



PERTRACH SURGICAL AIRWAY (CRICOTHYROIDOTOMY)



Escambia County, Florida - ALS/BLS Medical Protocol

Cricothyrotomy is an emergency procedure involving incising or puncturing the cricothyroid membrane to access the trachea for ventilation purposes.

Indications

Cricothyrotomy is indicated for relief of life-threatening upper airway obstruction in which manual maneuvers to establish an airway, endotracheal intubation is not possible and attempts at ventilation have failed. Such circumstances might include the patient with severe laryngeal edema or facial and upper laryngeal trauma. Direct visualization with a laryngoscope should be attempted to improve the airway by using Magill forceps to remove any foreign body, when applicable. Needle cricothyrotomy is recommended when unable to oxygenate/ ventilate children < 12 years of age.

Precautions

This procedure is not without considerable hazards. The cricothyroid membrane must be correctly identified to prevent uncontrollable bleeding and possible damage to surrounding structures when the opening is made.

Adverse Reactions

Should air escape out of the trachea through the hole created by the catheter, subcutaneous or mediastinal emphysema could develop. Also, if bleeding is severe, this could hamper proper gas diffusion in the lungs, as with pulmonary edema.

Procedure for "Pertrach" Cricothyrotomy


1. Hyperextend the patient's neck (unless cervical spine injury is suspected). This position brings the larynx and cricothyroid membrane into the extreme anterior position.
2. Locate the cricothyroid membrane between the cricoid and thyroid cartilages by palpating the depression caudal (towards the feet) to the midline Adam's Apple.



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3. Clean the area well with Betadine solution or providone-iodine swabstick. Remove dilator from package and protective sheath and advance it into the tracheotomy tube.
4. Cut vertically 1-2 cm after spreading and stabilizing the skin over the cricothyroid membrane (optional but may make insertion of dilator and tube easier).
5. Grasp the trachea, locate cricothyroid membrane and insert the needle.
6. Aspirate for air with a syringe when you feel a decrease in resistance. Once this has occurred cease advancement of the splitting needle. Incline needle. more than 45 degrees toward carina and complete insertion. Always maintain the tip of the needle in the midline of the airway. Remove the syringe
7. Thread dilator tip into the hub of the needle.
8. Squeeze wings of needle and open out to split needle. Remove needle halves leaving the dilator tip in the trachea..
9. Advance dilator into airway, place tube in functional position (faceplate against skin).
10. Remove dilator.
11. Inflate cuff with 5cc of air.
12. Ventilate the patient with a bag-valve unit at the highest available Oxygen concentration.
13. Auscultate lung sounds and look for chest rise to determine ventilation adequacy.
14. Secure the device to the neck.

Warning:


1. If the splitting needle is inserted to deep, perpendicular to skin, it could puncture posterior wall of trachea.



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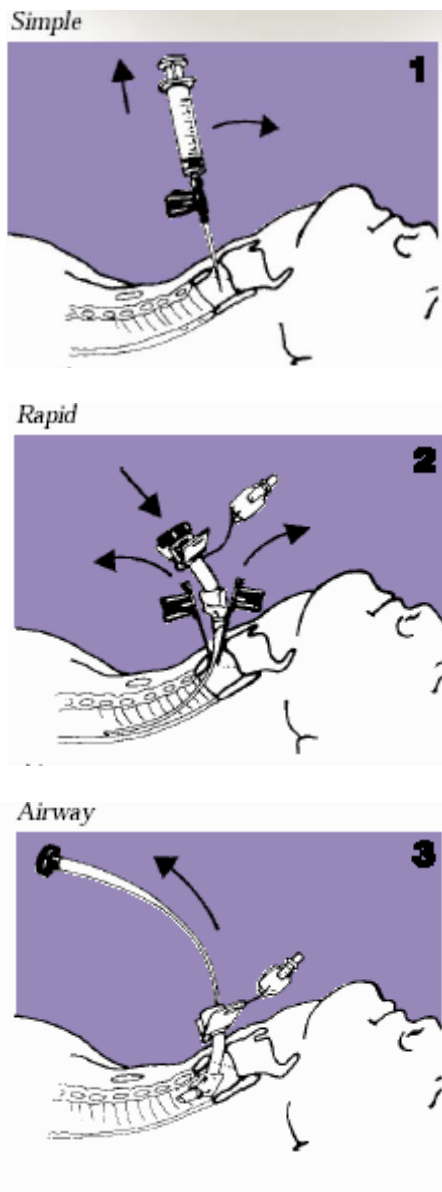


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2. Insertion of device through thyroid cartilage can injure vocal cords.
3. Retraction of dilator back through the split needle could result in shearing off part of the dilator into the airway.



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Needle Cricothyroidotomy (Preferred for Pediatrics)


1. Identify and prepare area (as above).
2. Attach appropriate size IV catheter-over-the needle to a syringe. Locate a 3.0 ET tube with 15 mm adaptor.
3. Insert IV catheter through the skin and cricothyroid membrane into the trachea. Direct the needle at a 45-degree angle caudally (toward the feet). When the needle penetrates the trachea, a "pop" will be felt.
4. Aspirate with the syringe. If air is returned easily, the needle is in the trachea.
5. Withdraw the stylet while gently advancing the catheter downward into the position.
6. Attach the 15 mm adaptor (from a 3.0 ET tube) to the needle hub.
7. Ventilate the patient with a bag-valve unit at the highest available Oxygen concentration.
8. Auscultate lung sounds and look for chest rise to determine ventilation adequacy



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