

INITIAL ASSESSMENT OF THE TRAUMA PATIENT

- Rambam Medical Center
- Dr Nordkin Dmitri

The TRAUMA TEAM



Concepts of Initial Assessment

- **Rapid Primary Survey**
- **Resuscitation**
- **Detailed Secondary Survey**
- **Re-evaluation**
- **Initiate Definitive Care**

Concepts of Initial Assessment

Triage

**Sorting of Patients According to
ABCs and Available Resources**

Concepts of Initial Assessment

Primary Survey

Adult / Pediatric priorities – Same

- **A - Airway with C-Spine Control**
- **B - Breathing**
- **C - Circulation With Hemorrhage Control**
- **D - Disability: Neurologic Status**
- **E - Exposure / Environment**

Concepts of Initial Assessment

Primary Survey

Establish
Airway

Caution

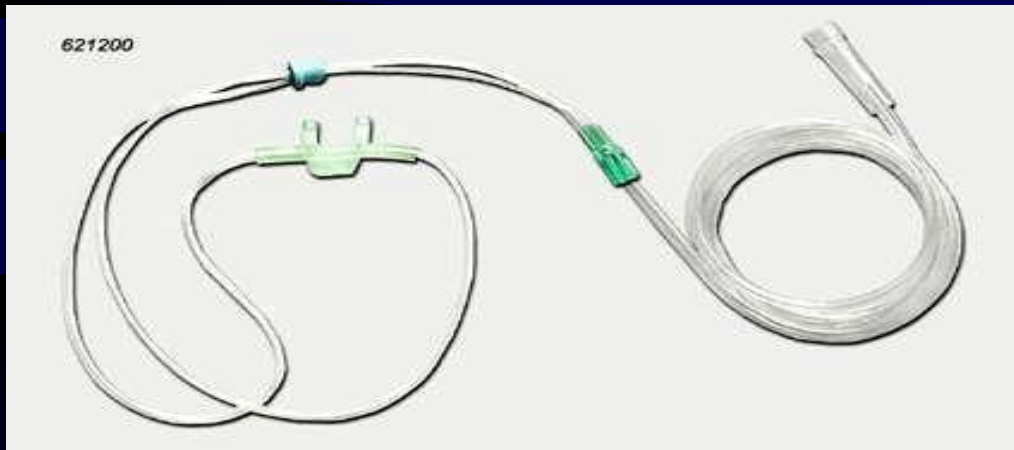
**Cervical Spine
Injury**



Adequate C-spine Film

Airway Management

Nasal Cannula or Catheter



Flow O ₂ (l/min)	%O ₂
2	28
3	32
4	36
5	40
6	44

Oxygen Mask



Flow O2	%O2
5-6	40
6-7	50
7-8	60

Mask with Reservoir Bag



Flow O2	%O2
6	60
7	70
8	80
9	80+
10	80+

Venturi Mask

- FiO₂ from 0.24 to 0.40



The Patient Condition

1. Conscious
2. Partially/ fully unconscious
 - A. Spontaneous respiration
 1. Occluded/ obstructed
 2. Inadequate
 - B. Apneic

Signs and Symptoms of Airway Obstruction

- Noisy breathing
- Effort of breathing: tracheal tugging, intercostal recession, abdominal see-saw movement
- Increased use of respiratory muscles
 - Apnea (late)
 - Cyanosis (late)

Basic Management of Airway Obstruction

1. Chin lift and head tilt.
2. Jaw thrust.
3. Both maneuvers.
4. Oro/nasopharyngeal airways.
5. Heimlich maneuver, suction etc.
6. Ventilation via mask and AMBU.

Head Tilt/ Chin Lift



Jaw Thrust

Modified Jaw Thrust

- Used when possibility of C-spine injury exists
- Grasp the angles of the patient's lower jaw and lift with both hands, displacing the mandible forward
- If the lips close, retreat the lower lip with thumb



Heimlich Maneuver



Cover your fist with your other hand and thrust up and in with sufficient force to lift the victim off his feet



Modes of ventilation

- Mouth-to-mouth/ mouth-to-nose
- Mouth-to-mask
- Bag-valve device
- Transtracheal jet-ventilation
- Automatic transport ventilators

Indications for securing an airway with an Endotracheal tube



Definitive airway

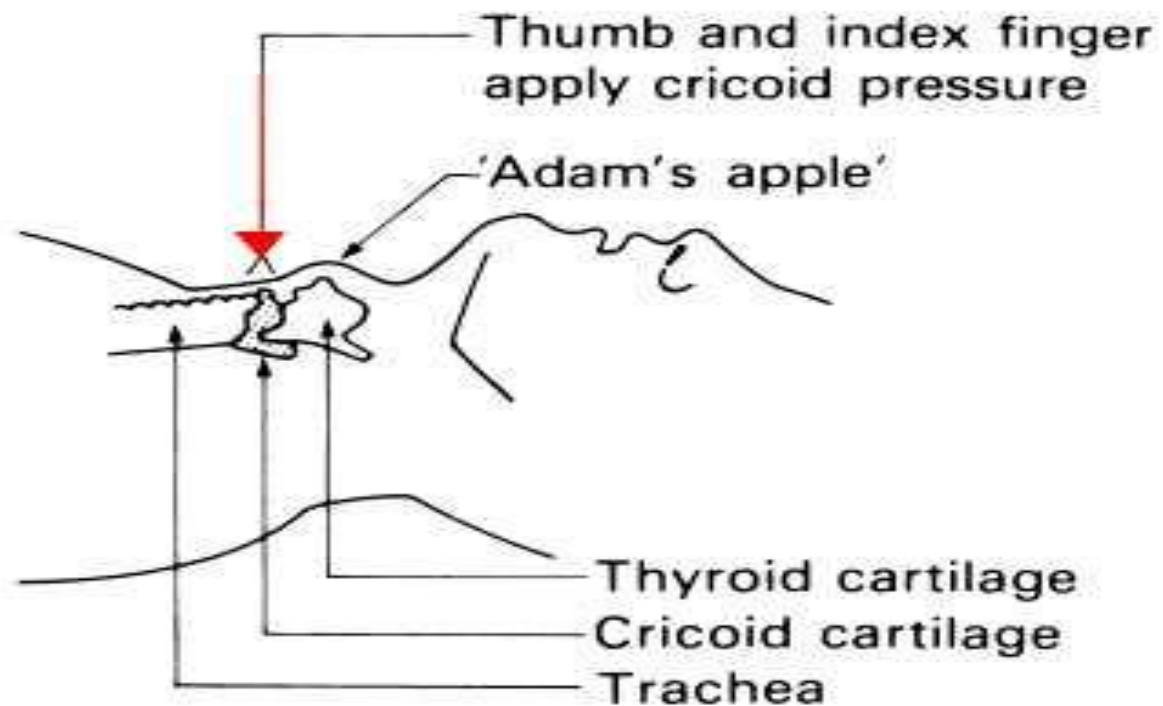


The technique for rapid- sequence intubation is as follows:

1. Preoxygenate the patient with 100% oxygen
2. Apply pressure over the cricoid cartilage
3. Administer 1-2 mg/kg succinylcholine I.v.
4. After the patient relaxes, intubate the patient orotracheally
5. Inflate the cuff and confirm tube placement (auscultate the patient's chest and determine of CO₂ in exhaled air)
6. Release cricoid pressure
7. Ventilate the patient

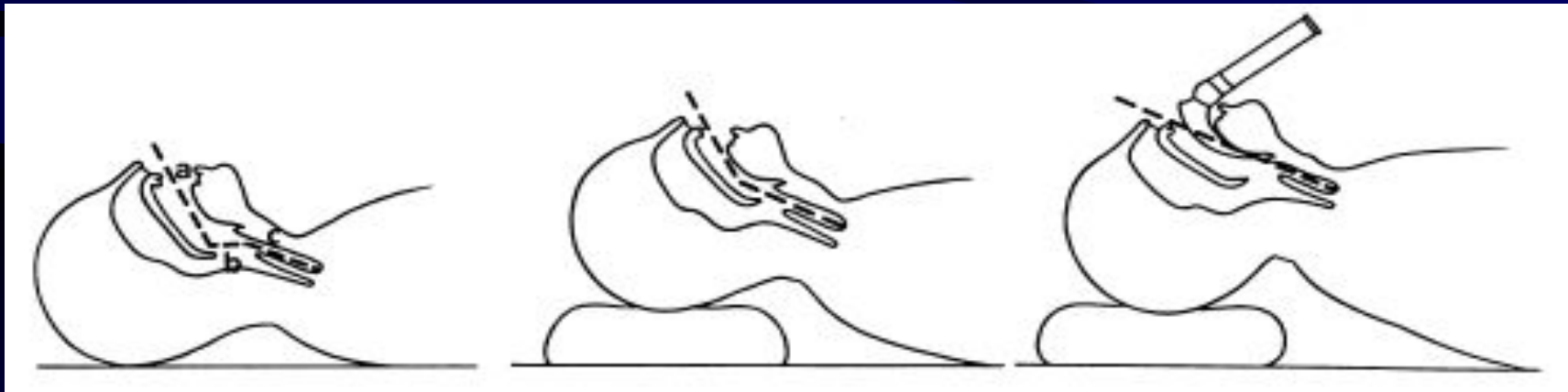
Cricoid Pressure

Sellick's Manoeuvre, applying cricoid pressure

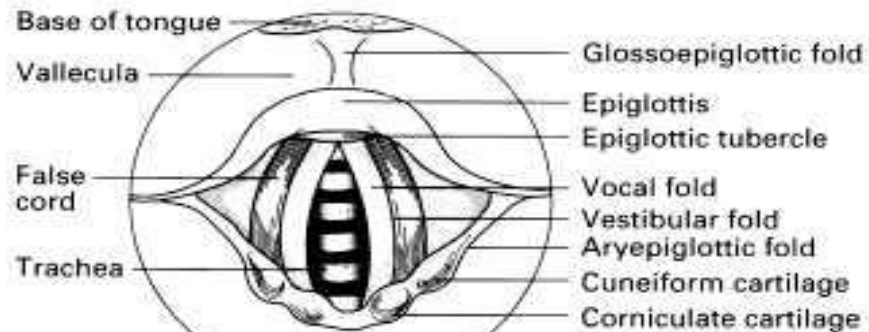


“Sniffing Position”

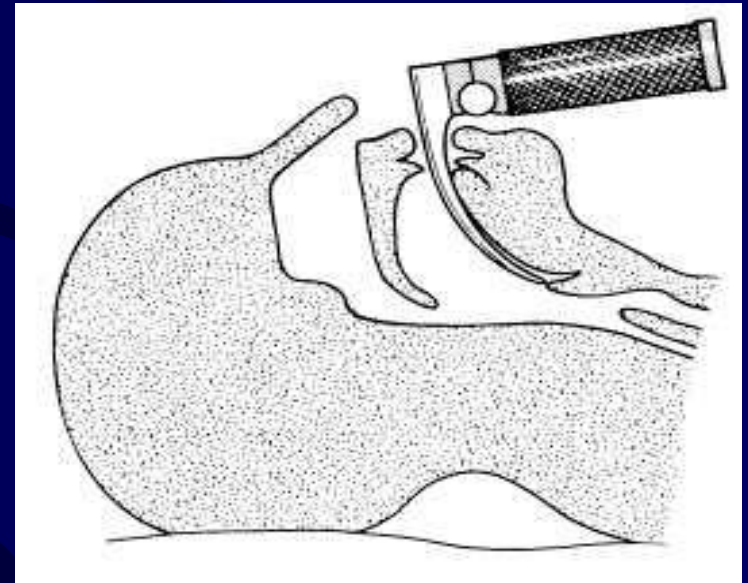
- *Remember about C-spine protection!!!*



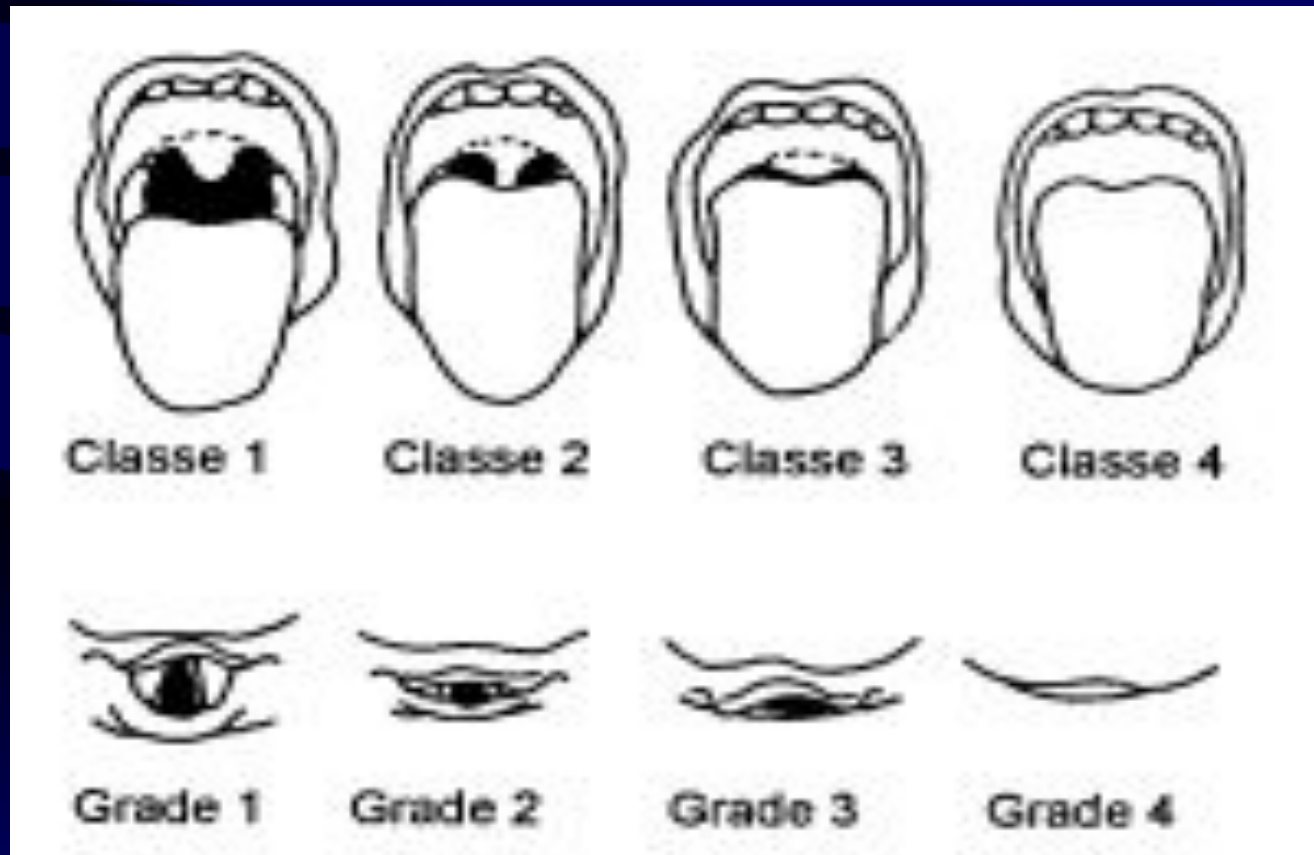
Endotracheal Intubation



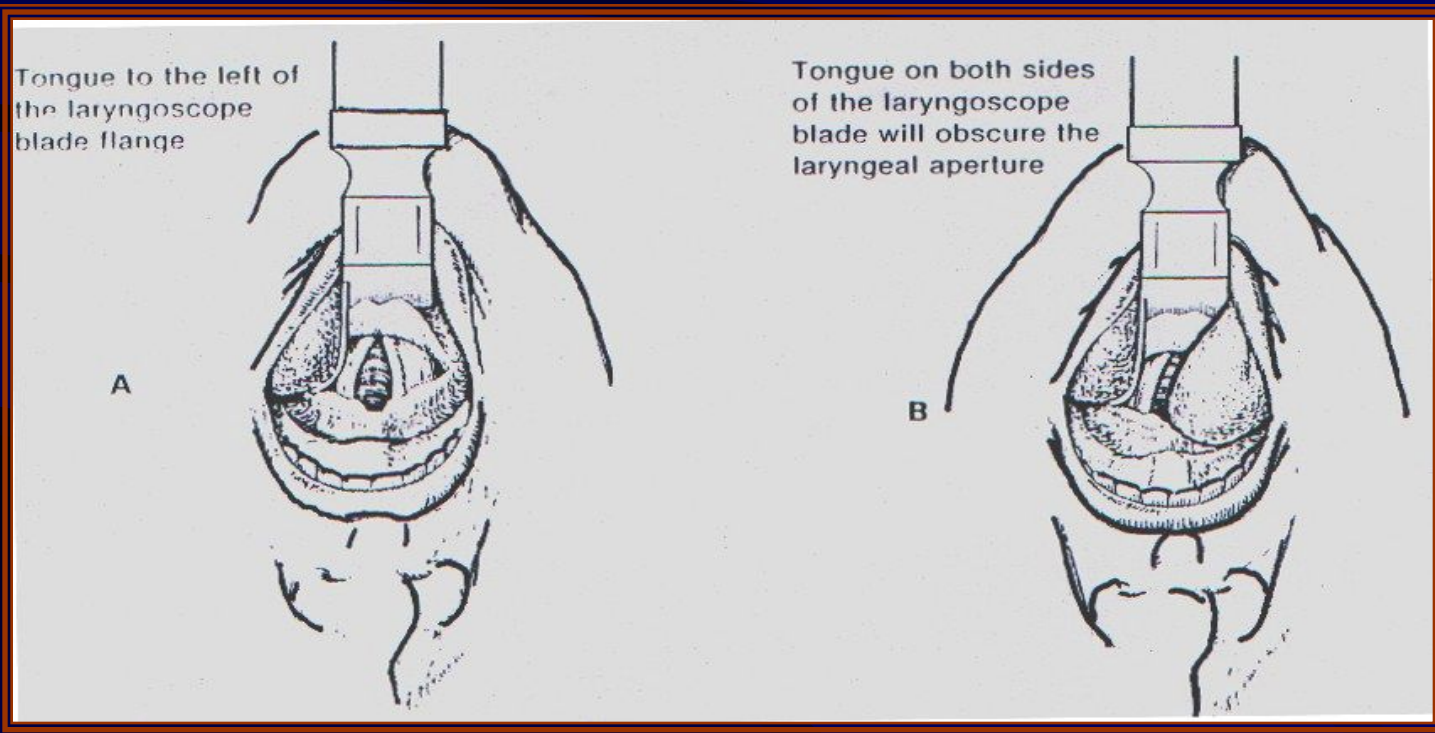
View of the larynx at laryngoscopy.



Endotracheal Intubation

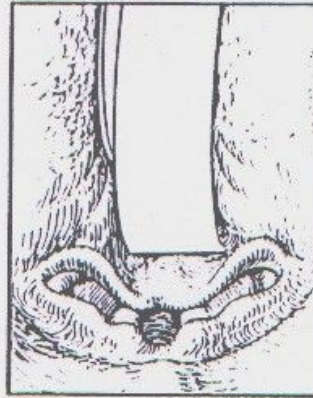
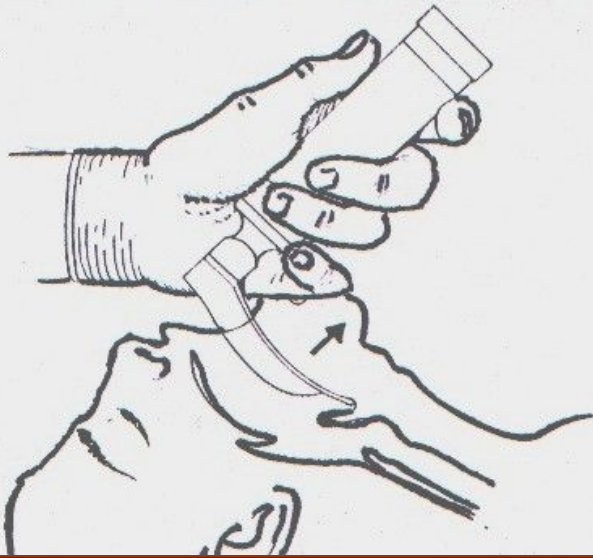


Endotracheal Intubation

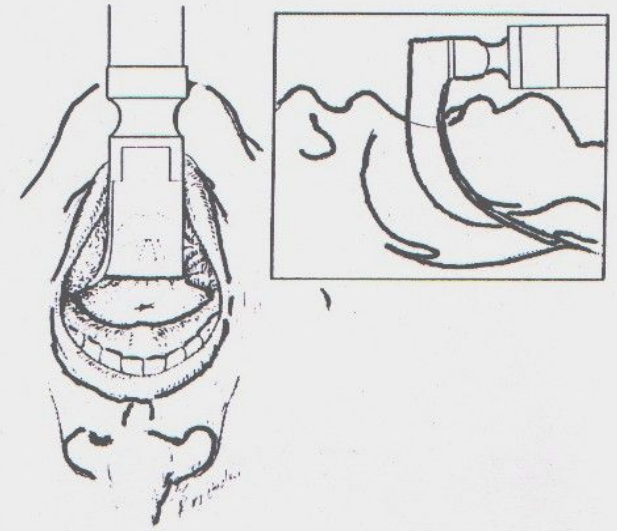


Endotracheal Intubation

Insertion of the laryngoscope blade too deeply into the vallecula can push the epiglottis over the laryngeal aperture



Insertion of the Laryngoscope Blade Too Deeply into the Pharynx Elevates the Larynx and Exposes the Esophagus



Endotracheal Intubation



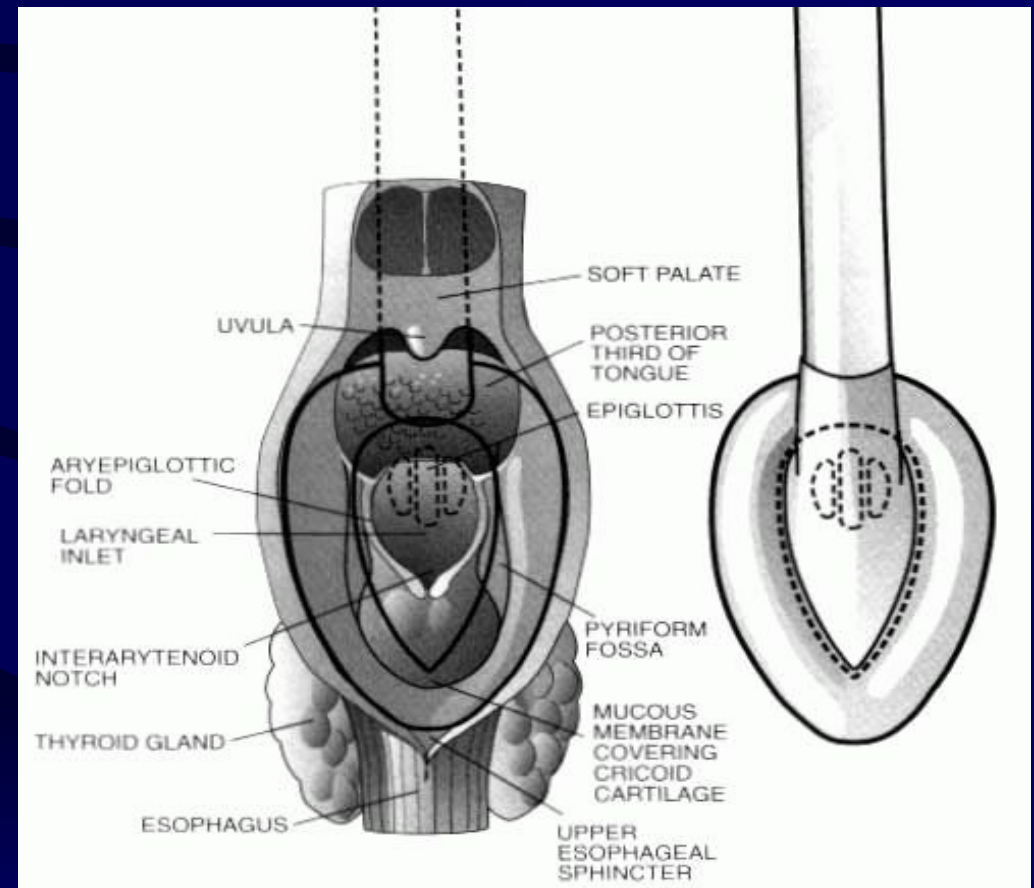
Alternatives to Endotracheal Intubation



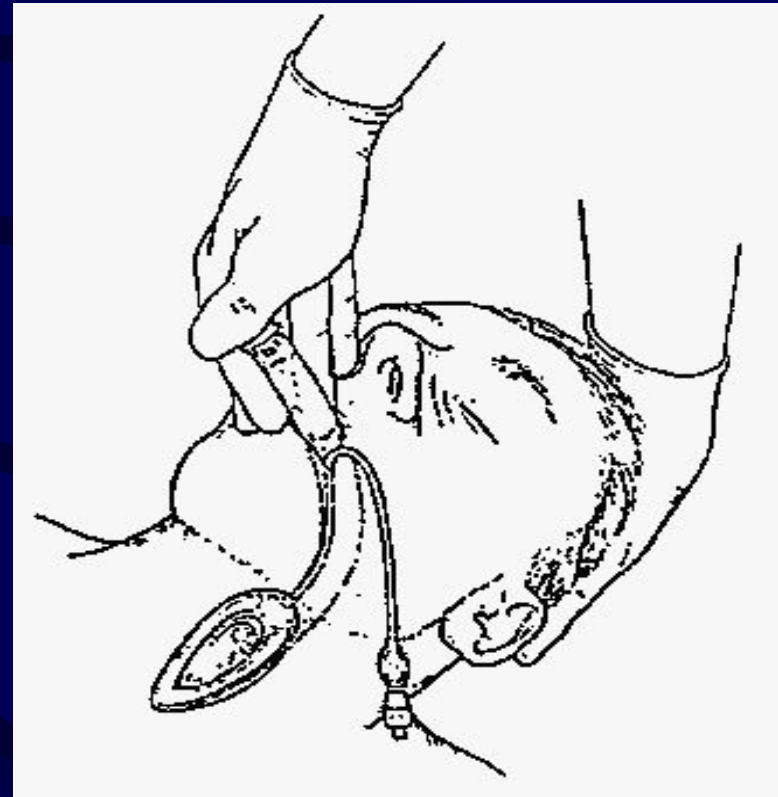
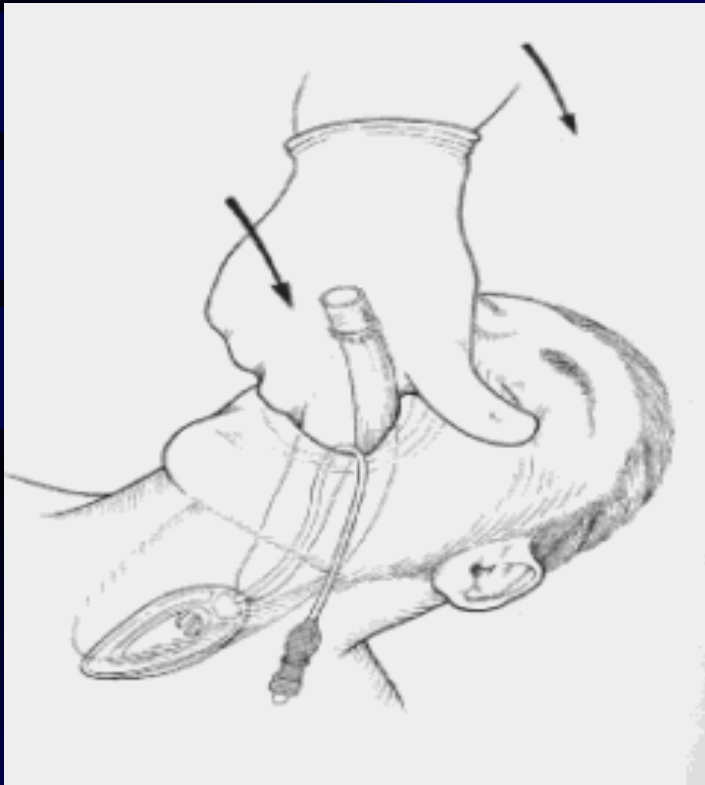
Alternatives to Endotracheal Intubation

- Oropharyngeal airway
- Nasopharyngeal airway
- Laryngeal mask airway
- Esophageal-tracheal Combitube®
- Cryothyrotomy
- Tracheostomy

Laryngeal Mask Airway



LMA



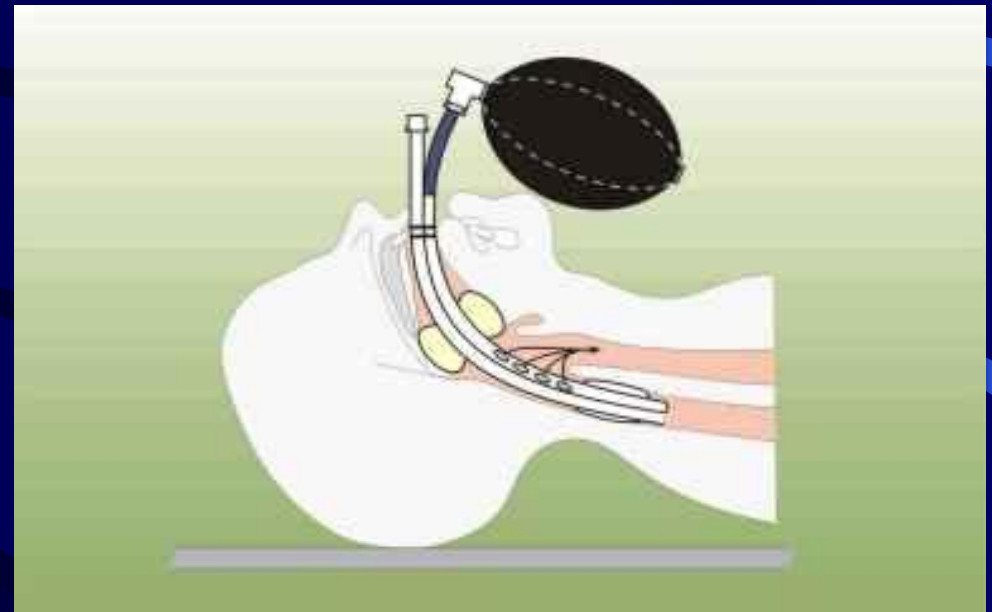
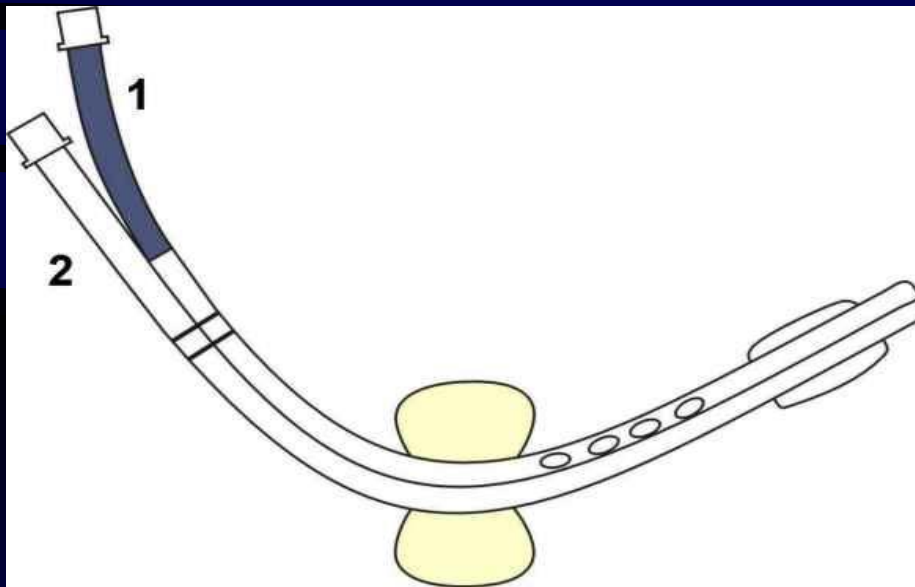
Fast-track LMA®



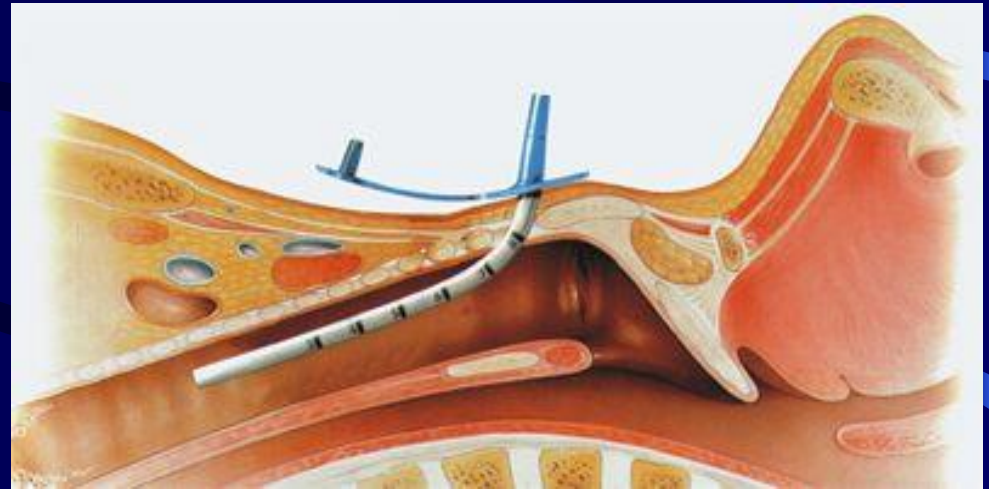
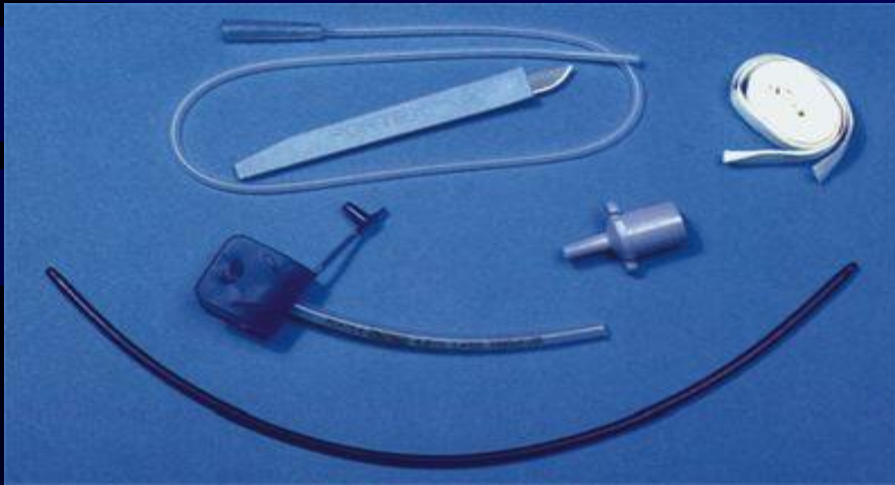
Combitube®



Combitube®



Cryothyrotomy



Tracheostomy



Concepts of Initial Assessment

Primary Survey

Assume C-Spine Injury !!

- Multi System Trauma
- Altered Level of Consciousness
- Blunt Injury Above Clavicles

Concepts of Initial Assessment

Primary Survey

Circulation

- Assess Blood Volume Loss and Cardiac Output
- Level of Consciousness
- Skin Color
- Pulse



Hemorrhage Control

Concepts of Initial Assessment

Primary Survey

Disability:

Neurological Evaluation

- **Level of Consciousness**
 - **A** - Alert
 - **V** – Response To Voice
 - **P** - Response To Pain
 - **U** - Unresponsive
- **Pupils**

Concepts of Initial Assessment

Primary Survey

Exposure / Environment

- Undress Pt Completely
- Protect from Hypothermia

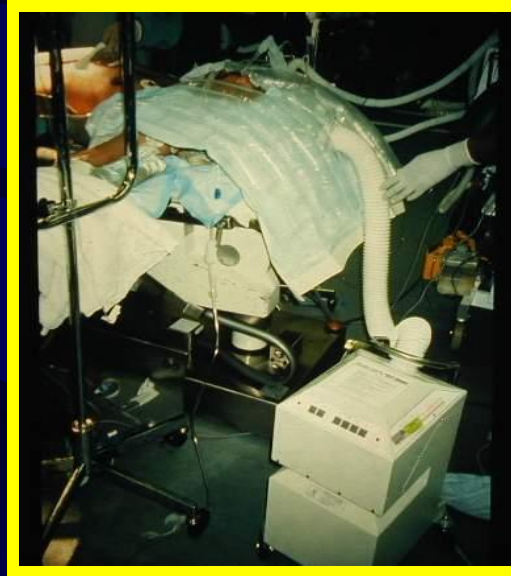
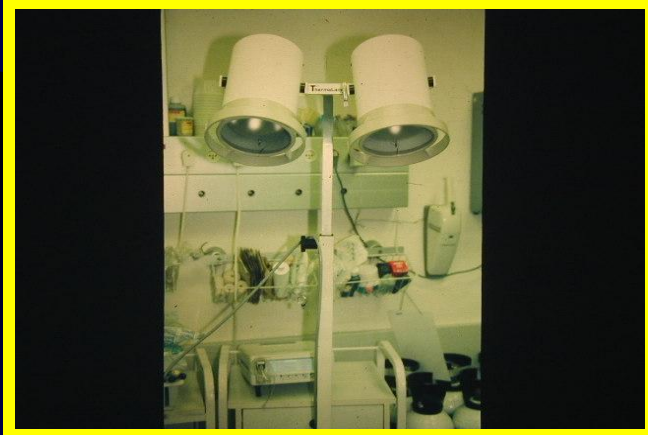
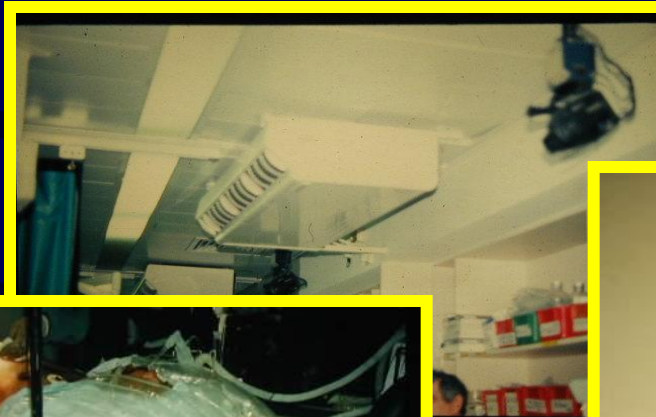
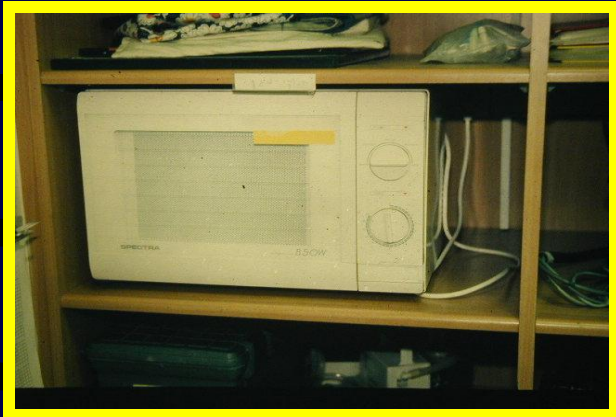
Concepts of Initial Assessment

Resuscitation

- **Protect / Secure Airway**
- **Ventilate / Oxygenate**
- **Fluid Therapy – New concept ???!**
- **Protect from Hypothermia**
- ***Caution:* Urinary / Gastric Catheters Unless Contraindicated**

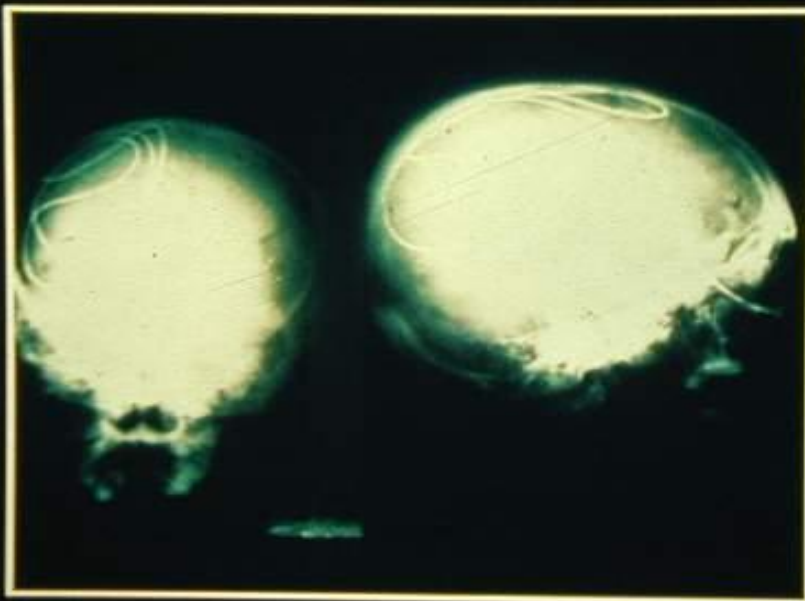
Concepts of Initial Assessment

Protect from Hypothermia



Initial Assessment

Catheter Contraindications



**Contraindication: Nasogastric
Tube Insertion**

Initial Assessment

Monitor

- Vital Signs
- Urinary Output
- ABGs
- ECG, Temp, Pulse Oximetry
- Ent\ld Tidal CO₂

Initial Assessment

Resuscitation

- **Manage Life-Threatening Injuries In Sequence and as Identified**
- **Consider Need For Transfer: MD to MD communication**

Initial Assessment

Before 2ry Survey

- Complete 1ry Survey
- Initiate Resuscitation
- Reassess ABGs

Initial Assessment

Secondary Survey

- Head-To-Toe Evaluation
- Complete Neurologic Evaluation
- X-Rays
- Special Procedures (Angio, MRI)
- “Tubes & Fingers in Every Orifice”
- **RE-EVALUATION**

Initial Assessment

“TRAUMA X-Rays”



Initial Assessment

Mobile X-Ray



INITIAL ASSESSMENT of THE
TRAUMA PATIENT

Initial Assessment

A,B,C,D,E and U (ultra sound)



INITIAL ASSESSMENT of THE
TRAUMA PATIENT

Initial Assessment

Secondary Survey

- Mechanism Of Injury: **BLUNT**
 - Direction of Impact Determines Injury Patterns
 - History / Description of Events
 - Age Factors

Initial Assessment

Secondary Survey

- Mechanism Of Injury: **Penetrating**
 - Anatomic Factors
 - Energy Transfer Factors
 - Velocity and Caliber of Bullet
 - Trajectory
 - Distance

Initial Assessment

Spine X-Ray Issues



INITIAL ASSESSMENT of THE
TRAUMA PATIENT

Initial Assessment

Secondary Survey

Musculoskeletal

- **Extremities/Pelvis:**
 - Contusions, Deformity, Pain, Crepitation, Abnormal Movement
- **Vascular:**
 - Assess All Peripheral Pulses
- **Spine:**
 - Physical Finding
 - Mechanism of Injuries

Initial Assessment

Secondary Survey

Neurologic

- Determine GCS Score
- Re-Evaluate Pupils
- Sensory / Motor Evaluation
- Maintain Immobilization
- Prevent 2ry CNS Injury
- Early Neurosurgical Consultation

Initial Assessment

Re-Evaluation

- **New Findings / Deterioration / Improvement**
- **High Index Of Suspicion**
- **Continuous Monitoring**
- **Pain Relief AFTER Surgical Consultation**

Initial Assessment

Definitive Care

- Trauma Center Vs
- Closest **Appropriate** Hospital

Initial Assessment

The Aftermath



INITIAL ASSESSMENT of THE
TRAUMA PATIENT

Initial Assessment

Records & Legal Considerations

- **Concise, Chronologic Documentation**
- **Consent for Treatment**
- **Forensic Evidence**