due to risk of right mainstem intubation). Inflate the cuff.
   The ETT will need to be smaller than that used for orotracheal intubation. In an average adult, consider a 6.0 ETT.



9. **Confirm the placement** of the endotracheal tube.
   ALL ENDOTRACHEAL TUBES MUST BE CONFIRMED BY WAVEFORM CAPNOGRAPHY
   Because of the small-for-size endotracheal tube, the patient may require longer periods of exhalation between ventilations to avoid breath-stacking.

10. **Secure the tube.**