

# Larynx- III

# Lesson Plan

## ❖ Laryngeal Cavity:

- Extent
- Subdivisions

## ❖ Laryngeal Inlet & its Applied Aspects

## ❖ Subdivisions of Laryngeal Cavity:

- Supraglottic compartment
- Glottic compartment & its Applied Aspects
- Infraglottic compartment

## ❖ Nerve supply of Larynx & its Applied aspects

## ❖ Arterial supply

## ❖ Venous drainage of Larynx

## ❖ Lymphatic drainage of Larynx

## ❖ Rima Glottidis

## ❖ Phonation

## ❖ Laryngoscopy

## ❖ Applied aspects: Singer's nodules

# Cavity of Larynx

## Extent-

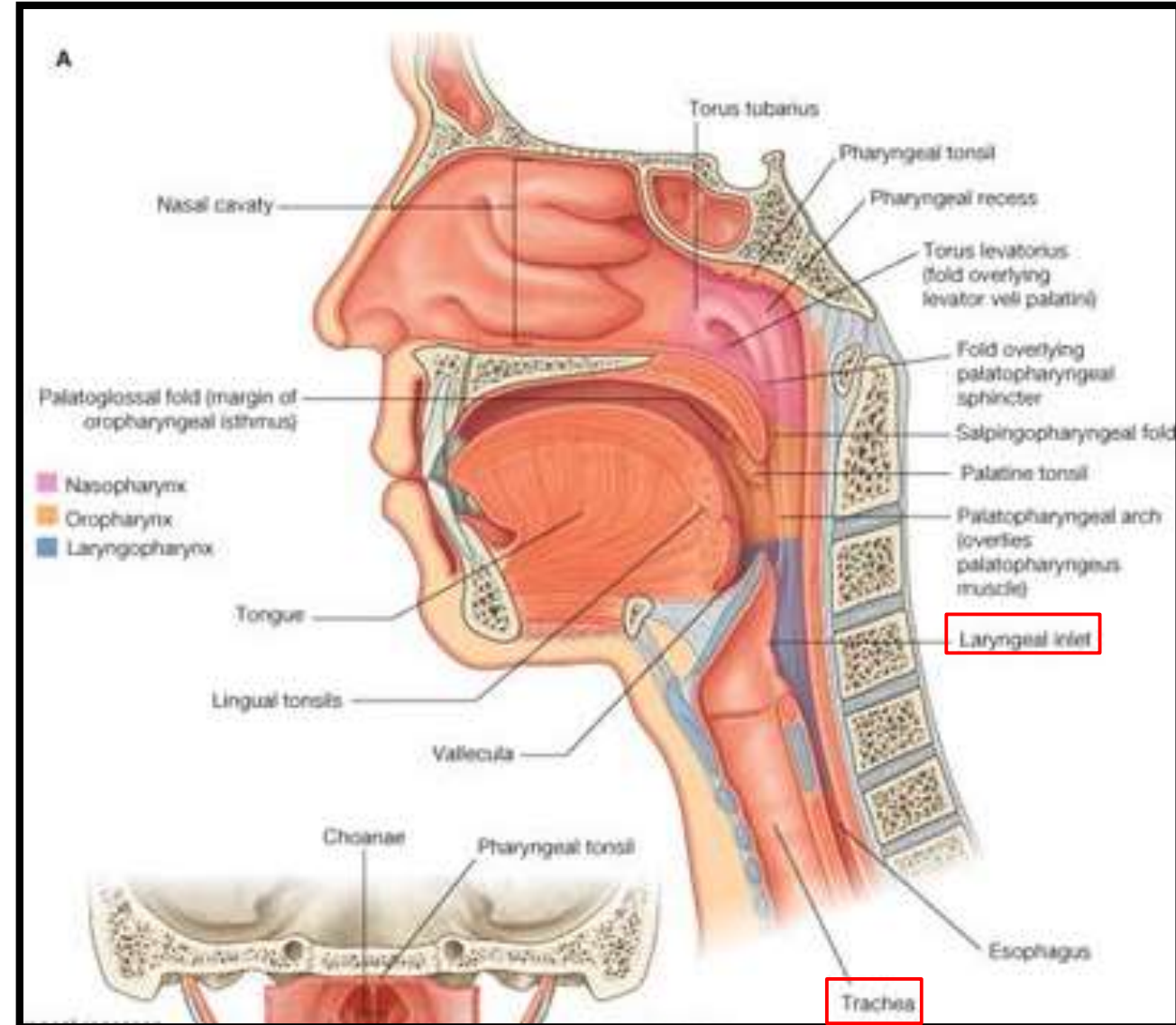
- From laryngeal inlet to lower border of cricoid cartilage.

## Communications-

Posteriorly- with Laryngopharynx.

Inferiorly- with lumen of Trachea.

❖ Anterior wall of laryngeal cavity is longer than the posterior wall.



# Laryngeal Inlet

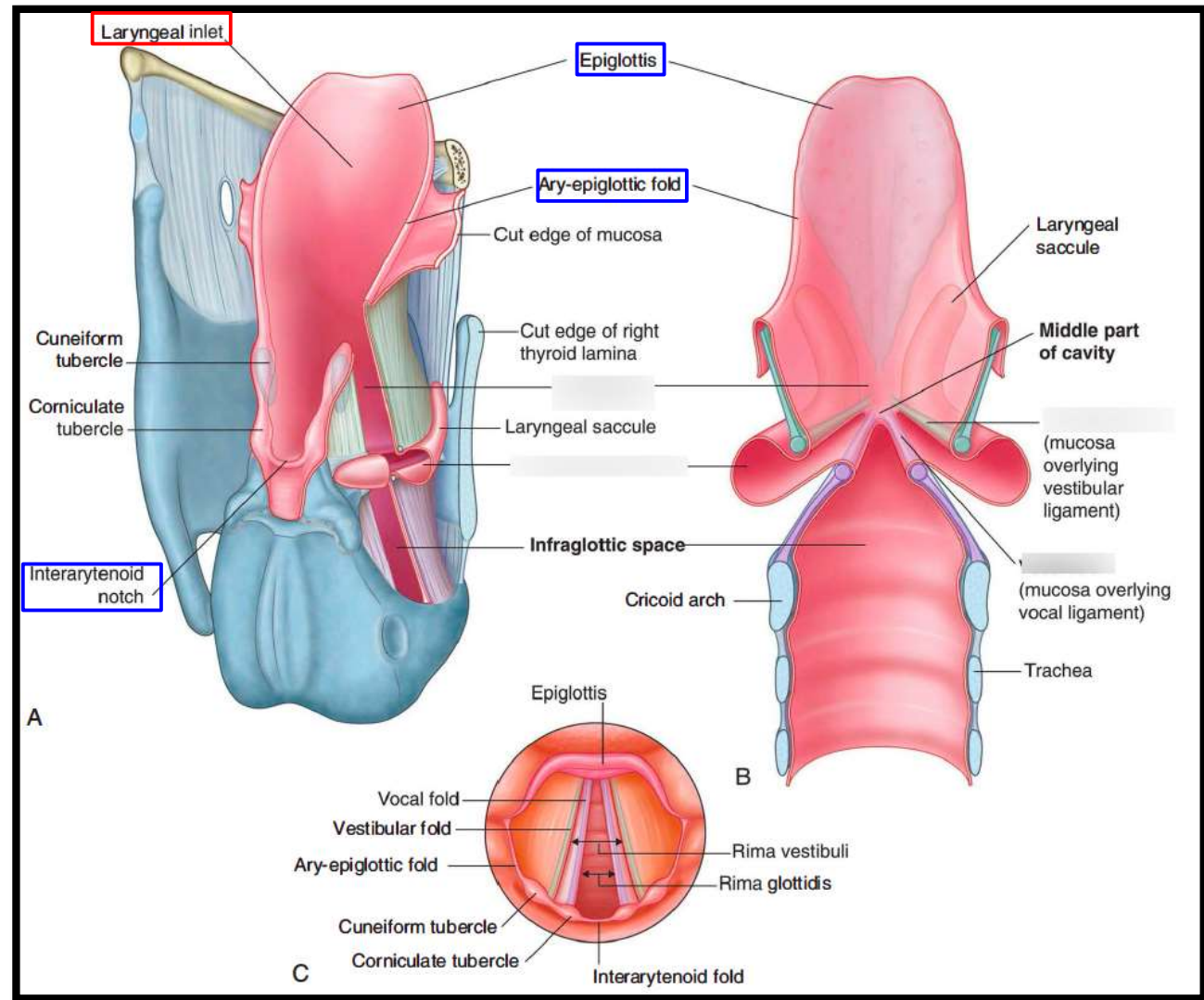
- It is an opening (aperture) between laryngopharynx posteriorly and laryngeal cavity anteriorly.
- It is obliquely placed.
- Sloping **downwards** and **backwards**.
- It is closed during deglutition to prevent entry of food into laryngeal cavity.

## Boundaries-

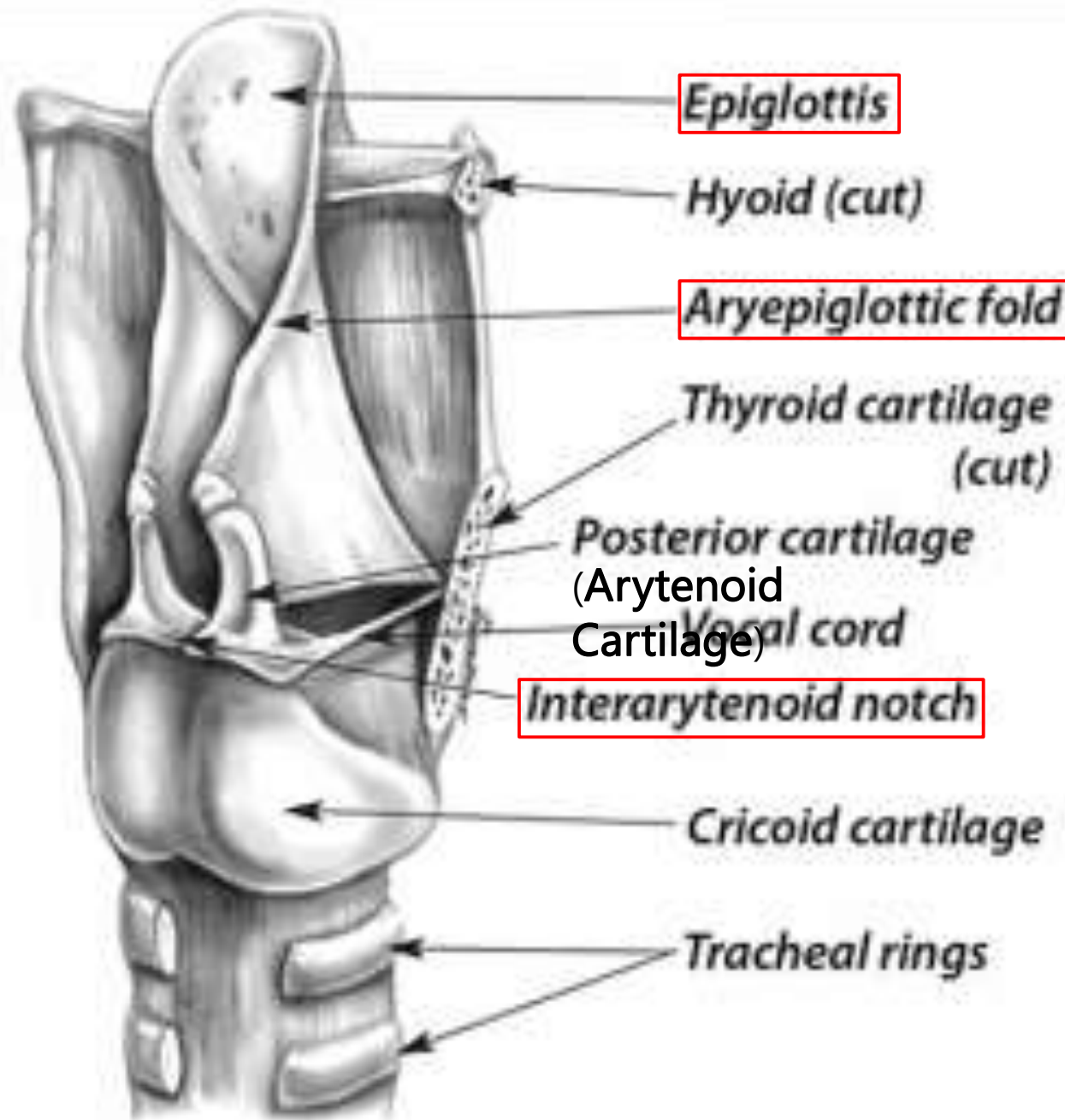
**Anterior-** Epiglottis

**Posterior-** Interarytenoid fold of mucous membrane.

**Lateral (on each side)-** Aryepiglottic fold of



*Laryngeal inlet*



**Epiglottis**

Hyoid (cut)

**Aryepiglottic fold**

Thyroid cartilage  
(cut)

Posterior cartilage  
(Arytenoid  
Cartilage)

Vocal cord

**Interarytenoid notch**

Cricoid cartilage

Tracheal rings

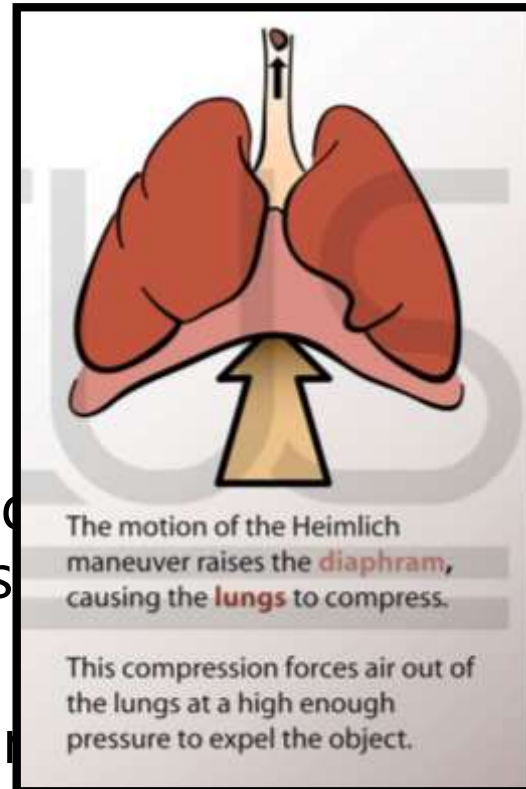
# Applied Aspects

## Heimlich Maneuver-

- It is a life saving maneuver, which is performed in case of laryngeal obstruction (choking).

## Method-

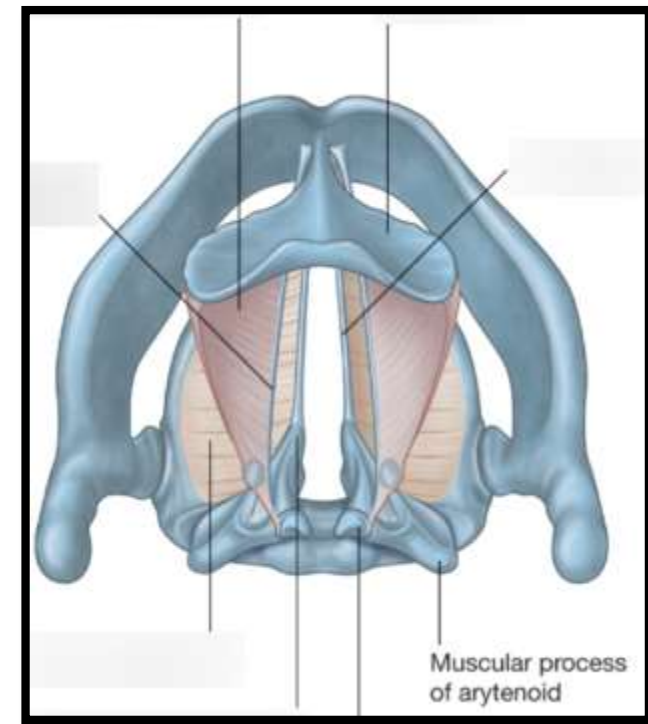
- Stand behind the victim.
- Pass your arms under his/her arms.
- Put your hands in front of victim's epigastrium.
- With one hand, forms a fist and put the other hand over the fist.
- Give 3-4 abdominal thrusts in backward and upward direction.



# Cavity of Larynx contd...

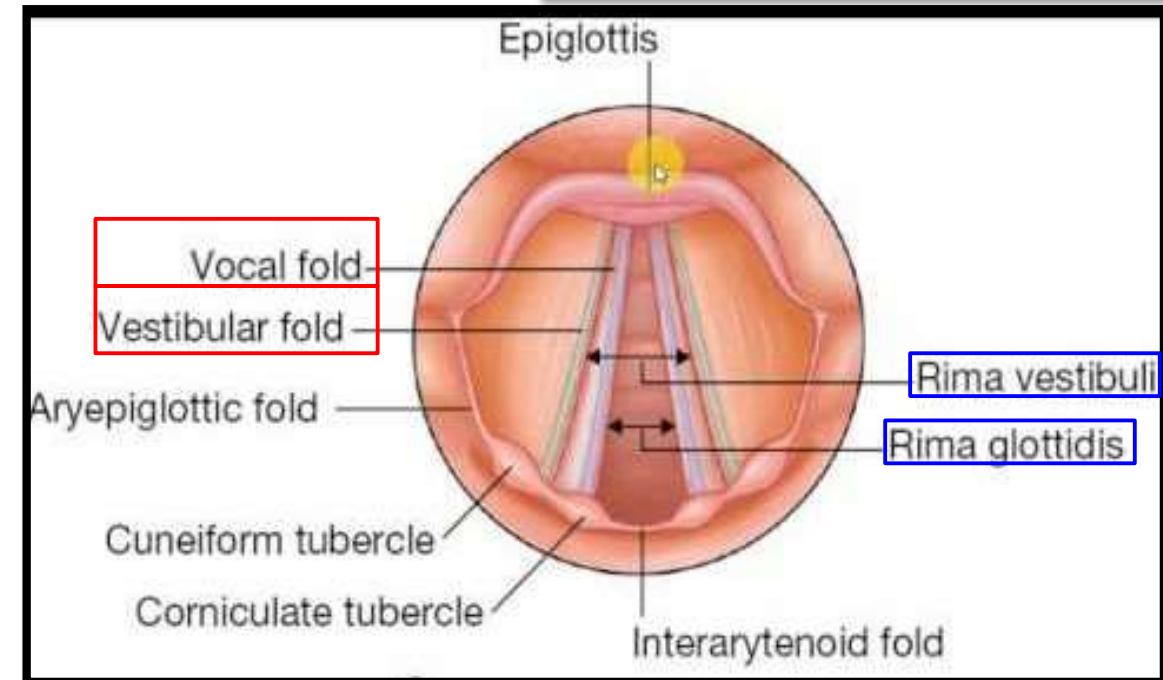
## Vestibular Folds-

- These are mucosal folds produced by **Vestibular Ligaments** ( **False Vocal cords**).
- The space between these folds is called **Rima Vestibuli**.
- When a person holds his breath, vestibular folds come together and prevent the air from leaving the lungs, simultaneously prevent the food and liquids from entering the larynx.



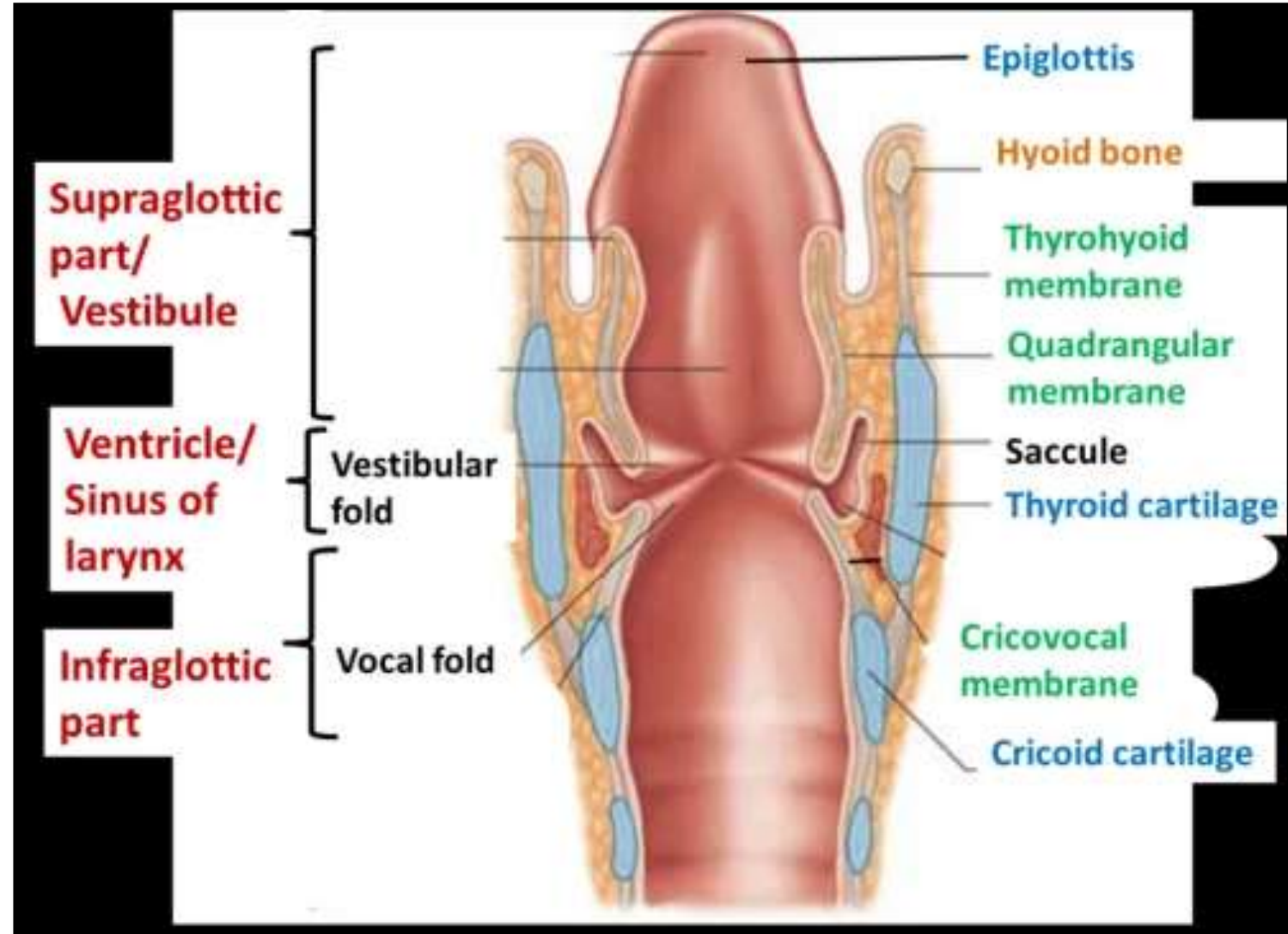
## Vocal Folds-

- These are mucosal folds produced by **Vocal Ligaments** ( **True Vocal cords**) and **Vocalis muscle**.
- The space between these folds is called **Rima Glottidis**.
- **Rima Glottidis** is the **narrowest** part of laryngeal cavity.



# Subdivisions of Laryngeal Cavity

- Supraglottic compartment (Vestibule).
- Glottic compartment (Ventricle/Sinus of Larynx).
- Infraglottic compartment.





# Supraglottic Compartment (Vestibule)

- From laryngeal inlet to vestibular fold.

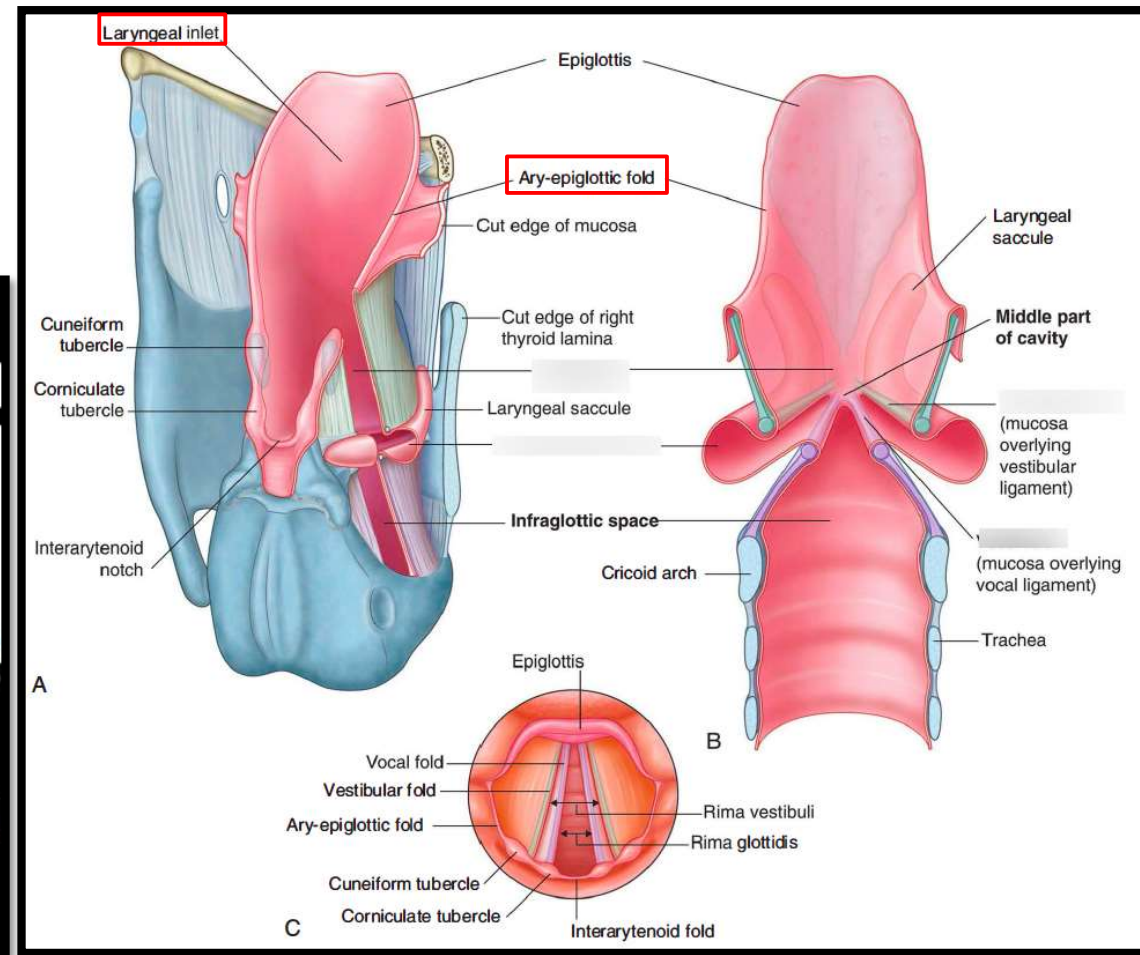
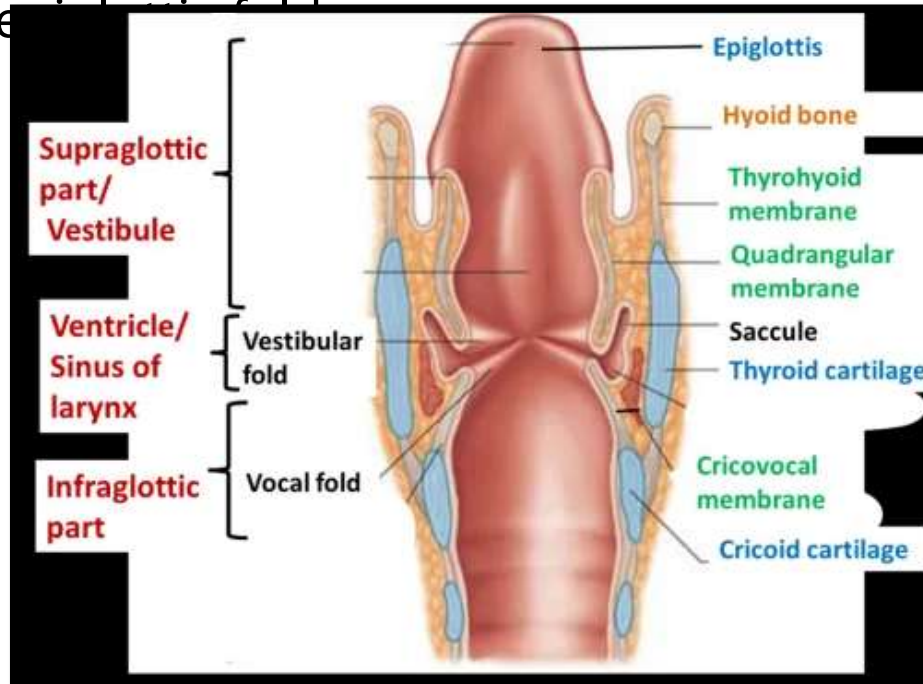
## Anterior wall-

- Formed by mucous membrane covering the posterior surface of epiglottis.

## Posterior wall-

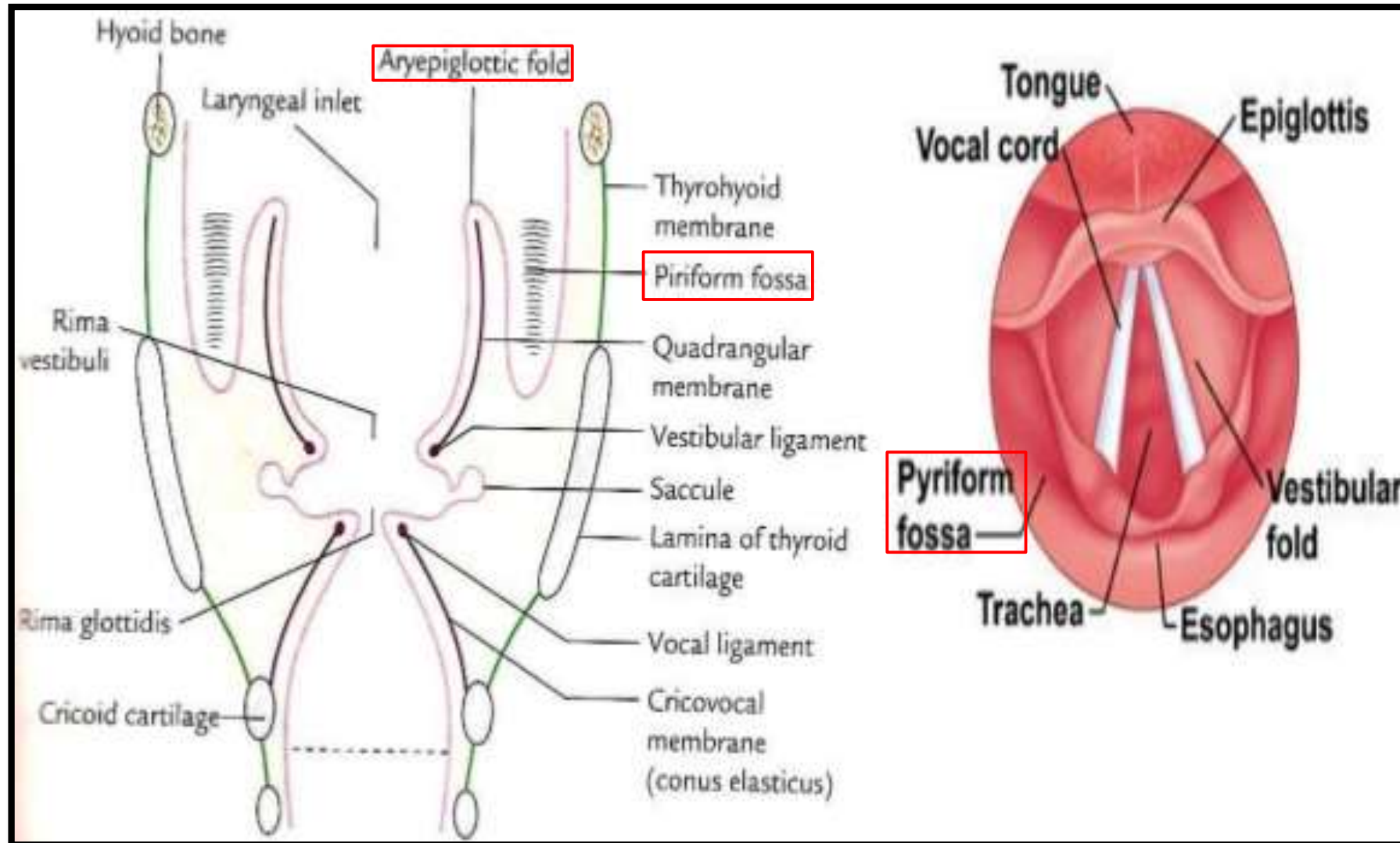
- Formed by mucous membrane covering the apices of Arytenoid cartilages and Corniculate cartilages.

## On each side-



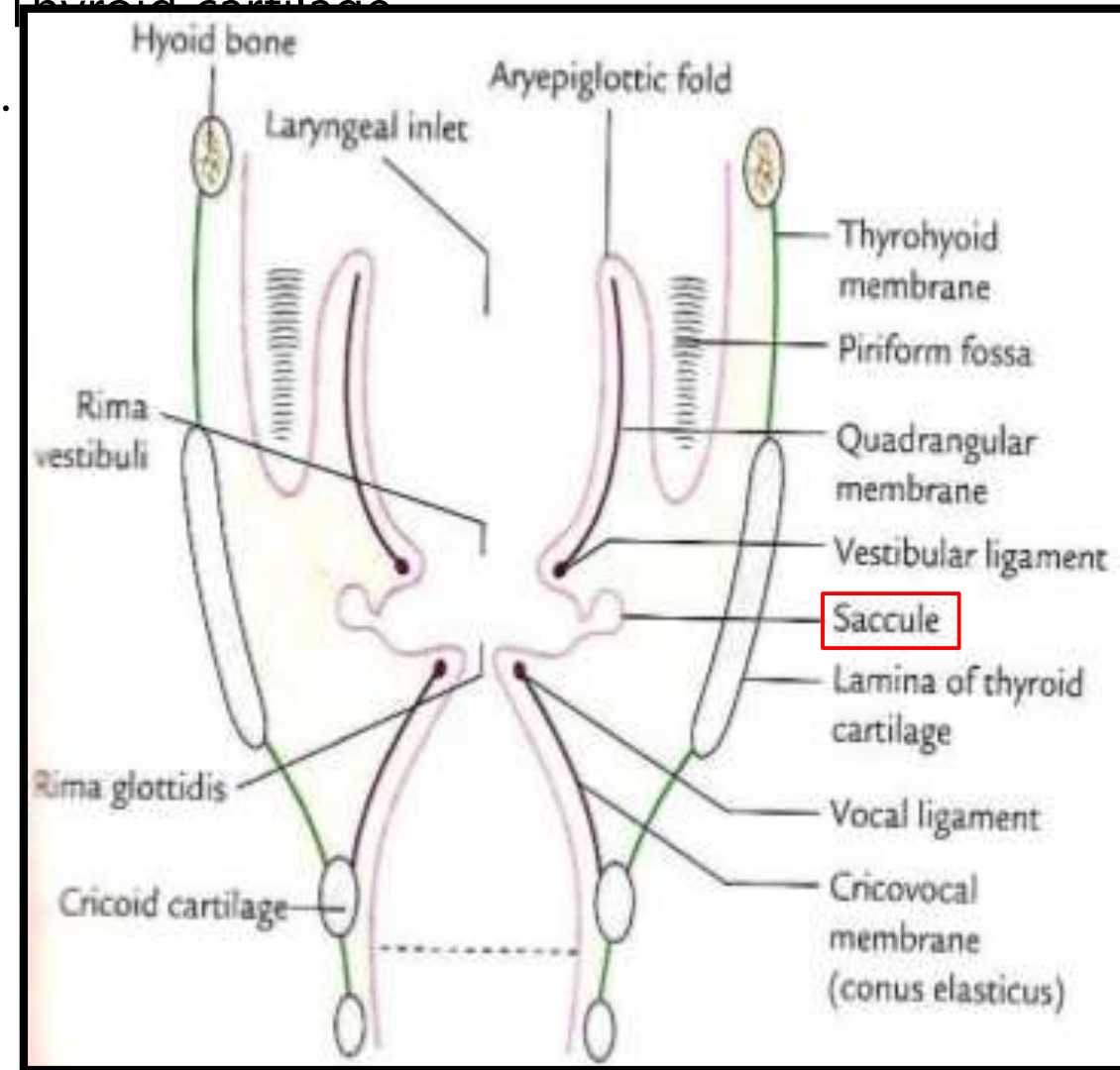
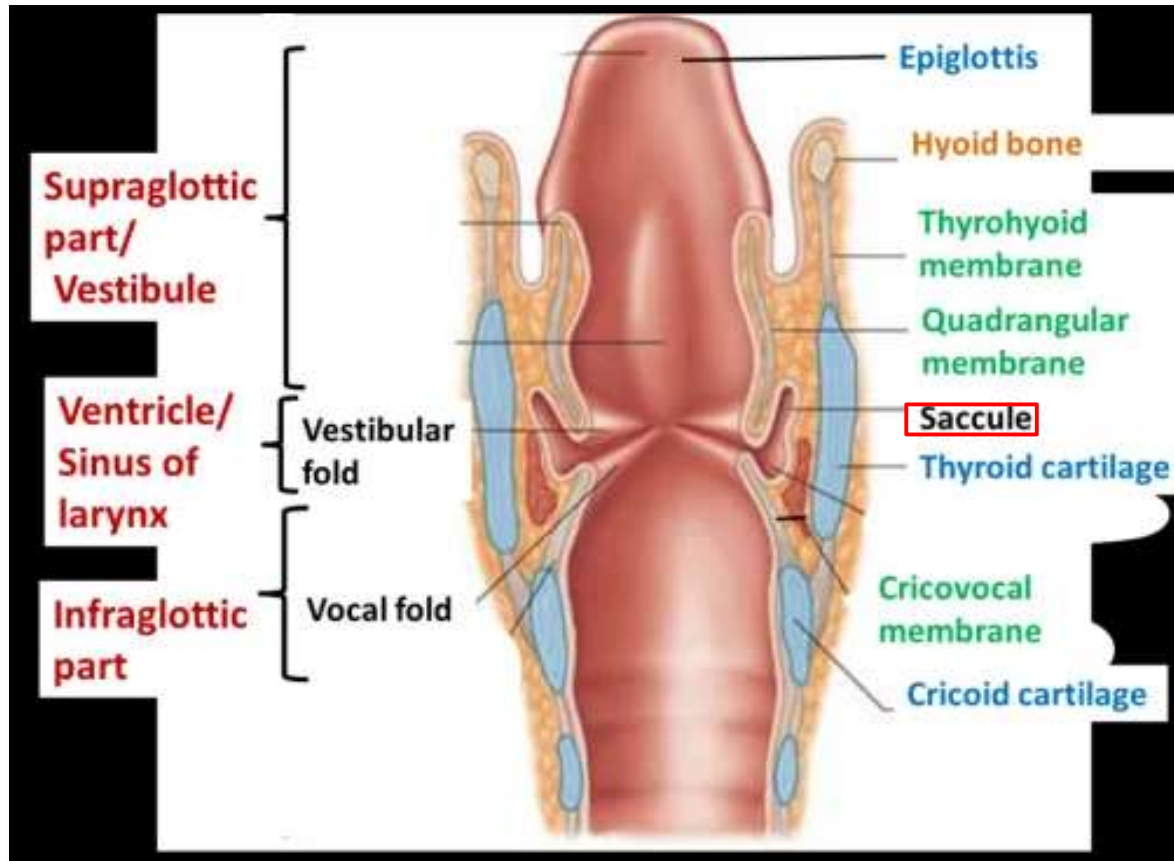
# Supraglottic compartment (Vestibule) contd...

- Aryepiglottic folds separate the supraglottic compartment from piriform fossa.



# Glottic Compartment (Ventricle/Sinus of Larynx)

- It is an elliptical space **between vestibular and vocal folds**.
- On each side, a blind diverticulum of mucous membrane, called **Saccul**e is present.
- **Saccul**e is located between vestibular fold and lamina of Thyroid cartilage.
- Saccule has mucous glands for lubrication of vocal cords.
- Saccule is known as '**Oil can of Larynx**'.



# Applied Aspects

## Laryngocele-

- ❖ It is an air filled cystic swelling of the sacculle.
- ❖ Whenever air pressure in the laryngeal sinus is raised too much, the sacculle dilates to produce an air-filled cystic swelling called Laryngocele.

❖ It may be:

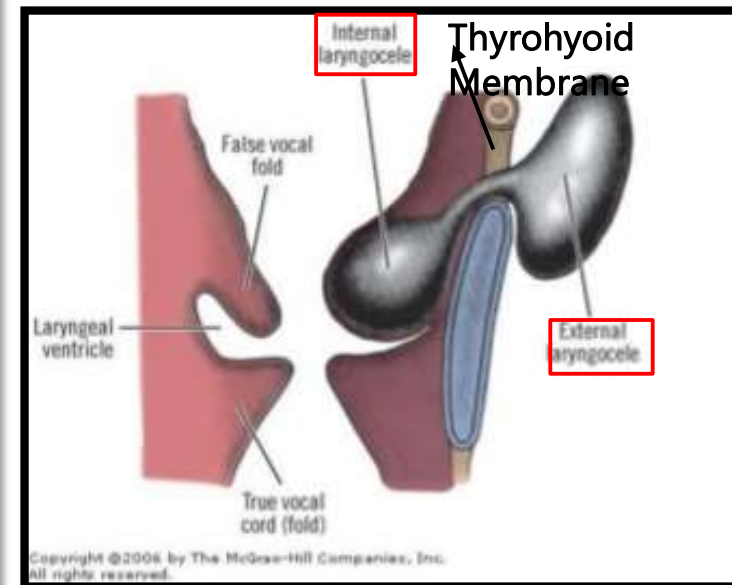
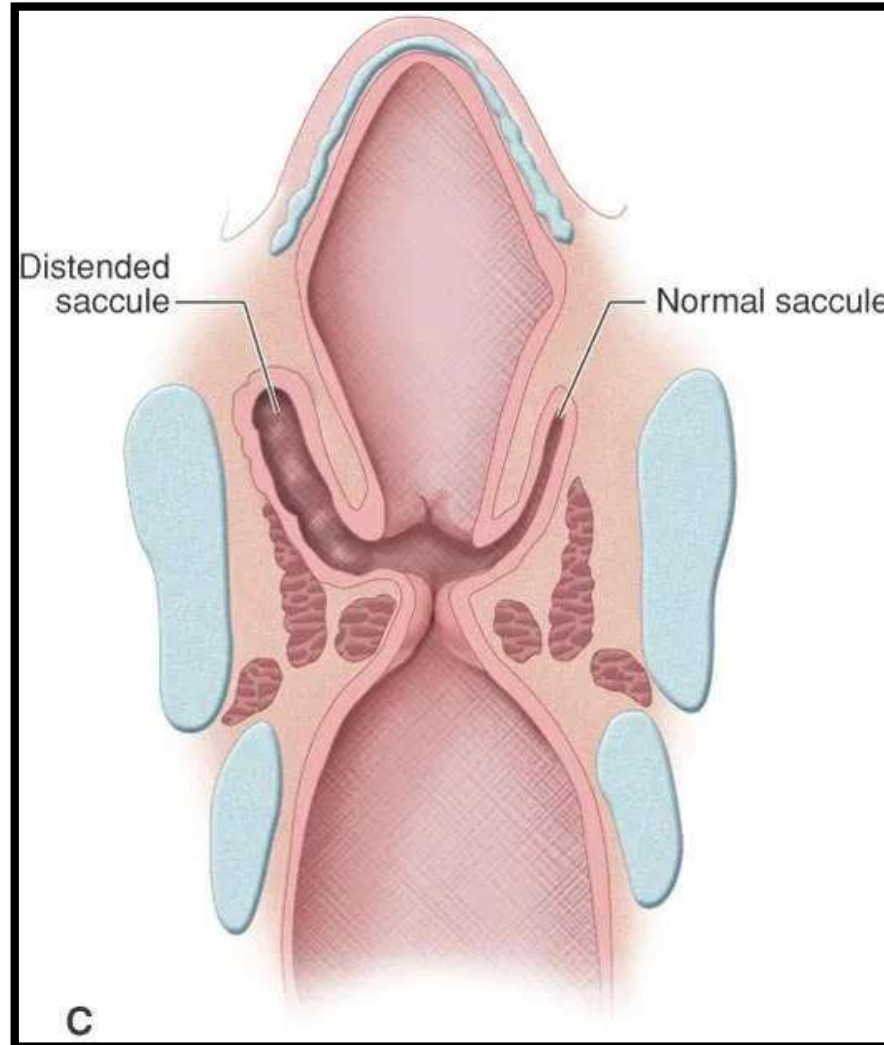
- Internal.
- External.

## Internal Laryngocele-

- When it is located within the larynx.

## External Laryngocele-

- When distended sacculle herniates



# Laryngocele

- Laryngocele is mostly formed in trumpet players, glass blowers and weight lifters.



Glass Blower



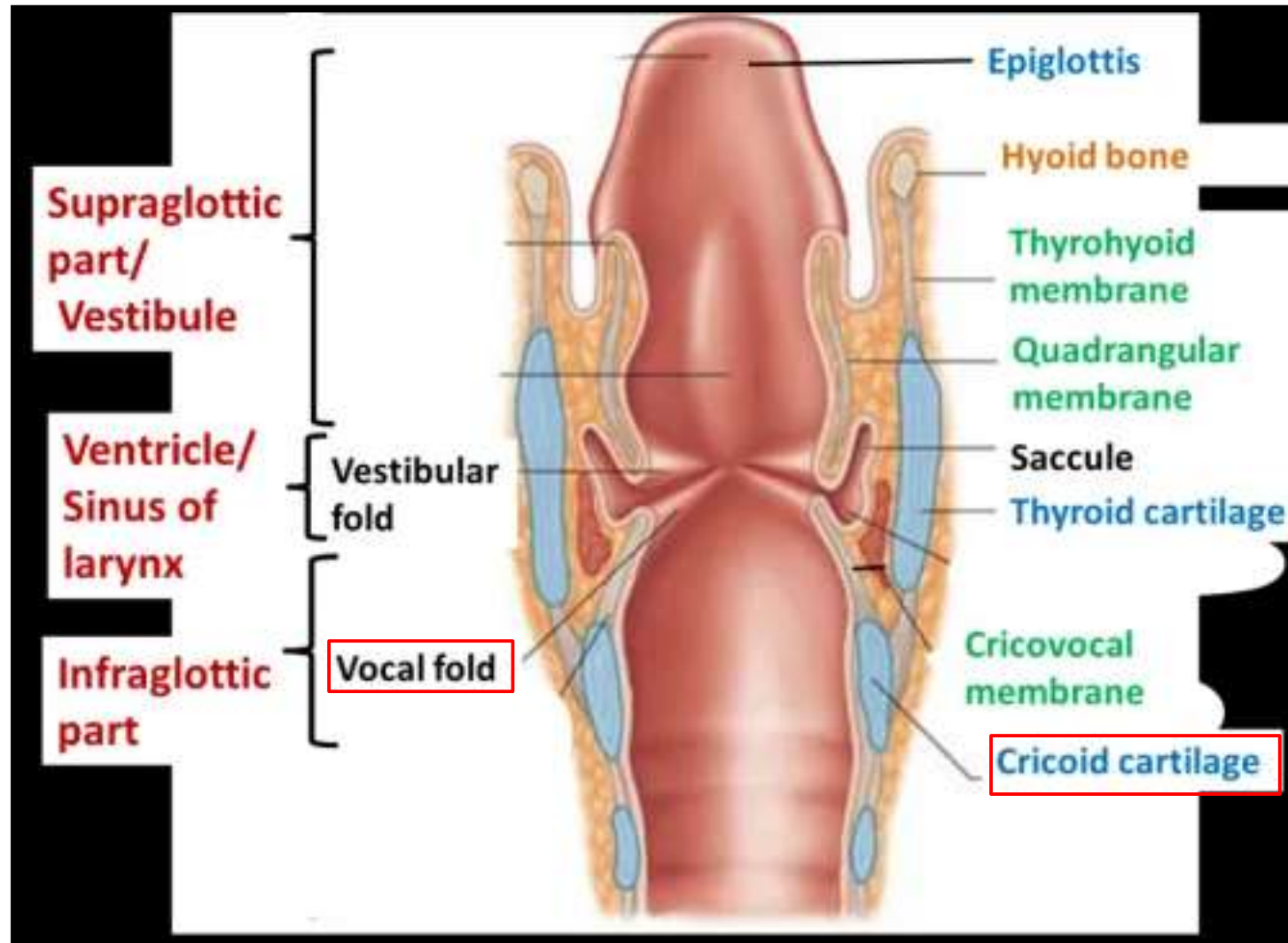
Trumpet Player



Weight Lifter

# Infraglottic Compartment

- Extends from vocal folds to lower border of cricoid cartilage.



# Nerve Supply of Larynx

## Motor Nerve Supply-

- Recurrent Laryngeal Nerve.
- External Laryngeal Nerve.

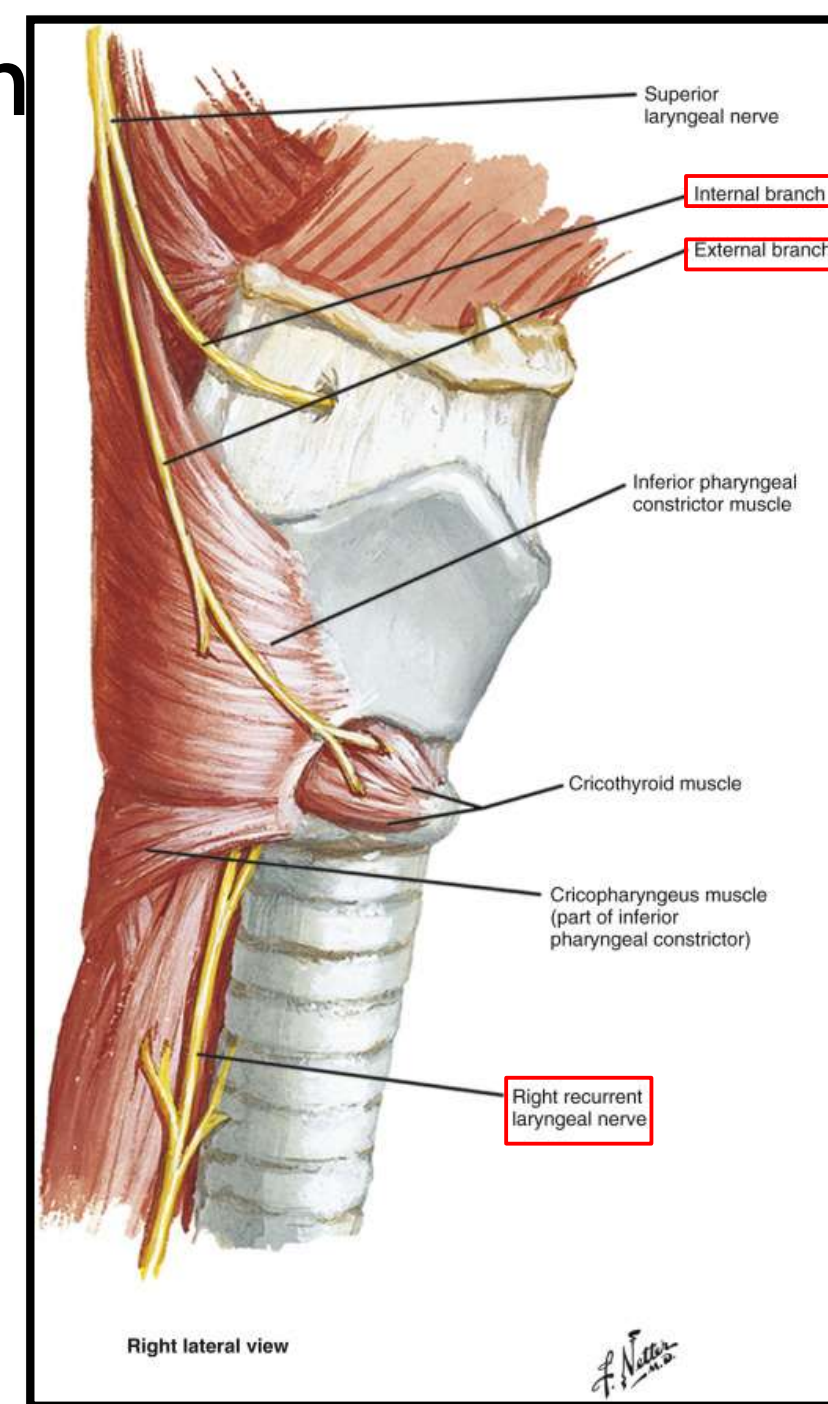
## Sensory Nerve Supply-

### Above the Vocal folds-

- Internal Laryngeal Nerve.

### Below the Vocal folds-

- Recurrent Laryngeal Nerve.



# Applied Aspects

## Damage to External Laryngeal Nerve-

- Some weakness of phonation.

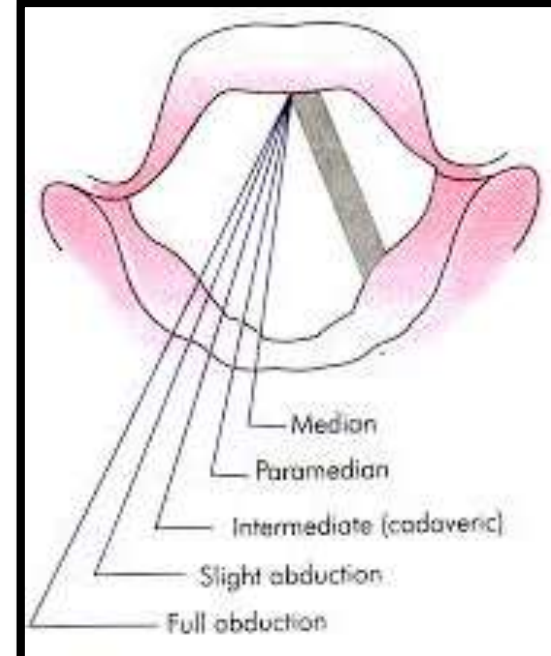
## Unilateral damage to Recurrent Laryngeal Nerve-

### On the affected side-

- Vocal cord lies in **paramedian** (between abduction and adduction) position.
- Vocal cord does not vibrate.

❖ Normal vocal cord moves freely and even cross the midline to meet the paralyzed vocal cord.

❖ Normal vocal cord compensate and phonation is not much affected.



Paramedian position  
**Paralyzed Left Side**



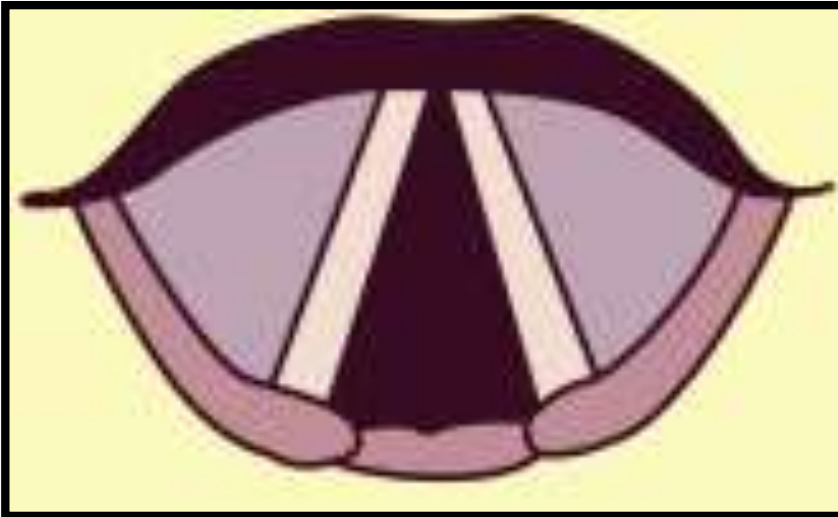
# Applied Aspects contd...

## Bilateral damage to Recurrent Laryngeal Nerve-

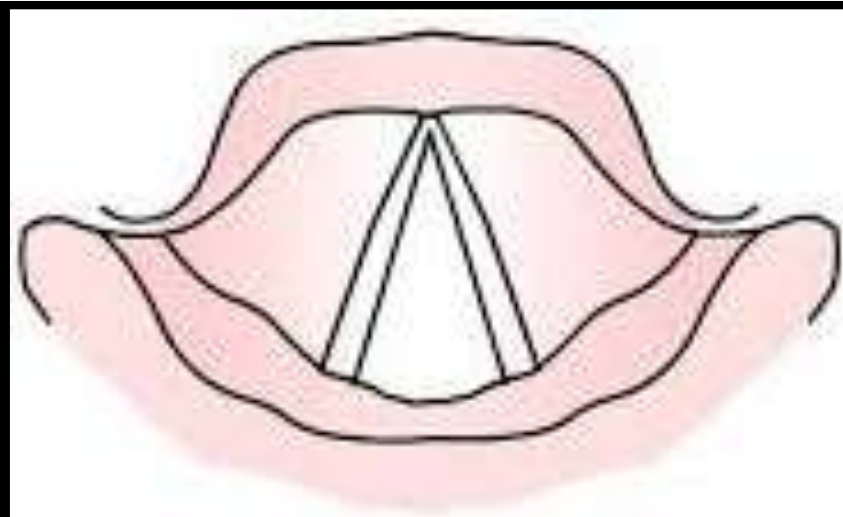
- ❖ Both vocal cords lie in **paramedian** position.
- ❖ Loss of phonation.
- ❖ Difficulty in breathing.

## Bilateral damage to External and Recurrent Laryngeal Nerves-

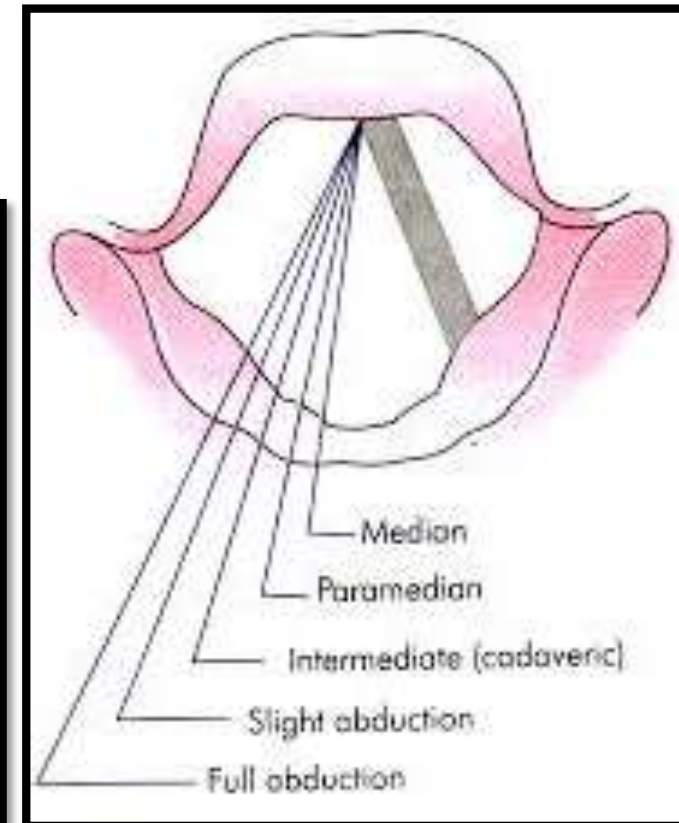
- ❖ Both vocal cords lie in **cadaveric** position.



Paramedian position of Vocal  
Cords



CADAVERIC POSITION



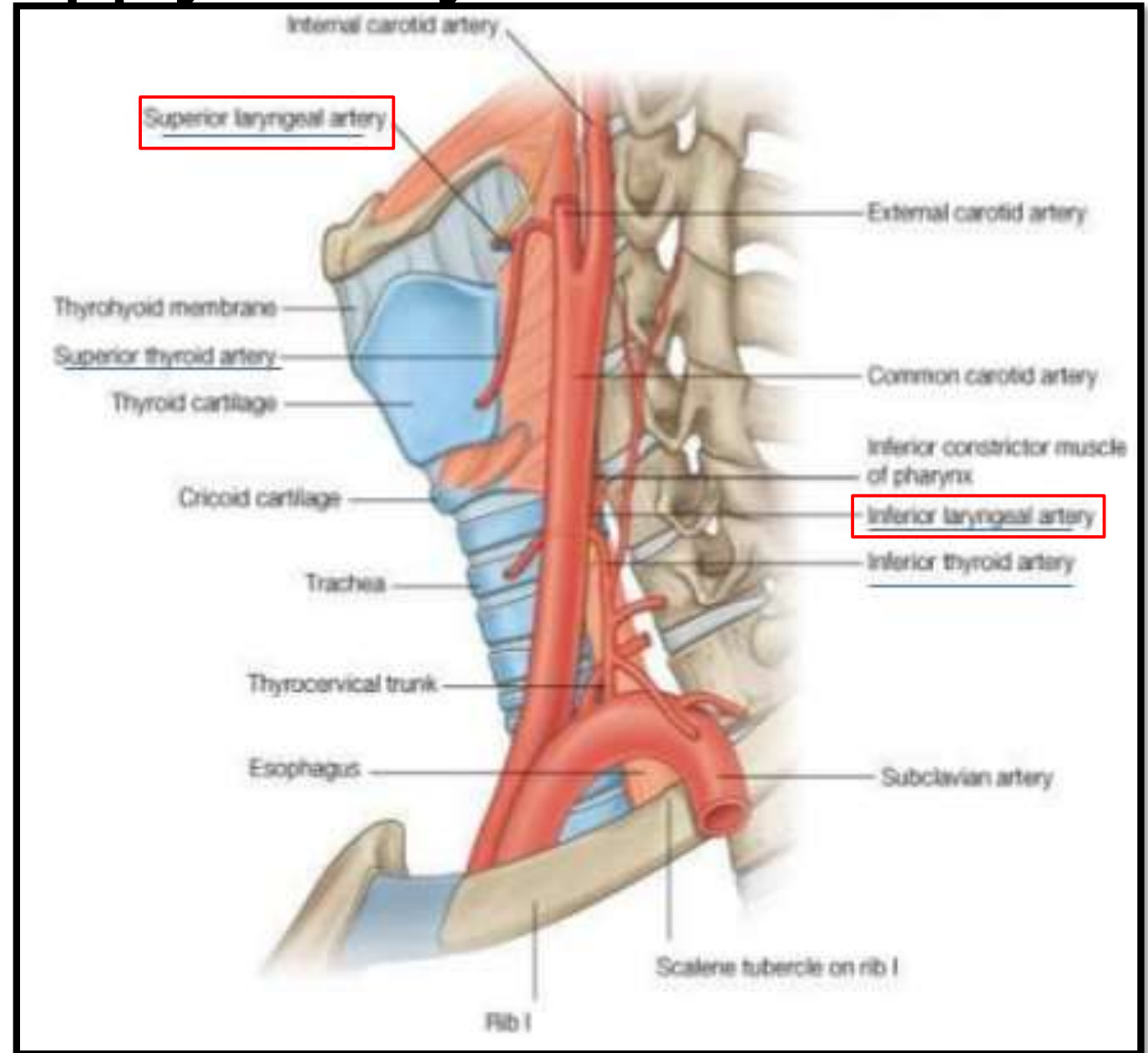
# Arterial Supply of Larynx

Above the Vocal folds-

- Superior Laryngeal artery.

Below the Vocal folds-

- Inferior Laryngeal artery.



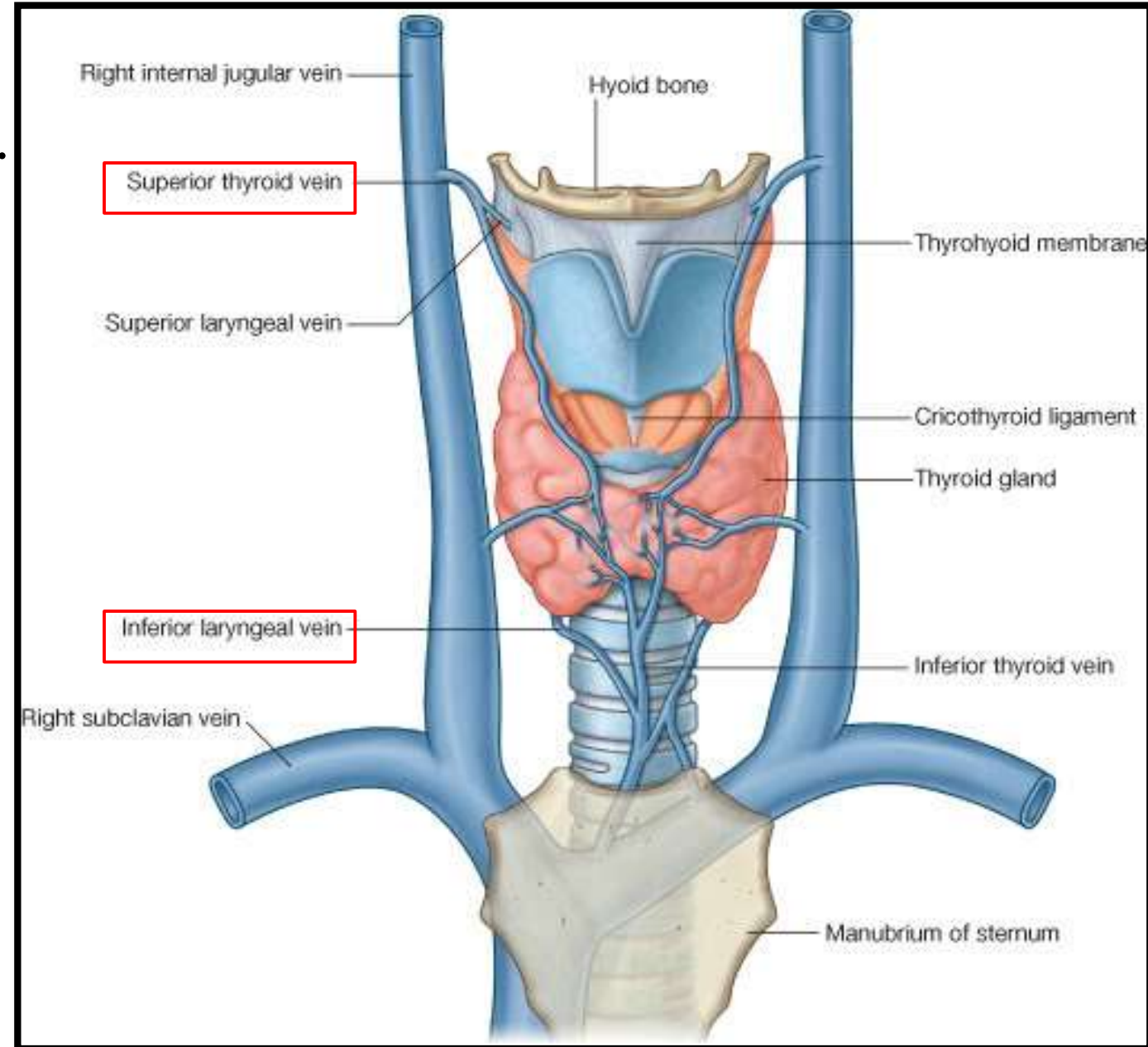
# Venous Drainage of Larynx

## Superior Laryngeal Vein-

- Drains into Superior thyroid vein.

## Inferior Laryngeal Vein-

- Drains into Inferior thyroid vein.



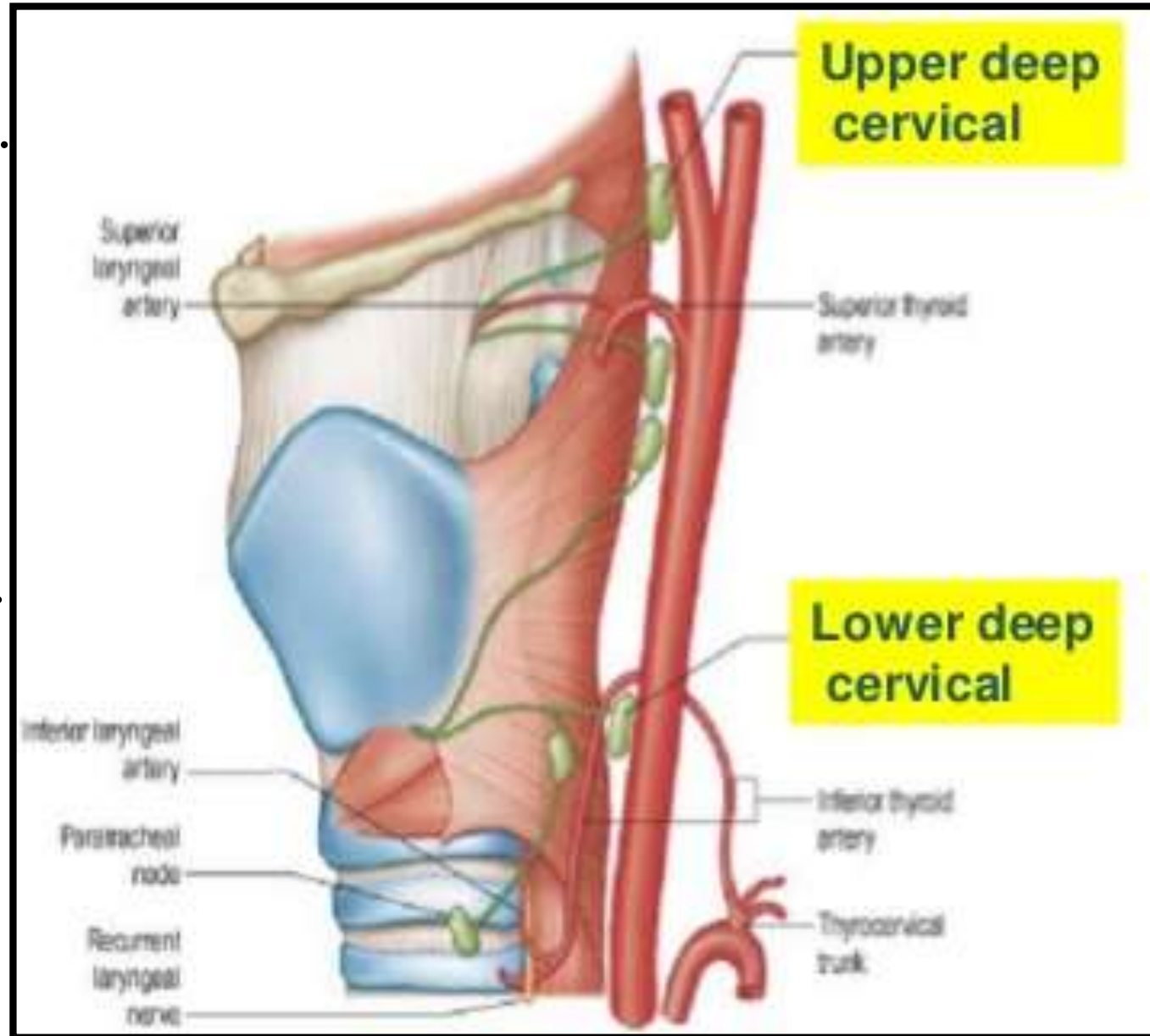
# Lymphatic Drainage of Larynx

## Above the Vocal folds-

- Upper deep cervical lymph nodes.

## Below the Vocal folds-

- Prelaryngeal lymph nodes.
- Pretracheal lymph nodes.
- Lower deep cervical lymph nodes.



# Rima Glottidis

- It is the narrowest anteroposterior cleft of laryngeal cavity.

## Boundaries-

### Anterior-

- Angle of Thyroid cartilage.

### Posterior-

- Interarytenoid fold of mucous membrane.

### On each side-

- **Anterior 3/5<sup>th</sup>** – Vocal fold.
- **Posterior 2/5<sup>th</sup>**- Vocal process of Arytenoid cartilage.

## Subdivisions-

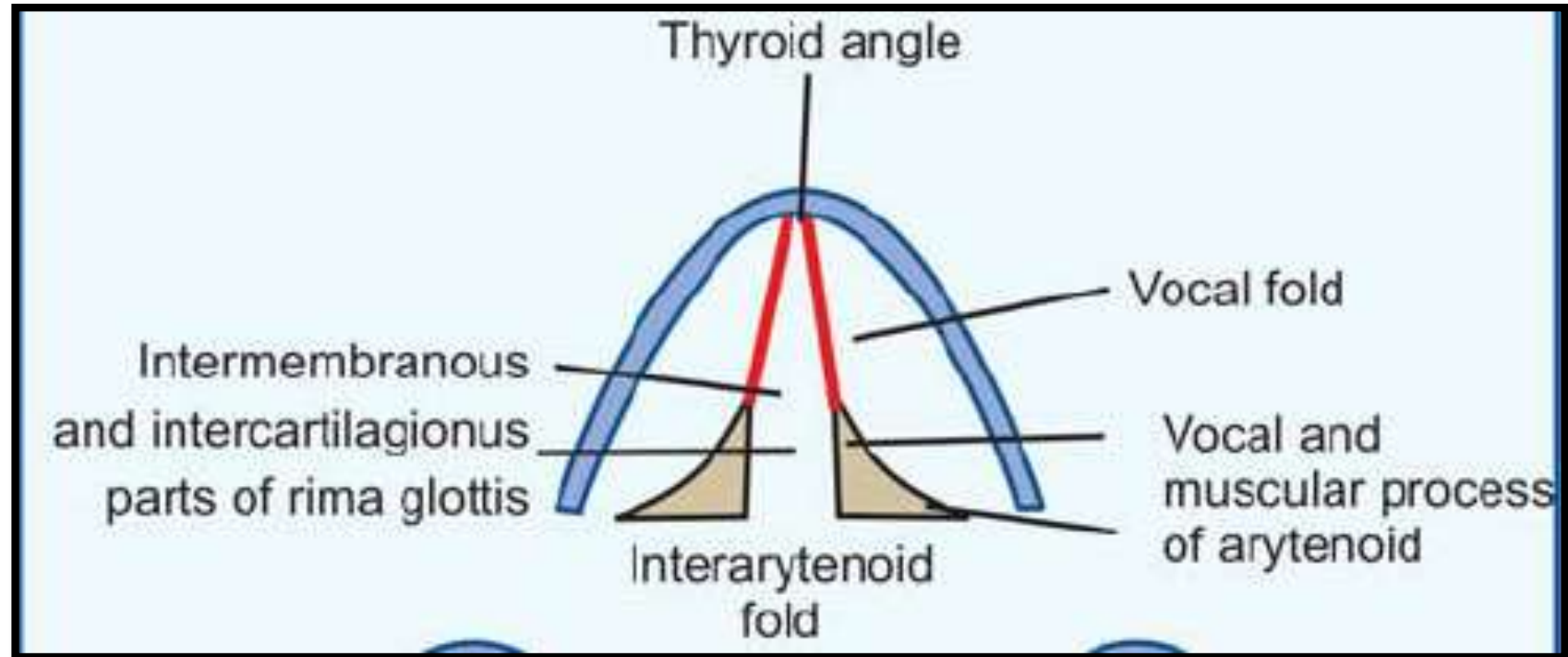
❖ Two:

### Intermembranous part-

- Anterior 3/5<sup>th</sup> portion, between the two vocal folds.

### Intercartilaginous part-

- Posterior 2/5<sup>th</sup> portion, between the



# Phonation & Shape of Rima Glottidis

## In Quiet breathing-

- Intermembranous part- triangular
- Intercartilaginous part- rectangular.
- Rima glottidis is **pentagonal**.

## In Full inspiration-

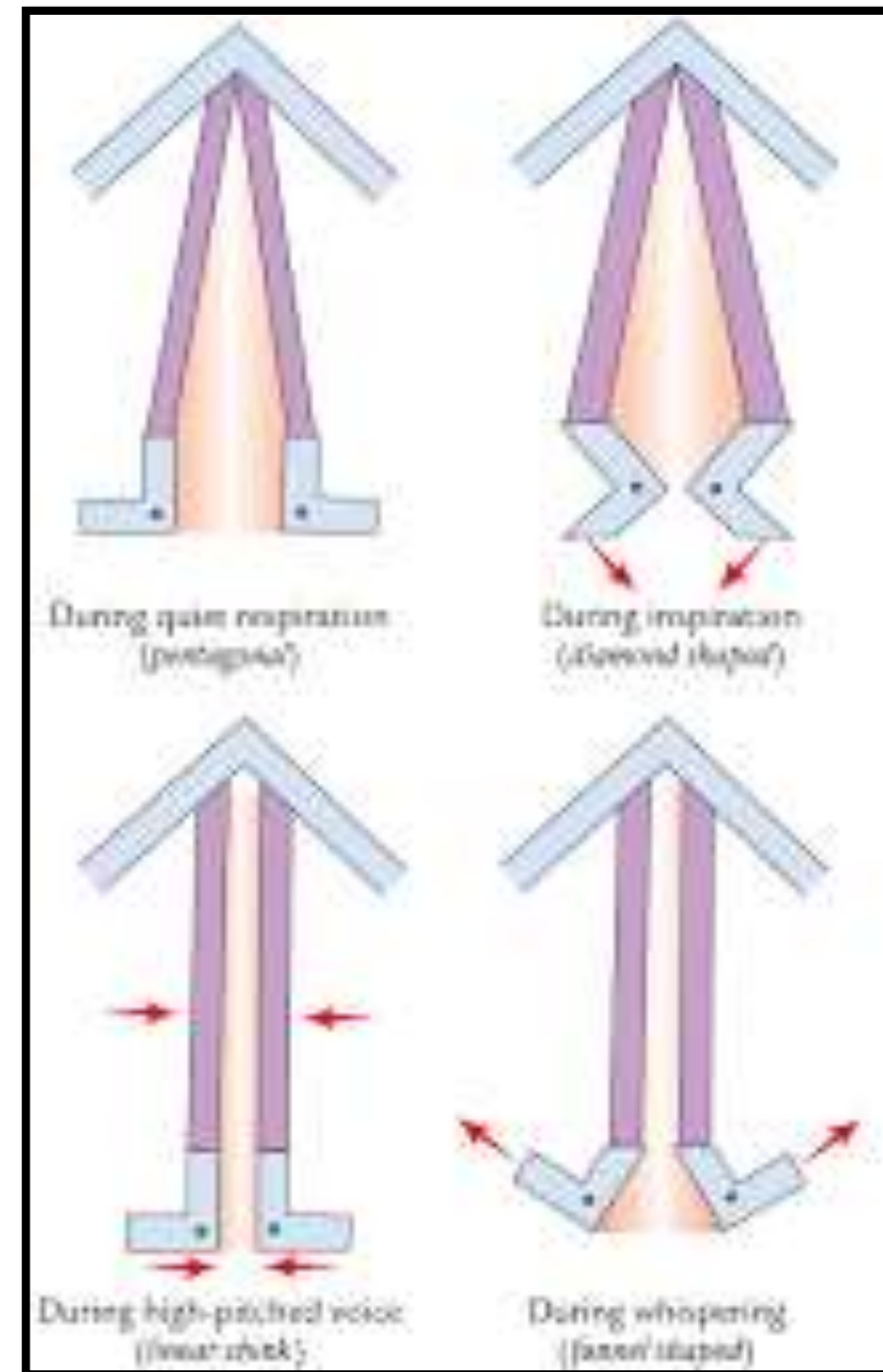
- Rima glottidis is **diamond** shaped.
- Abduction of vocal cords.

## During High Pitch Voice-

- Rima glottidis is reduced to a **linear chink**.
- Adduction of both intermembranous and intercartilaginous parts.

## During Whispering-

- Rima glottidis is '**inverted funnel**' shaped.
- Vocal cords are highly adducted.
- Vocal processes of Arytenoid cartilages are separated by a triangular gap.

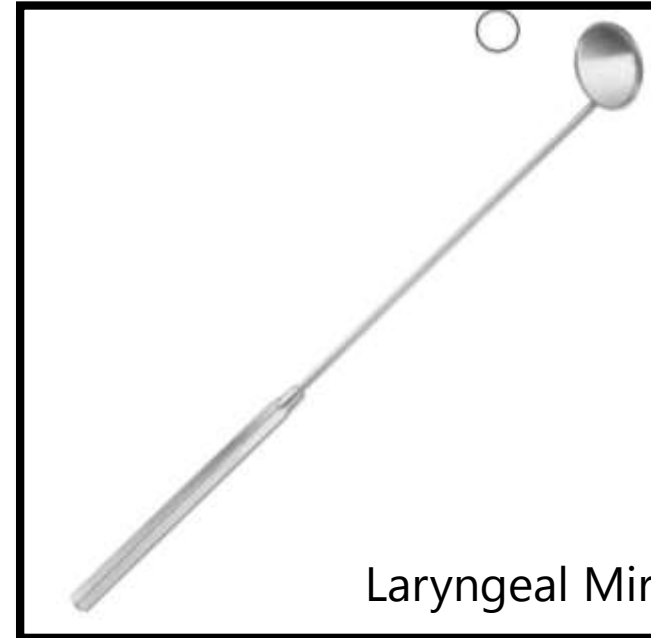


# Laryngoscopy

- Inspection of interior of larynx.

Types-

- Direct
- Indirect

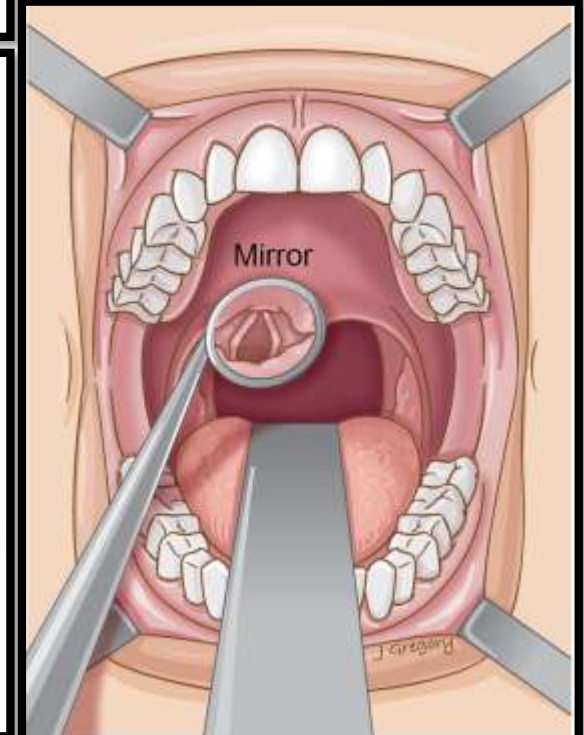
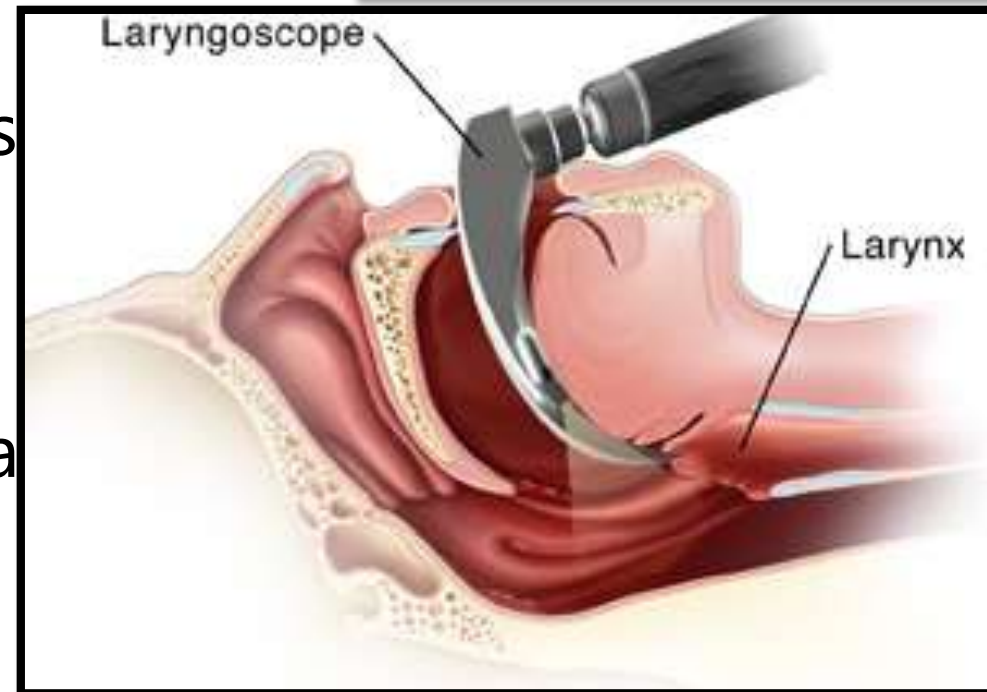


## Direct Laryngoscopy-

- With the help of a laryngos

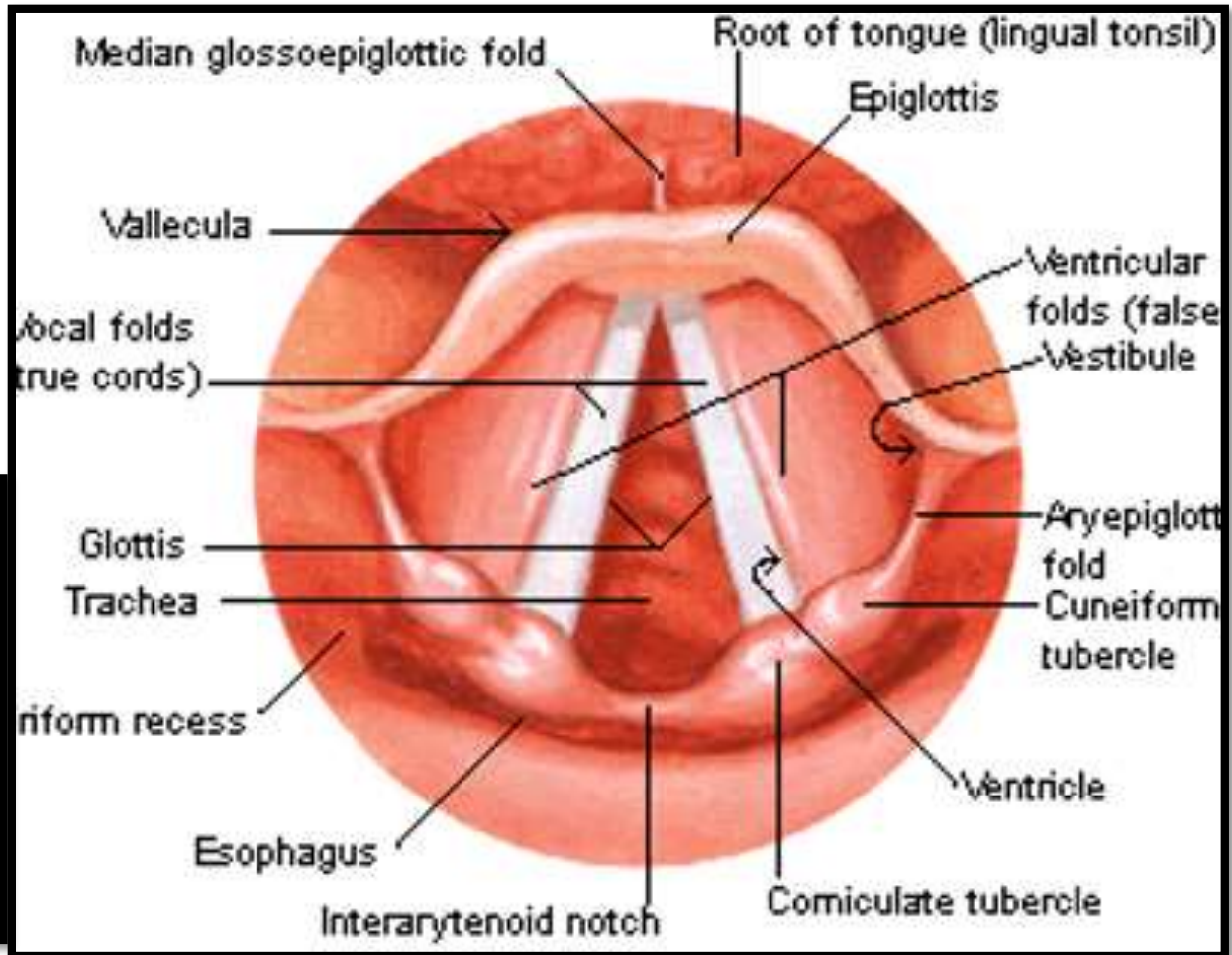
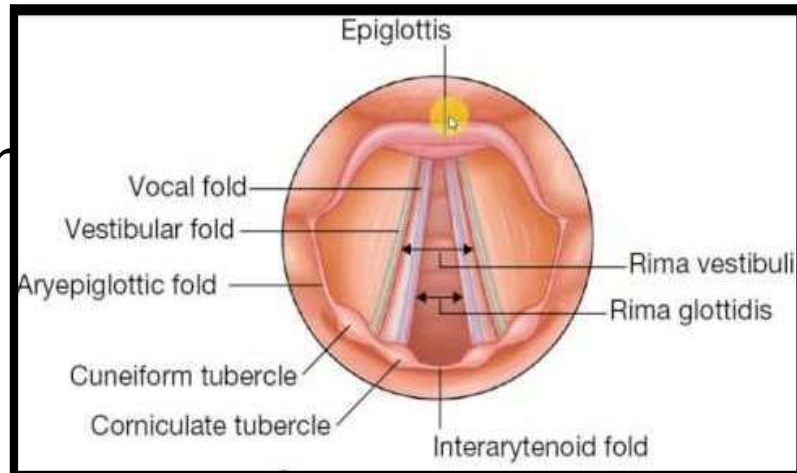
## Indirect Laryngoscopy-

- With the help of a laryngea



# Structures seen on Laryngoscopy

- Base of Tongue.
- Median Glosso-epiglottic fold.
- Valleculae.
- Epiglottis.
- Aryepiglottic folds.
- Piriform fossae.
- Vestibular folds.
- Vocal folds.
- Sinus of larynx

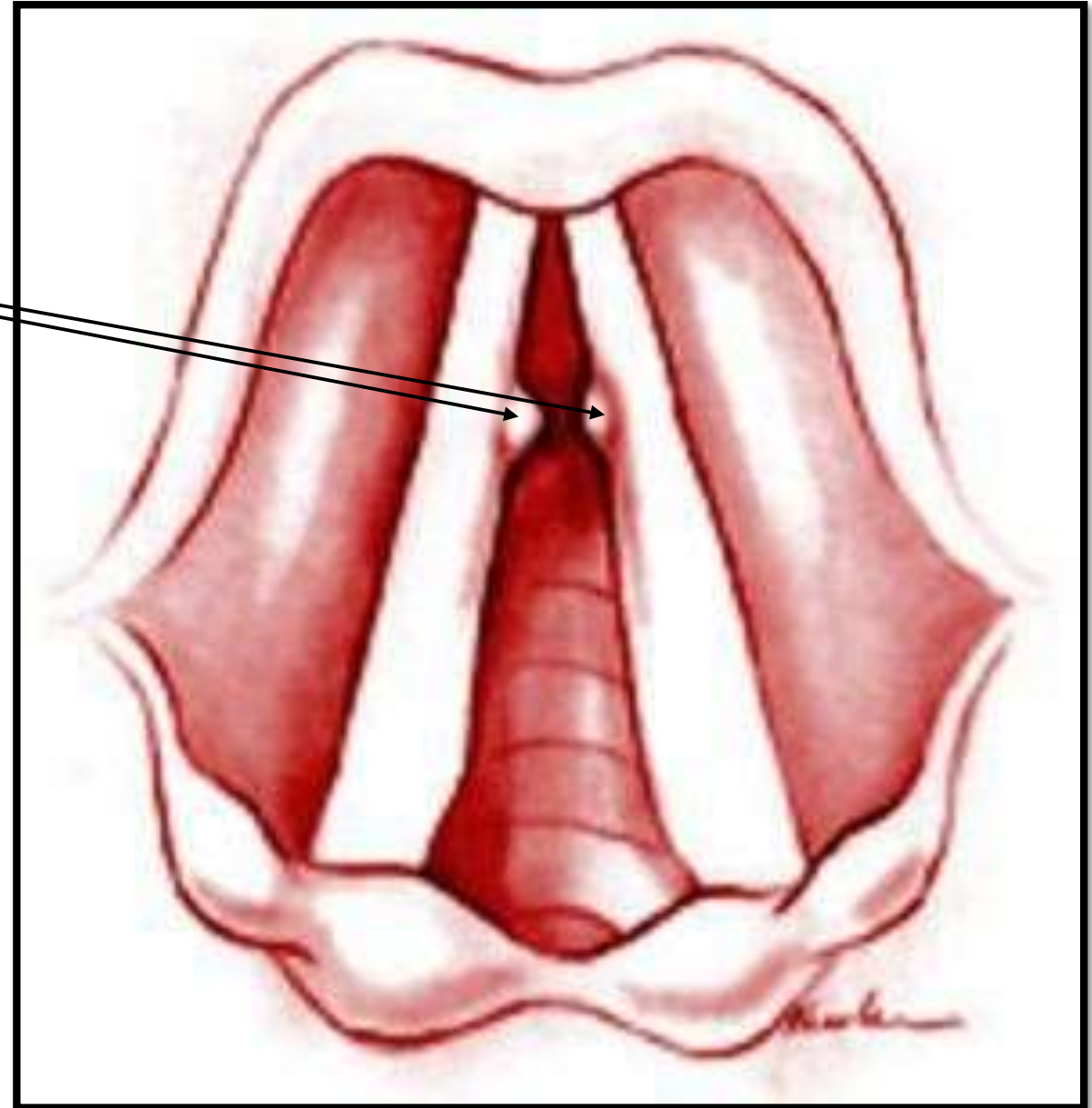




# Applied Aspects

## Vocal Nodules ( Singer's Nodules/Screamer's Nodules)-

- These are inflammatory nodules develop at the junction of anterior 1/3<sup>rd</sup> and posterior 2/3<sup>rd</sup> of vocal cords.
- These are bilateral and symmetrical.
- These nodules usually develop in individuals who overuse their voice such as **teachers, pop singers** etc.



Thank  
you!