Anesthesia for Tracheal Intubation

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Anesthesia for Tracheal Intubation

May be performed under the effect of:

1. ***Local anesthesia using:***

a) ***Topical spray.***

b) ***Trans-tracheal spray.***

c) ***Superior laryngeal nerve block***

1. ***General anesthesia using:***

a) ***Inhalation or i.v. anesthesia without relaxant.***

b) ***Inhalation or i.v. anesthesia with relaxant.***

Approach to Tracheal Intubation

1. *The usual approach is the use of G.A.+ relaxant.*
2. *Perform laryngoscopy and direct vision intubation.*
3. *Maintain anesthesia via T.T. with spontaneous or controlled ventilation.*

Inhalational Technique for Intubation

1. ***Adequate depth is necessary to depress pharyngeal and laryngeal reflex.***
2. ***Sevoflurane 8% provide rapid attainment of adequate depth , which can be judged predominance of abdominal breathing in adults and thoraco-abdominal dissociation in children.***
3. ***Remove mask.***
4. ***Perform laryngoscopy and intubation.***
5. ***Connect breathing system and maintain appropriate depth ofanesthesia.***

Relaxant Anesthesia Technique for Intubation

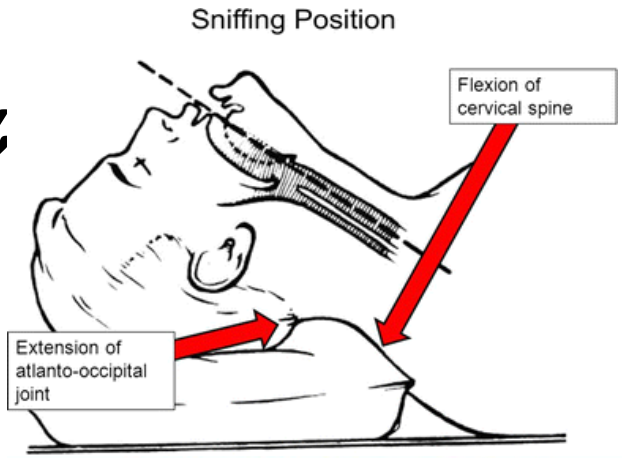
1. ***Pre-oxygenation .***
2. ***i.v. or inhalational induction of anesthesia.***
3. ***after loss of consciousness, the short-acting depolarizing muscle relaxant Succinylcholine may be used in a dose of (1-1.5) mg l kg.***
4. ***Assisted ventilation is maintained via a face mask, except in emergency patient and those likely to regurgitate.***
5. ***Laryngoscopy and intubation***
6. ***Continue inhalational anesthesia with manual ventilation until the effect of the relaxant ceases .spontaneous ventilation is resumed.***
7. ***Maintain anesthesia with either :***

a) ***Spontaneous breathing technique. or***

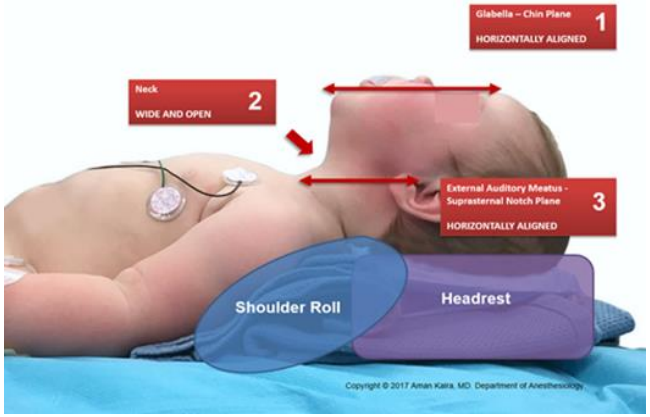
b) ***Relaxant l IPPV technique using a non-depolarizing muscle relaxant and controlled ventilation.***

Conduct of Laryngoscopy

1. ***The position of the head and neck is important, the neck should be flexed and the head extended using a pillow, the so called (Sniff Morning Air Position), in this way the oral , pharyngeal and tracheal axes are brought into alignment. In infants a shoulder roll is added because of the large head: body ratio.***



An Infant in the "Sniffing Position"



Conduct of Laryngoscopy

2. *Introduce the left-handed laryngoscope into the oral cavity from the right side while right hand opens the mouth parting the lips to avoid interposing between the laryngoscope and the teeth.*

   The teeth may be protected by plastic ***Bite Guard.***

3. *Pushing the tongue to the left while advancing the blade over the tongue surface with the tip is directed towards the midline .*
4. *The laryngoscope is lifted along the axis of the handle instead of a levering movement which can damage the upper anterior teeth.*

Conduct of Laryngoscopy

- ***Using a straight blade the tip is passed posterior to the epiglottis which is lifted anteriorly and the vocal cords are seen.***
- ***With a curved blade the tip is inserted into the vallecula , pressure of the tip moves the epiglottis to expose the vocal cords.***
- ***External pressure by an assistant may help in a better vision at this stage, alternatively McCoy laryngoscope elevate the epiglottis and helps in viewing the larynx.***

Conduct of Intubation

1. ***After visualization of the larynx, the supra glottic area and vocal cord may be sprayed (if required)with a local anesthetic solution of Lidocaine (Xylocaine) 4% .***

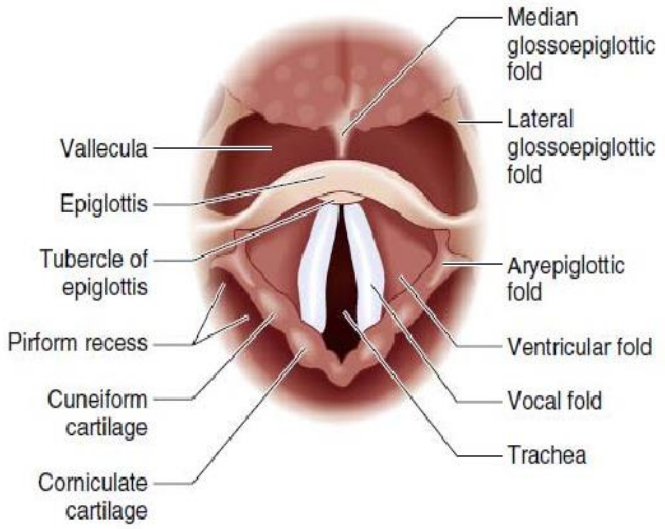


Fig. 4. Direct laryngoscopic view of glot

Conduct of Intubation

2. The T.T. is passed from the right side of the mouth between the vocal cords into the trachea until the cuff is below the vocal cords.

- ***A semi-rigid stillete may provide a the correct curvature of the T.T. to facilitate intubation.***

This is useful particularly with Armored (reinforced)tubes.

Conduct of Intubation

3. *The cuff is inflated until gas leak stops on inflating the lungs.*
4. *Confirm correct position of the tube by:*

a) *Equal movements of both sides of the chest on inflation.*

b) *Equal air entry and breath sounds on auscultation of both axillary regions.*

c) *If the T.T. tip has not passed too distally to enter one of the main bronchi or occlude one of the main bronchi ;if there is unilateral air entry,the tube should be withdrawn slowly and carefully until air entry is equal in both lungs*

5. *Secure the T.T> with a cotton tape , bandage or sticking plaster strip. This is important when the head is inaccessible during surgery or the patient is in prone position.*

- *Extra security is needed using broad (elastoplast) over the primary fixing on the patient's face.*

Conduct of Intubation

- ***If the position of the T.T. is suspicious by one or more of the following sign :***

1. ***Auscultation of the epigastric region with gargling sound.***
2. ***No air entry to both lungs.***
3. ***No capnography wave can be detected.***

- ***Then the anesthesiologist in charge of the patient is called for help and further management.***

Nasal Intubation

Indications:

1. ***Some dental or maxillo-facial surgery.***
2. ***Oto-laryngological (ENT)surgery.***
3. ***Neurosurgery.***
4. ***Plastic surgery.***

- ***LMA has replaced nasal intubation for minor surgery.***

Nasal Intubation

Technique:

1. ***Lubricated Soft plastic tubes are preferable.***
2. ***The tube is advances posteriorly and gently over the floor of the nose into the pharynx, without using excessive force.***
3. ***Blindly or under laryngoscopic guide the tip is inserted into the larynx by :***

a) ***Maipulation of the proximal end.***

b) ***Grasping the distal tip with a Magill's intubating forceps.***

Throat Pack

- ***Indicated when blood ,pus or debris is expected to soil the pharynx particularly with non-cuff tubes.***
- ***Made with moist gauze or preformed foam pack may be used.***
- ***Failure to remove a throat pack is a serious condition that may threaten life.***
- ***Insertion of a pack must be documented .***
- ***The one who insert the pack , is responsible for removing it at the end of surgery.***

Difficult Larynngoscopy

Causes:

1. ***Short muscular neck.***
2. ***Protuding incisors.***
3. ***Log high arched palate.***
4. ***Receding lower jaw.***
5. ***Poor mobility of mandible.***
6. ***Small mouth.***
7. ***Increased anterior or posterior depth of mandible reduces jaw opening.***
8. ***Decreased head extension***

Difficult Tracheal Intubation

- *The incidence varies with;*

1. *clinical setting.*
2. *Patient groups.*
3. *Intubator skill.*

- *However a poor viewing of the larynx requiring use of accessory tools as stillete , bougie or other tools ,occurs in approximately 6% of attempts.*
- *A significant cause of anesthetic morbidity and mortality.*

Difficult Tracheal Intubation

Causes:

A. Related to the operator:

1. ***Inexperienced or inadequately prepared anesthetist is the most common cause.***
2. ***Inadequate equipment preparation.***
3. ***Poor technique.***
4. ***Unavailability , malfunctioning or Wrong choice of equipment.***
5. ***No trained assistant.***

Difficult Tracheal Intubation

Causes:

A. Related to the patient:

1. ***Limited head extension.***
2. ***Limited neck flexion.***
3. ***Limited mouth opening.***
4. ***Obesity and pregnancy.***
5. ***Increased soft tissue as obesity ,Downs syndrome.***
6. ***Mass in the oral cavity.***
7. ***Micrognathia .***
8. ***Scarring of anterior neck soft tissues as burn scar, or following radiotherapy.***