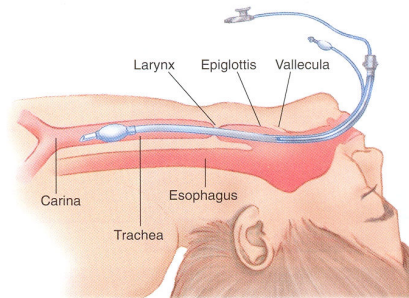


Orotracheal Intubation

Introduction:

Endotracheal intubation inserts an artificial airway connecting the respiratory system to the outside world and gives definitive control of the airway. The most common method of endotracheal intubation is orotracheal intubation.



Indications:

- Apnea
- Respiratory failure
- Inability to protect airway
- Altered level of consciousness
- Maintenance of patient airway
- Change in mental status

Contraindications:

- Laryngotracheal injuries
- Maxillofacial trauma or deformities that prevent orotracheal intubation
- In whom that muscle relaxation is prohibited.

Equipment:

- Sterile gloves
- Cardiac monitor and pulse oximeter
- Oxygen source
- Suction source and equipment
- Laryngoscope and blade size 2 and 3
- Curved (Macintosh) blade size 3 and 4
- Endotracheal (ET) tubes (variety of sizes):
 - Average adult male: 8 to 8.5 mm internal diameter.*
 - Average adult female: 7.5 to 8 mm internal diameter .*

- Stylet
- 10-ml syringe
- Confirmation device (e.g. end-tidal CO₂ detector, esophageal intubation detector)
- Securing device (twill tape or other)

Anesthesia:

Frequently, an induction agent and a neuromuscular blocking agent are administered to facilitate intubation; a sedative is commonly given afterward to lessen agitation in the awake, intubated patient.

- a. Induction agents:
 - Thiopental (4-6 mg/kg)
 - Etomidate (0.3 mg/kg)
 - Ketamine (1-3 mg/Kg)
- b. Neuromuscular blocking agents:
 - Succinylcholine (1.0 mg/kg)
 - Vecuronium (0.3 mg/kg for rapid sequence induction)
- c. Sedatives:
 - Diazepam (0.03-0.1 mg/kg)
 - Midazolam (0.05-0.15 mg/kg)
- d. Use topical Lidocaine spray to anesthetize the airway when intubation of awake

* Resuscitation drugs should be available at the bedside: Atropine, Phenylephrine, Ephedrine, and Epinephrine:

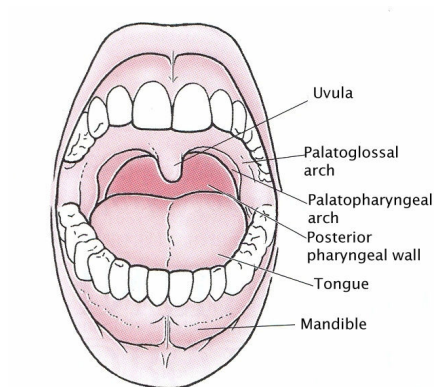
Positioning:

- Supine with head in sniffing position if patient is already horizontal or unconscious, or if oral intubation is planned.
- May remain sitting for blind nasal intubation if the patient cannot tolerate lying flat.

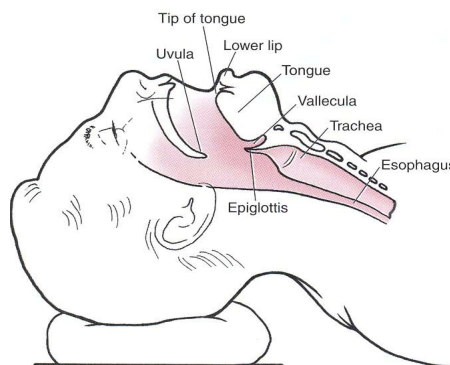
Technique:

1. Initiate continuous cardiac monitoring and pulse oximetry. Select the appropriate size ET tube and insert the stylet.
2. Check the equipment , including ET tube cuff, laryngoscope light, and suction.
3. Evaluate the patient's airway anatomy: oral cavity size, neck mobility, teeth, mentum–cricoid distance, and dentures (which should be removed). Ease of laryngoscopy correlates with the ability to visualize the soft palate, uvula, and

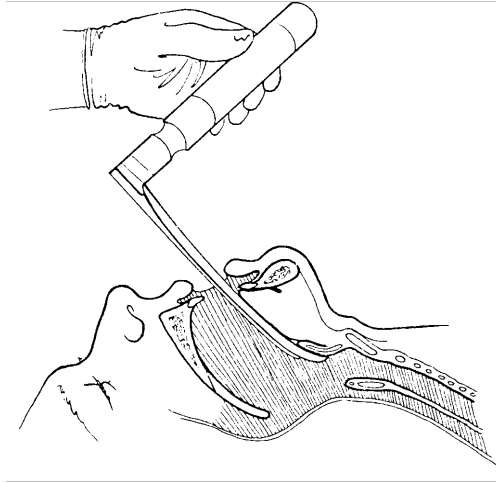
facial pillars.



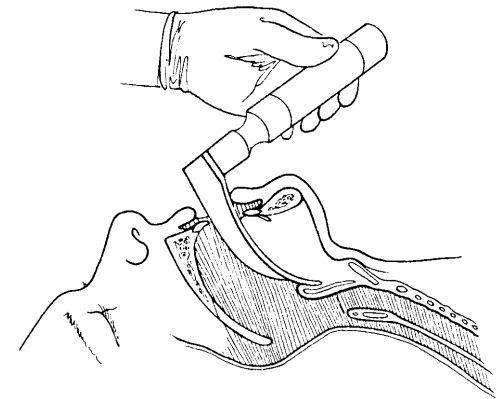
4. If cervical spine injury is not suspected, position the patient in the sniffing position and place a towel roll under the occiput to align the oropharyngolaryngeal axis.



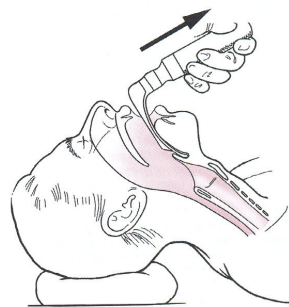
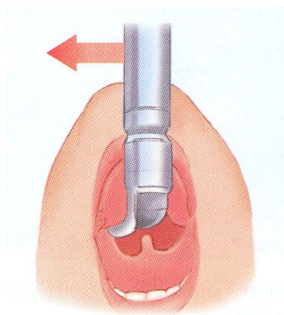
5. Preoxygenate with 100% oxygen for 1-2 minutes, and suction the oral cavity as necessary.
6. With the operator at the head of the patient, adjust the height of the bed to a comfortable level for the operator.
7. Place the laryngoscope in the left hand and the ET tube in the right hand.
8. Insert the blade into the right corner of the patient's mouth.
 - a. If using the straight blade, align the blade down the center of the tongue and directly lift the epiglottis with the tip of the blade.



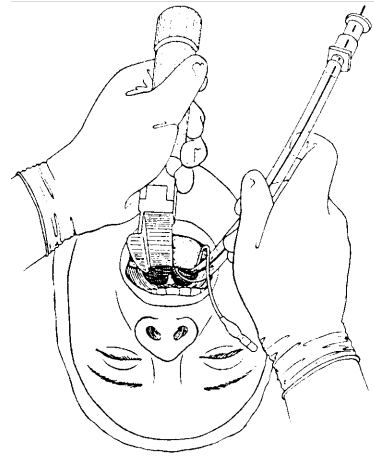
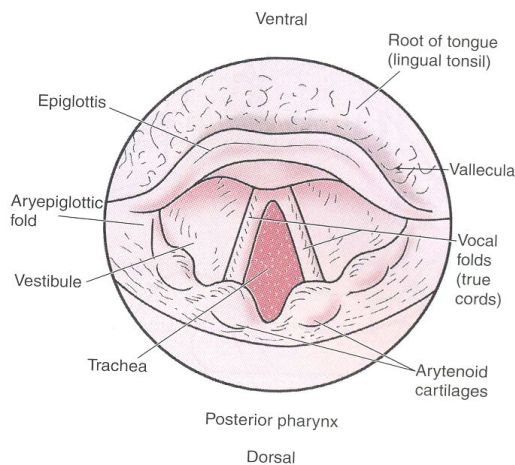
- b. If using the curved blade, sweep the tongue to the left side of the oropharynx, insert the blade tip into the vallecula, and indirectly lift the epiglottis of the larynx.



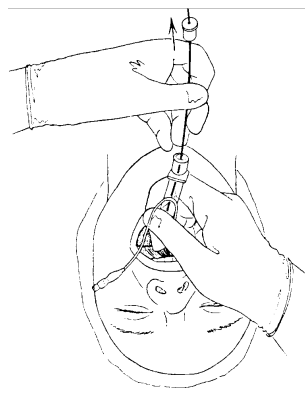
9. Apply lifting force on the laryngoscope handle in the direction that it position, at a 90-degree angle to the blade. Do not torque the handle back because this might damage the teeth.



10. Directly visualize the vocal cords, and insert the ET tube with the stylet into the trachea until the cuff passes through the cords. The tube should not be passed unless the cords are visualized. The correct depth of insertion is approximately 23cm from the corner of the mouth in men and 21 cm in women.

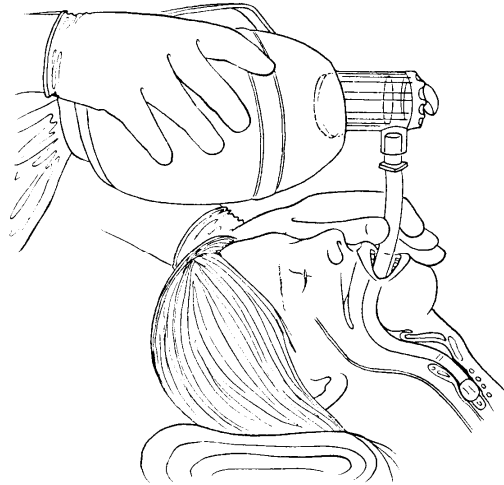


11. Carefully remove the stylet and inflate the cuff with air. (check the cuff pressure with manometere)

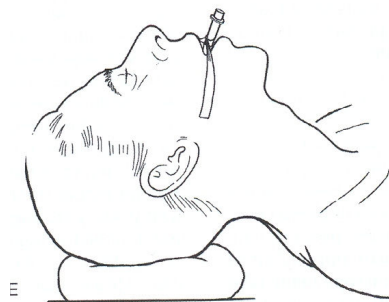


12. Confirm tube placement by checking bilateral breath sounds and using other

available methods.



13. Secure the tube with available devices.



Complications:

- Hypoxemia
- Hypercarbia
- Esophageal intubation
- Endobronchial intubation (most commonly right mainstem)
- Cardiac dysrhythmias
- Hypertension
- Elevated intracranial pressure
- Dental trauma
- Direct mucosal injury
- Arytenoid cartilage displacement
- Exacerbation of existing cervical spine injury

Checklist for Orotracheal Intubation

1. Initiates continuous cardiac monitoring and pulse oximetry
2. Washes hands
3. Wears gloves and mask
4. Selects the appropriate-size ET tube
5. Checks the equipment
6. Evaluates the patient's airway
7. If the patient had dentures he/she should remove them
8. If cervical spine injury is not suspected, corrects head position of the patient
9. Preoxygenates with 100% oxygen for 1 to 2 minutes
10. Suctions the oral cavity as necessary
11. Places the laryngoscope in the left hand and the ET tube in the right hand
12. Inserts the blade into the right corner of the patient's mouth
13. Straight blade and curved blade a. Straight blade: aligns the blade down the center of the tongue and directly lifts the epiglottis with the tip of the blade b. Curved blade: Sweeps the tongue to the left side of the oropharynx inserts the blade tip into the vallecula, and indirectly lift the epiglottis of the larynx
14. Applies lifting force on the laryngoscope handle in the direction that it is positioned, at a 90-degree angle to the blade
15. Directly visualizes the vocal cords
16. Inserts ET tube with the stylet into the trachea with correct depth
17. Removes the stylet and inflates the cuff
18. Confirms tube placement by checking bilateral breath sounds
19. Secures the tube with available devices
20. Records findings on patient's medical record
21. Considers complications
22. Discards gloves