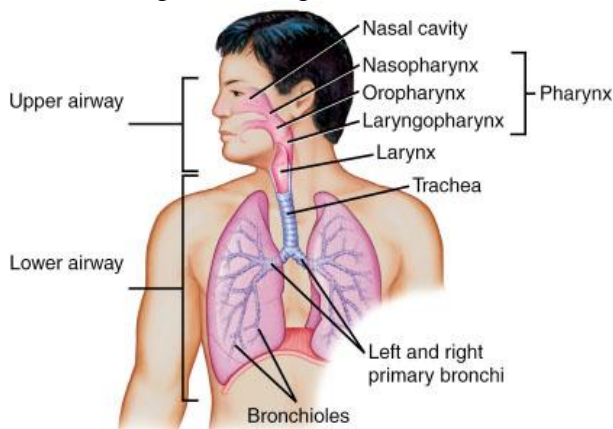




- Anatomy of the airway:

- **What is the airway?** → it is a passage through which air travels between external environment and the lungs (from nasal openings to terminal bronchioles).
- **Airway is classified into:**
 - ✓ Upper airway – which is composed of: nasal cavity, pharynx and larynx.
 - ✓ Lower airway – which is composed of: trachea, bronchi and bronchioles (ending with alveoli where gas exchange occurs).



• **Sites of airway obstruction:**

- ✓ Nasal cavity.
- ✓ Mouth.
- ✓ Epiglottis and larynx.
- ✓ Trachea.

• **What are the causes of airway obstruction?**

- ✓ Congenital malformations.
- ✓ Traumatic.
- ✓ Inflammatory.
- ✓ Neoplastic (tumors).
- ✓ Others (foreign bodies).

- How to recognize an airway obstruction?

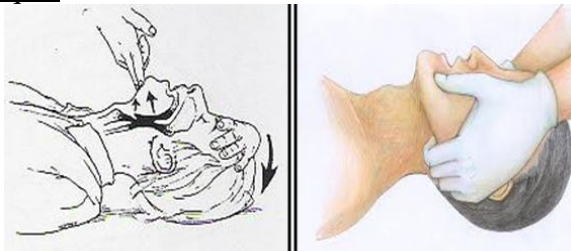
- **Look (inspection):** there are specific signs and symptoms which indicate that the person is suffering from hypoxia (low level of oxygen):
 - ✓ Agitation الاهتياج
 - ✓ Cyanosis (bluish discoloration which can central-tongue or peripheral-fingers).
 - ✓ The use of accessory respiratory muscles.
 - ✓ Paradoxical chest movement (it occurs when more than one continuous ribs break into > 2 segments/each rib thus becoming detached from the rest of the chest wall).
- **Feel (palpation):**
 - ✓ Check patients pulse (if there is hypoxia, patient will have tachycardia which is defined as increased heart rate more than 100 beats/minute).
 - ✓ Location of the trachea (normally it is centrally located or slightly shifted to the right, but if patients has a life-threatening condition such as tension pneumothorax → trachea will be markedly shifted to the opposite side of the injury).
 - ✓ Breath air.
- **Listen (auscultation):**
 - ✓ Breath sounds (which is normally vesicular, equal in both lung fields with no added sounds such as wheezing that is heard with expiration or stridor that is heard with inspiration).



- **Airway maintenance techniques:**

- Notice that when patient is unconscious, there is a high risk of airway obstruction because the tongue falls back –due to effect of gravity- and blocks the airway. To maintain patency of the airway, you can use the following techniques:

- ✓ Head-tilt + chin-lift technique.
- ✓ Jaw-thrust technique.



- **Oropharyngeal airway:**

- ✓ It is a medical device called an airway adjunct used to maintain or open a patient's airway. It does this by preventing the tongue from covering the epiglottis, which could prevent the patient from breathing.
- ✓ Measure the distance from angle of patient's mouth to his ear lobule. Make sure there are no foreign bodies before placing it. If the unconscious patient has a gag reflex, oropharyngeal airway will not be used. Instead, you will use nasopharyngeal airway



- **Nasopharyngeal airway:**

- ✓ It is a tube which is designed to be inserted into the nasal passageway to secure an open airway. The purpose of the flared end is to prevent the device from becoming lost inside the patient's nose.
- ✓ To select length of the tube: measure the distance from patient's nose to his ear lobule.
- ✓ To select diameter of the tube: it is approximately equal to the size of the tip of patient's little finger.
- ✓ It is contraindicated to insert nasopharyngeal tube when patient has fracture of ethmoid bone (how to know fracture is present?):
 - ❖ Leakage of CSF from the nose (rhinorrhea).
 - ❖ Black eyes.



- **Laryngeal mask airway:**

- ✓ It is a medical device which keeps a patient's airway open during anesthesia or unconsciousness. It is a type of supraglottic airway.
- ✓ Placement of laryngeal mask airway does not require the use of paralyzing drugs.
- ✓ Notice that it does not protect the airway 100% because some secretions can pass from the sides (there is a risk of aspiration).

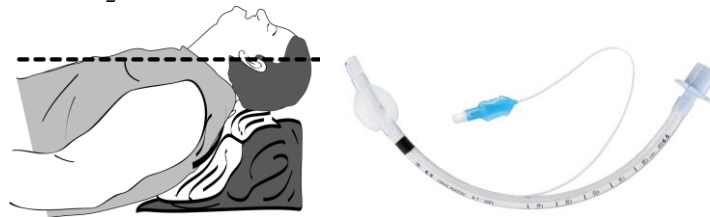


- **What are the definitive airways?**

- ✓ Endotracheal tube with inflated balloon.
- ✓ Cuff tracheostomy tube.



- **Endotracheal intubation: which is of two types**
 - ✓ **Crash intubation:** no paralyzing drug is used. This is applied when patient is arrested.
 - ✓ **Rapid sequence intubation:** intubation of the trachea with the help of a paralyzing drug (this process must be completed within 3 minutes only otherwise patient will be arrested):
 - ❖ Prepare your equipments.
 - ❖ Pre-treat your patient with the following drugs:
 - Fentanyl 1.5 µg/kg (adults).
 - Lidocaine.
 - Atropin.
 - ❖ Position (sniffing position).
 - ❖ Pre-oxygenation: 100% O₂ before administrating paralyzing drugs thus you have more time to intubate the patient before he enters a state of respiratory arrest.
 - ❖ Administration of paralyzing drugs.
 - ❖ Placement of the endotracheal tube.
 - ❖ *Position of the tube which has to be above trachea bifurcation (carina) and a correct position is confirmed by:*
 - Presence of vapor in the tube.
 - Auscultation of the chest and epigastrium.
 - CO₂ detector.



- **Tracheostomy:**

- ✓ Tracheotomy or tracheostomy, is a surgical procedure which consists of making an incision on the anterior aspect of the neck and opening a direct airway through an incision in the trachea (windpipe). The resulting stoma (hole), can serve independently as an airway or as a site for a tracheal tube or tracheostomy tube to be inserted; this tube allows a person to breathe without the use of the nose or mouth.

