



EMERGENCY CRICOTHYROIDOTOMY

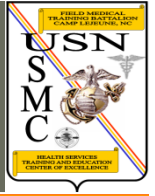




OVERVIEW



- Anatomical Landmarks
- Indications
- Proper Equipment
- Procedural Steps
- Complications



LEARNING OBJECTIVES

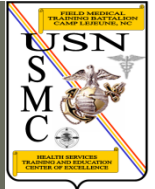
Please Read Your

Terminal Learning Objectives

And

Enabling Learning Objectives





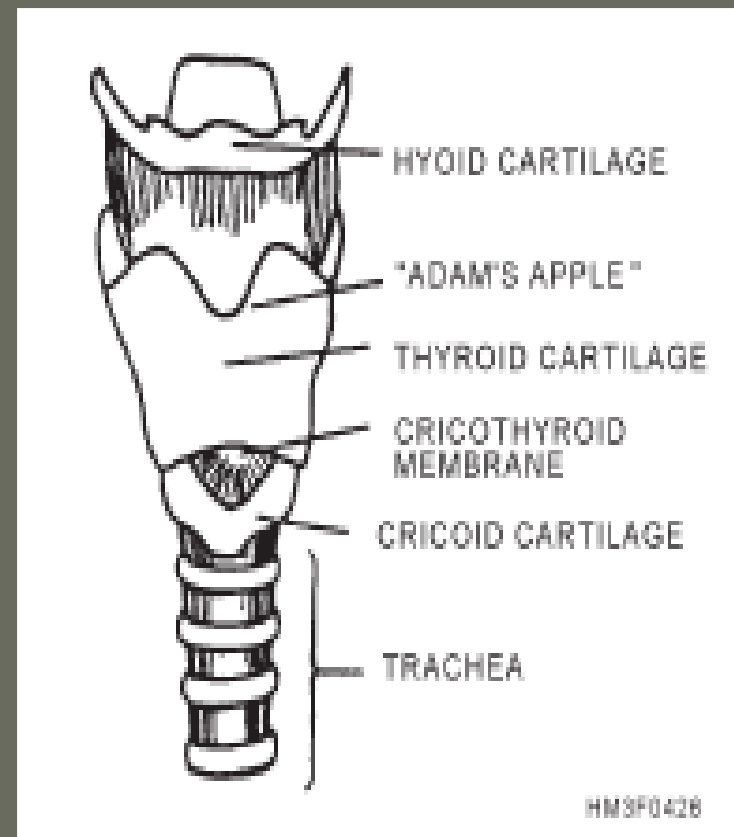
ANATOMICAL LANDMARKS



ANATOMICAL LANDMARKS



- TRACHEA
 - Windpipe
- THYROID CARTILAGE
 - Adam's Apple
 - Located in upper part of throat
 - More prominent in men

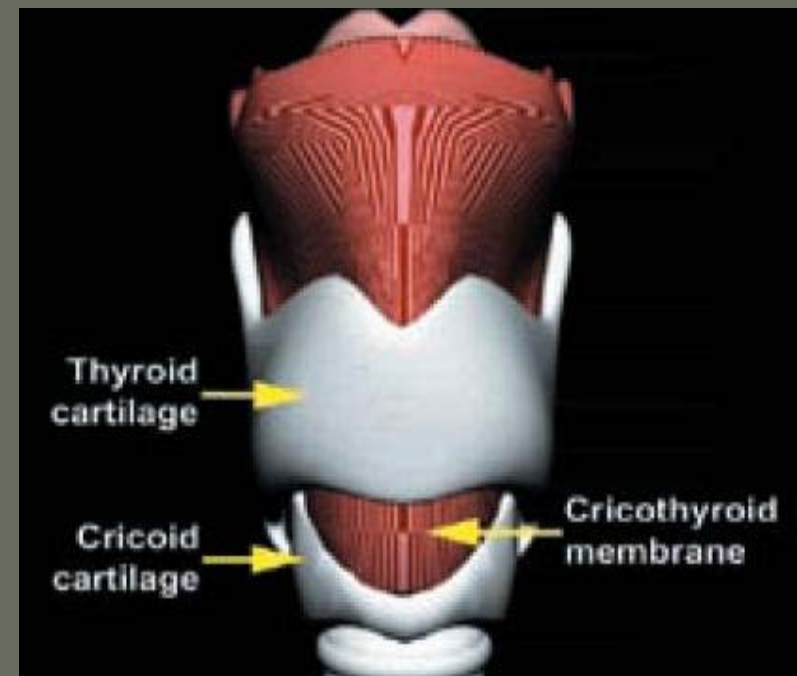




ANATOMICAL LANDMARKS



- **CRICOID CARTILAGE**
 - $\frac{3}{4}$ inch inferior to thyroid cartilage
 - Framework of the larynx
- **CRICOTHYROID MEMBRANE**
 - Soft tissue between thyroid cartilage and cricoid cartilage
 - Only covered by skin





ANATOMICAL LANDMARKS



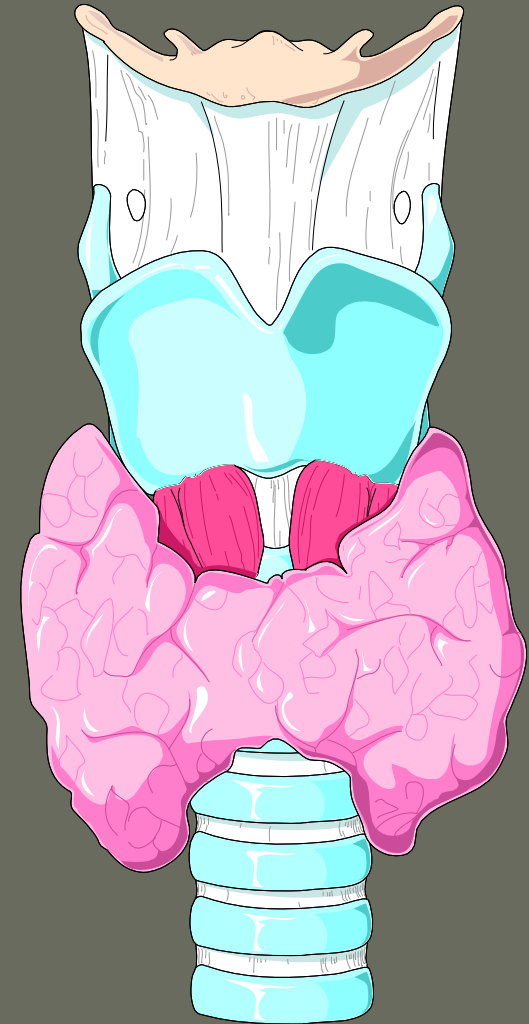
- CAROTID ARTERIES
 - Two principal arteries of the neck
- JUGULAR VEINS
 - Two principal veins of the neck



ANATOMICAL LANDMARKS

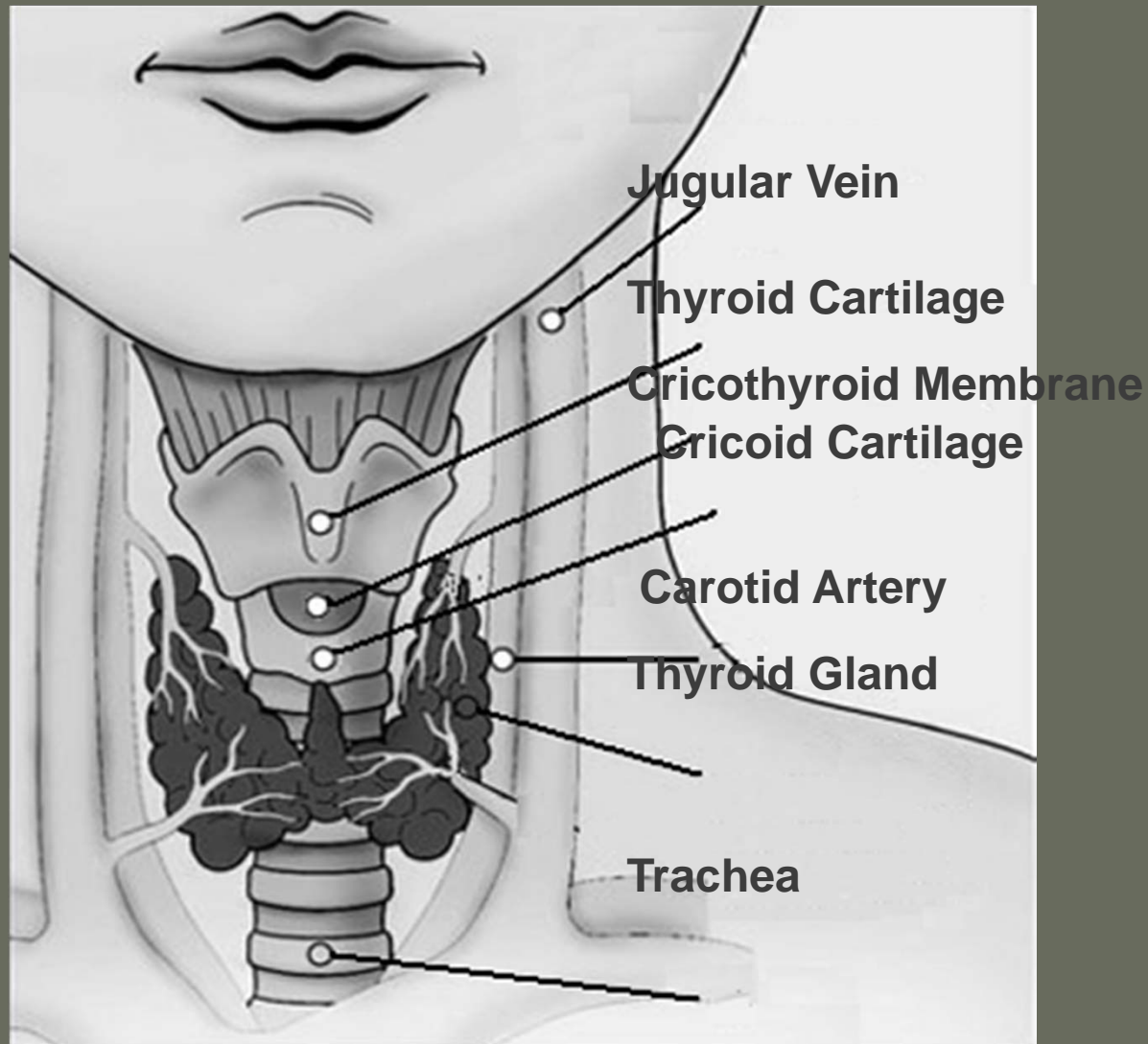


- ESOPHAGUS
 - Tube extending downward from pharynx to stomach
 - Lies posterior to the trachea
- THYROID GLAND
 - Located in front of the lower part of the neck on each side of the trachea





ANATOMICAL LANDMARKS



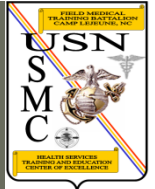




INDICATIONS



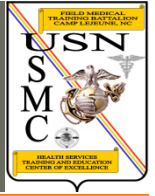
INDICATIONS



- Definition of Emergency Cricothyroidotomy
 - An emergency surgical procedure where an incision is made through the skin and cricothyroid membrane.
 - Allows for the placement of an airway into the trachea when other methods of airway management are not possible



INDICATIONS



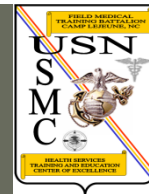
- Obstructed airway:
 - Facial and oropharyngeal edema from severe trauma
 - Foreign objects
- Congenital deformities that inhibit intubation

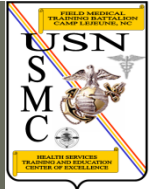


INDICATIONS

- HEAD AND NECK TRAUMA
 - Facial and oropharyngeal edema
 - Facial fractures
 - Nasal fractures
 - Cribriform fractures
- C-SPINE FX
- LAST RESORT
- CONTAININDICATIONS
 - Massive trauma to larynx



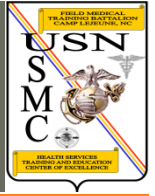




PROPER EQUIPMENT



PROPER EQUIPMENT



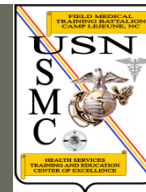
- Scalpel with no. 10 blade
- Antiseptic (alcohol or Providone Iodine)
- 6-7 mm endotracheal tube /10cc syringe
- Tape
- Instrument to expose/define opening
- Gauze (petroleum and sterile)
- BVM and oxygen source

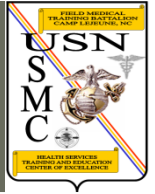
* Most items are contained in the Cric Kit
in the Corpsman Assault Pack*



PROPER EQUIPMENT







PROCEDURAL STEPS FOR EMERGENCY CRICOTHYROIDOTOMY





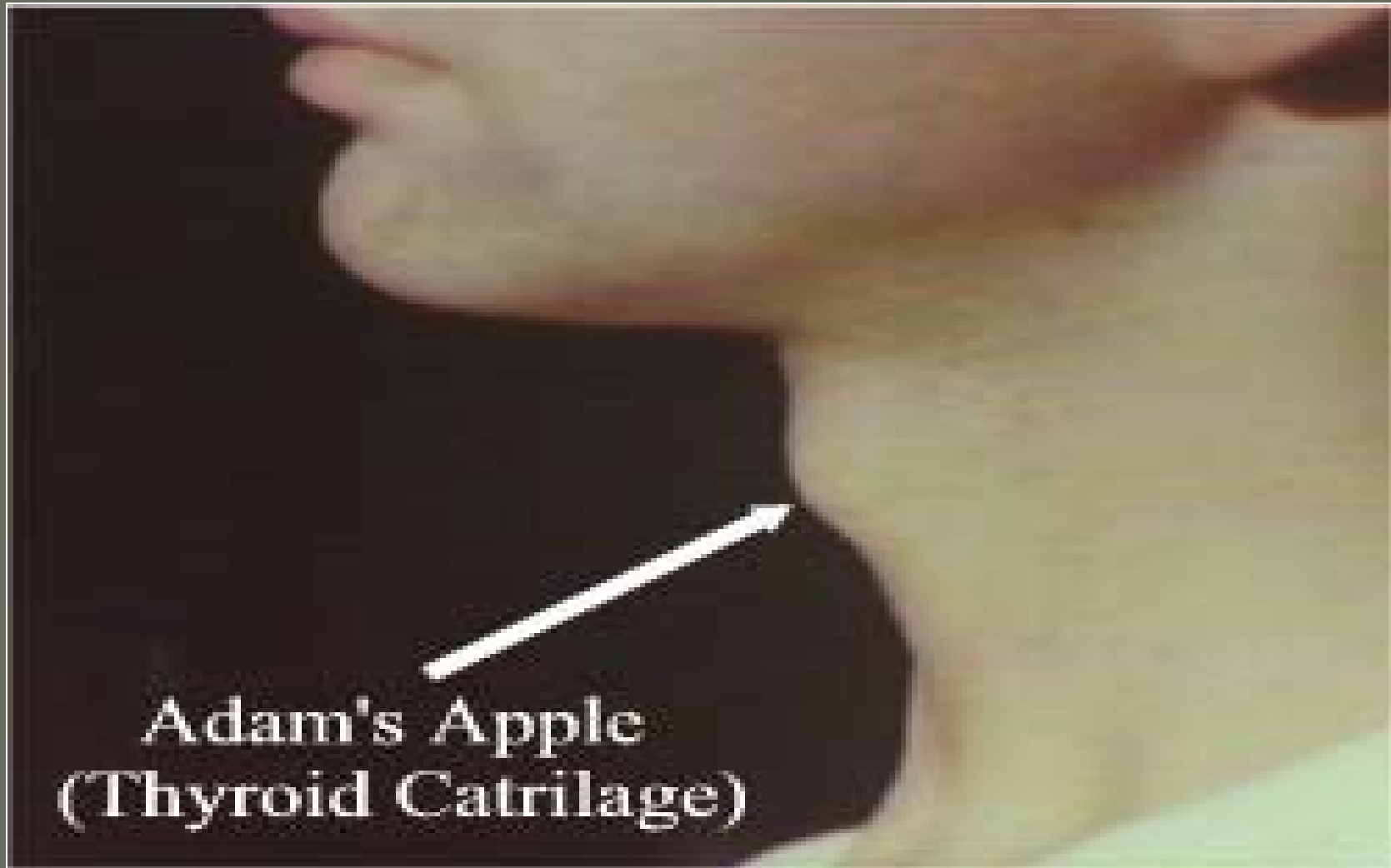
PROCEDURAL STEPS



- (1) Assess the patient
- (2) Gather equipment
- (3) Prepare and Position Patient
 - Supine position
 - Cleanse site with alcohol or betadine swabs
 - Stand to one side of the patient
- (4) Locate cricothyroid membrane

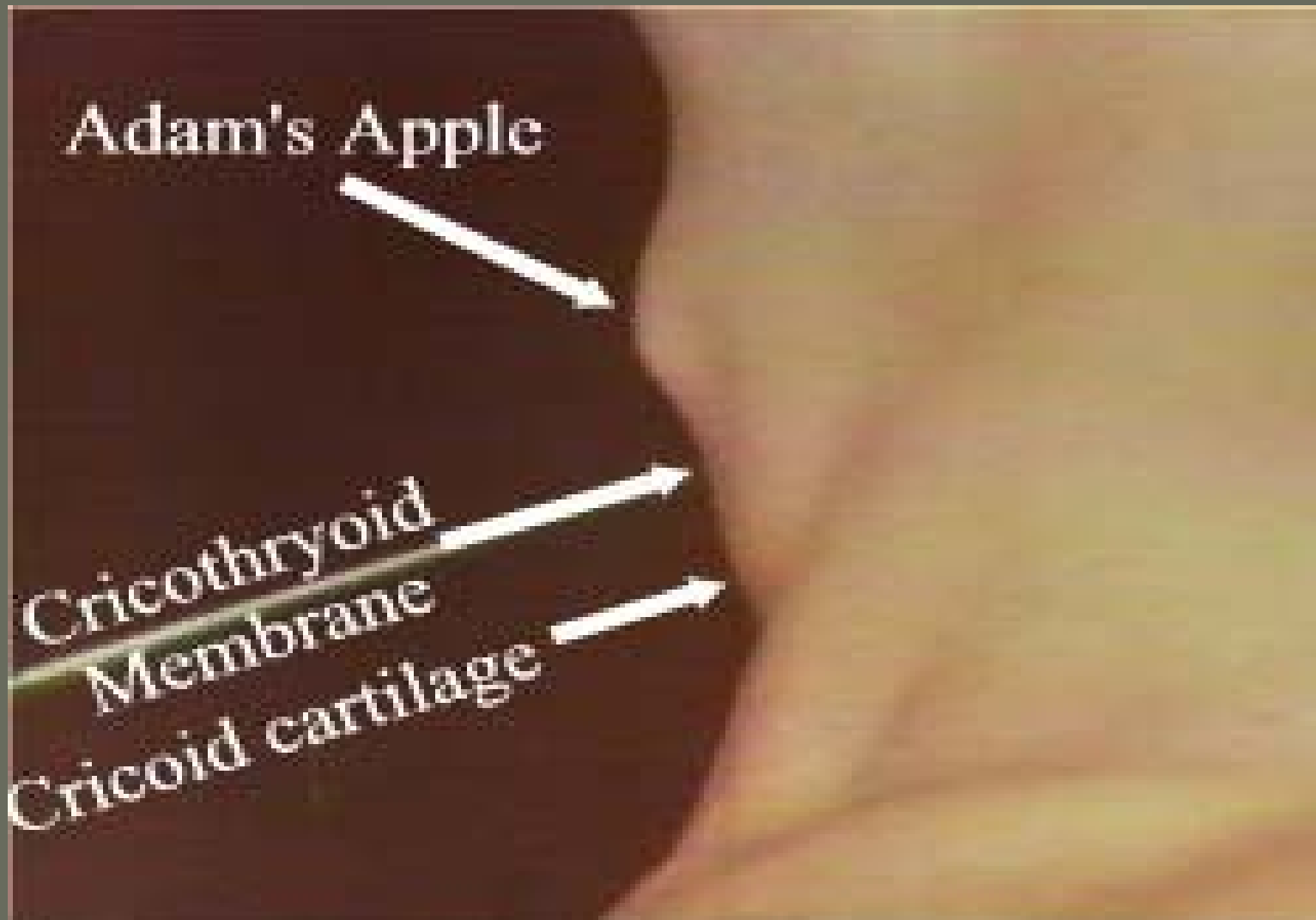


PROCEDURAL STEPS



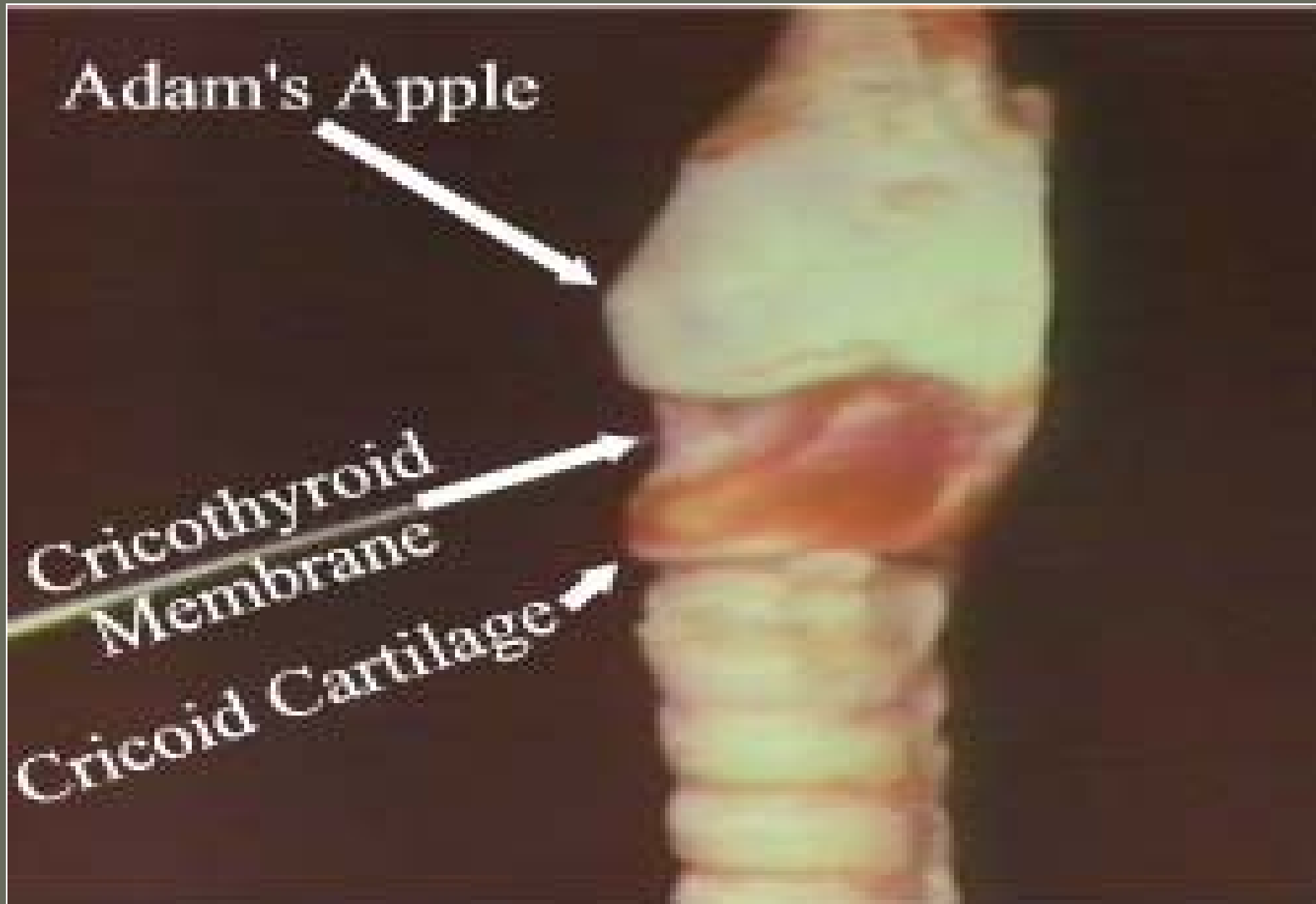
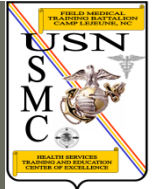


PROCEDURAL STEPS



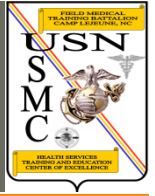


PROCEDURAL STEPS





PROCEDURAL STEPS

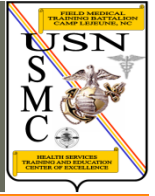


(5) Make Incision

- Vertical incision through the skin about 1 inch long over the cricothyroid membrane
- Visualize the cricothyroid membrane
- Horizontal incision through the membrane
 - **DO NOT** make incision more than 1/2 inch deep or you may perforate the esophagus.



PROCEDURAL STEPS



(6) Open the Incision

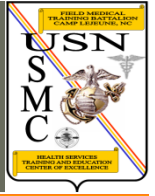
- Use tracheal hook or hemostats

(7) Insert Tube

- Lubricate and insert tube
- No more than 3-4 inches
- Inflate balloon with 10cc of air



PROCEDURAL STEPS



(8) Check for proper placement

- Connect to Oxygen Supply (if available)
- Connect BVM
- Check for breath sounds
- Constantly recheck for breath sounds
 - If breath sounds are absent on the LEFT side only, tube should be pulled back

(9) Secure Dressing

- Secure with ribbon and/or tape
- Apply petroleum gauze followed by sterile gauze



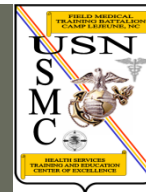
PROCEDURAL STEPS



(10) Monitor patient

- Continuously reassess
- 1 breath every 5 seconds



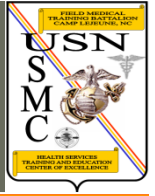




ASSOCIATED COMPLICATIONS



COMPLICATIONS



- Hemorrhage (MOST COMMON)
 - Causes
 - Minor lacerations of superficial capillaries
 - Major lacerations of major vessels
 - Treatment
 - Minor Bleeding – direct pressure and dressing
 - Major Bleeding – same as minor, if unable to control bleeding the vessel may need to be tied off.



COMPLICATIONS



- ESOPHAGEAL PERFORATION – creating a hole between esophagus and trachea
 - Causes
 - Incision too deep
 - Forcing tube through trachea
 - Treatment
 - Requires surgical intervention
 - TACEVAC to higher level of care

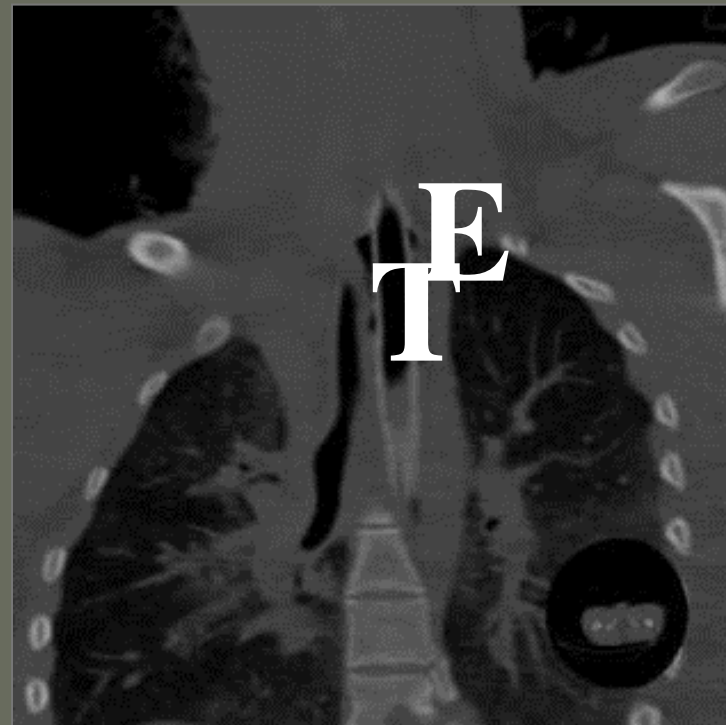


COMPLICATIONS

ESOPHAGEAL PERFORATION



Tube entered through wound into esophagus



- “T” indicates trachea
- “E” indicates esophagus

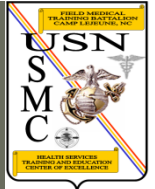


COMPLICATIONS



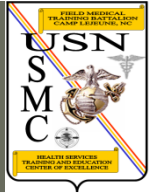
- SUBCUTANEOUS EMPHYSEMA –
presence of free air or gas in the subcutaneous
tissue, crackling sensation when palpated
 - Causes
 - Incision too wide
 - Air leaking out of insertion site
 - Treatment
 - None necessary
 - Resolves spontaneously
 - Use petroleum gauze to help reduce incidence





DEMONSTRATION





PRACTICAL APPLICATION





EMERGENCY CRICOTHYROIDOTOMY

