

LARYNX

(voice box)

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Larynx (voice box)

- Functions of the larynx
- Air-way passage,
- Protective valve at the inlet of larynx
against entry of food particles.
- Organ of phonation.
- It helps with expulsion processes, such as defecation and vaginal labor.
-

Larynx (voice box)

Site: lies in-front of the **lower part of the pharynx** at the level of the **4th, 5th and 6th cervical vertebrae**.

It extends from the root of tongue (above) **Hyoid bone** → to continue with trachea (below).

Structure: formed by:-

1=Cartilages :

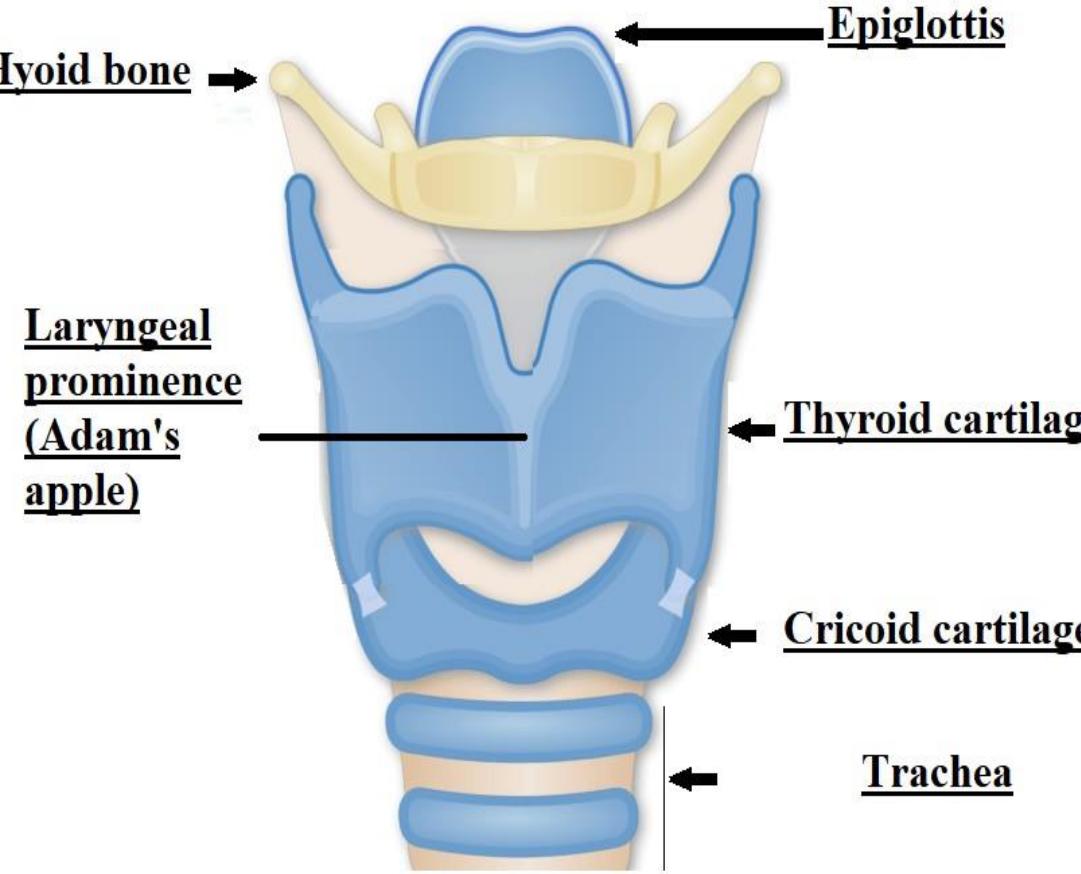
attached to each other by

2=Ligaments :

moved by

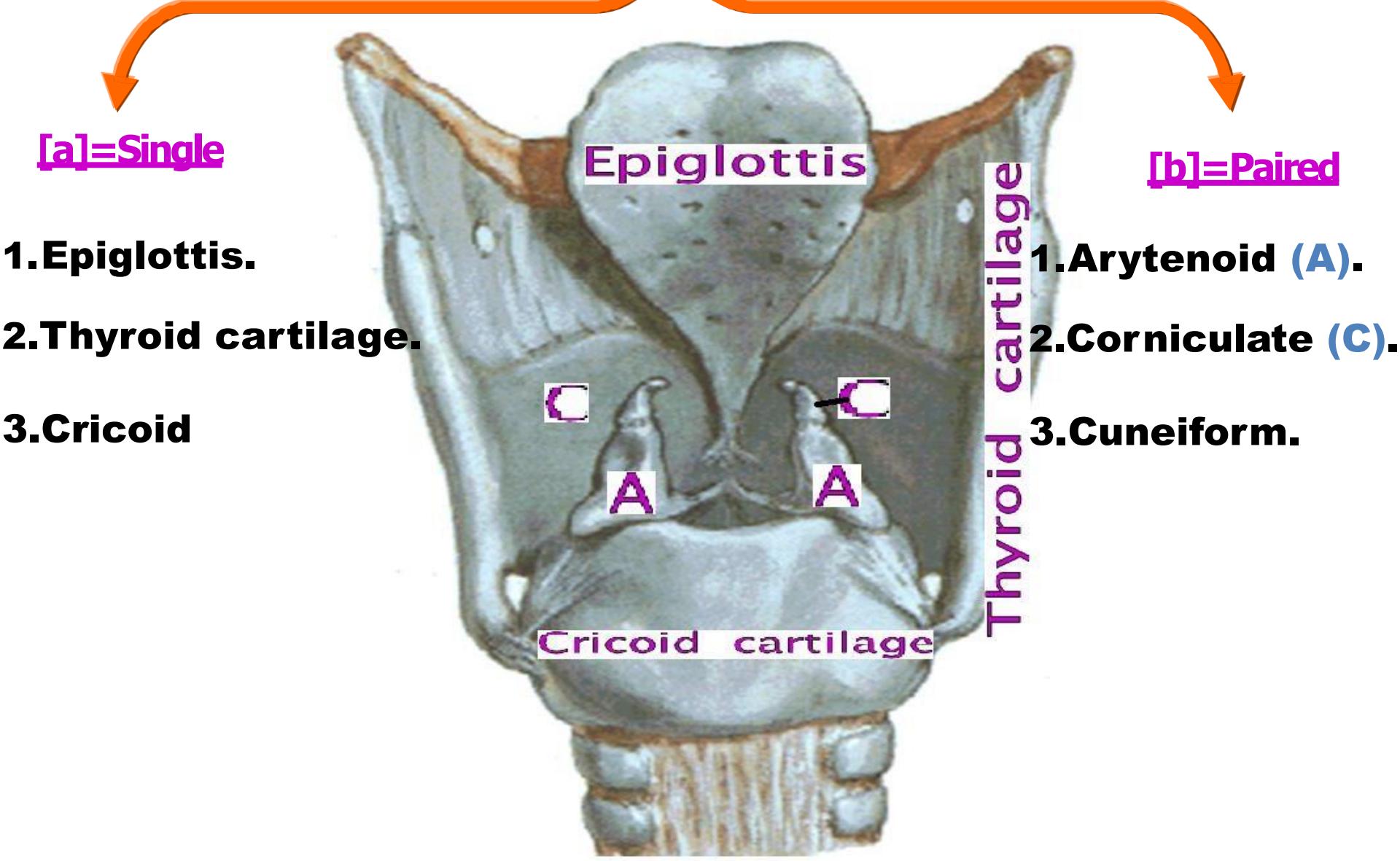
3=Muscles :

Interiorly is lined by
4=Mucus membrane.



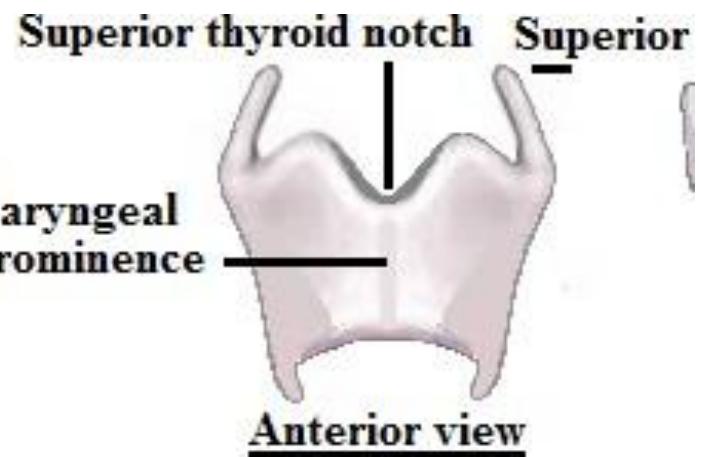
Larynx Anterior View

LARYNGEAL CARTILAGES



1- Thyroid cartilage .

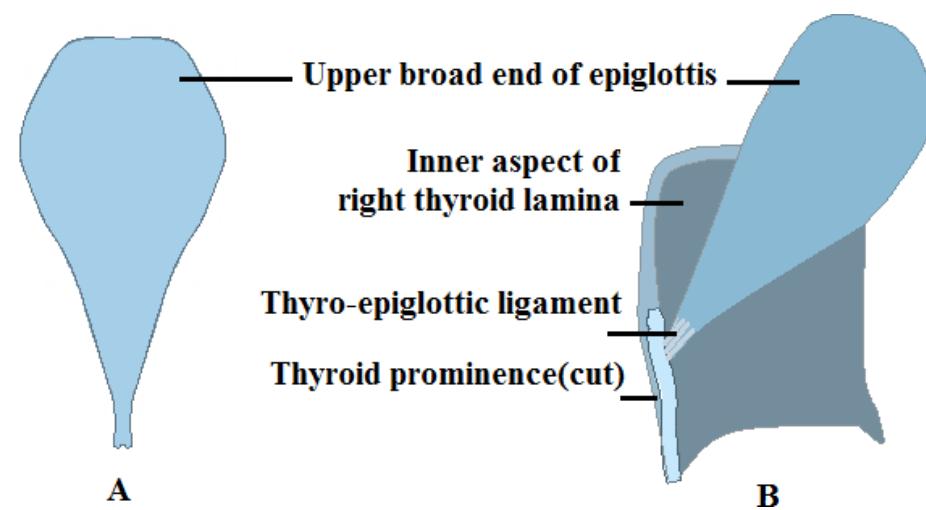
- It is shield-shaped; consists of **2 laminae**
- a. Ant border: meets together in the midline forming thyroid angle (**Adam's apple**).
- b. The thyroid cartilage is **the largest cartilage** of the larynx.
- c. On the outer surface is an **oblique line** for the attachment of muscles..



2- Cricoid cartilage: a signet ring appearance

3. Epiglottis: a thin leaf-like elastic fibrocartilage.

- It acts as a lid covering the opening of larynx, closing it during swallowing → prevent food passage.

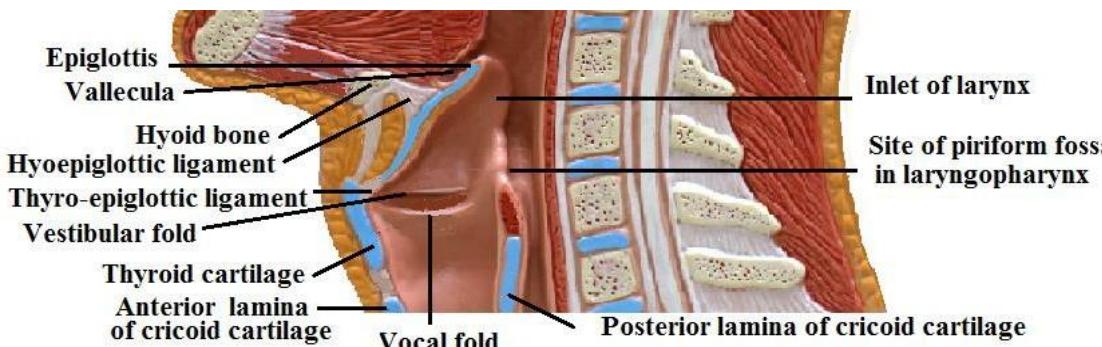


4-Arytenoid: pyramidal in shape has apex & Base

- The base has 2 processes; **muscular process** and **vocal process** anteriorly

5Corniculate: articulates with the apex of each arytenoid cartilage.

6Cuneiform: A very small cartilage lies in the aryepiglottic fold.



LARYNGEAL MEMBRANES

1- Cricothyroid membrane

- Between cricoid cartilage & thyroid cartilage.

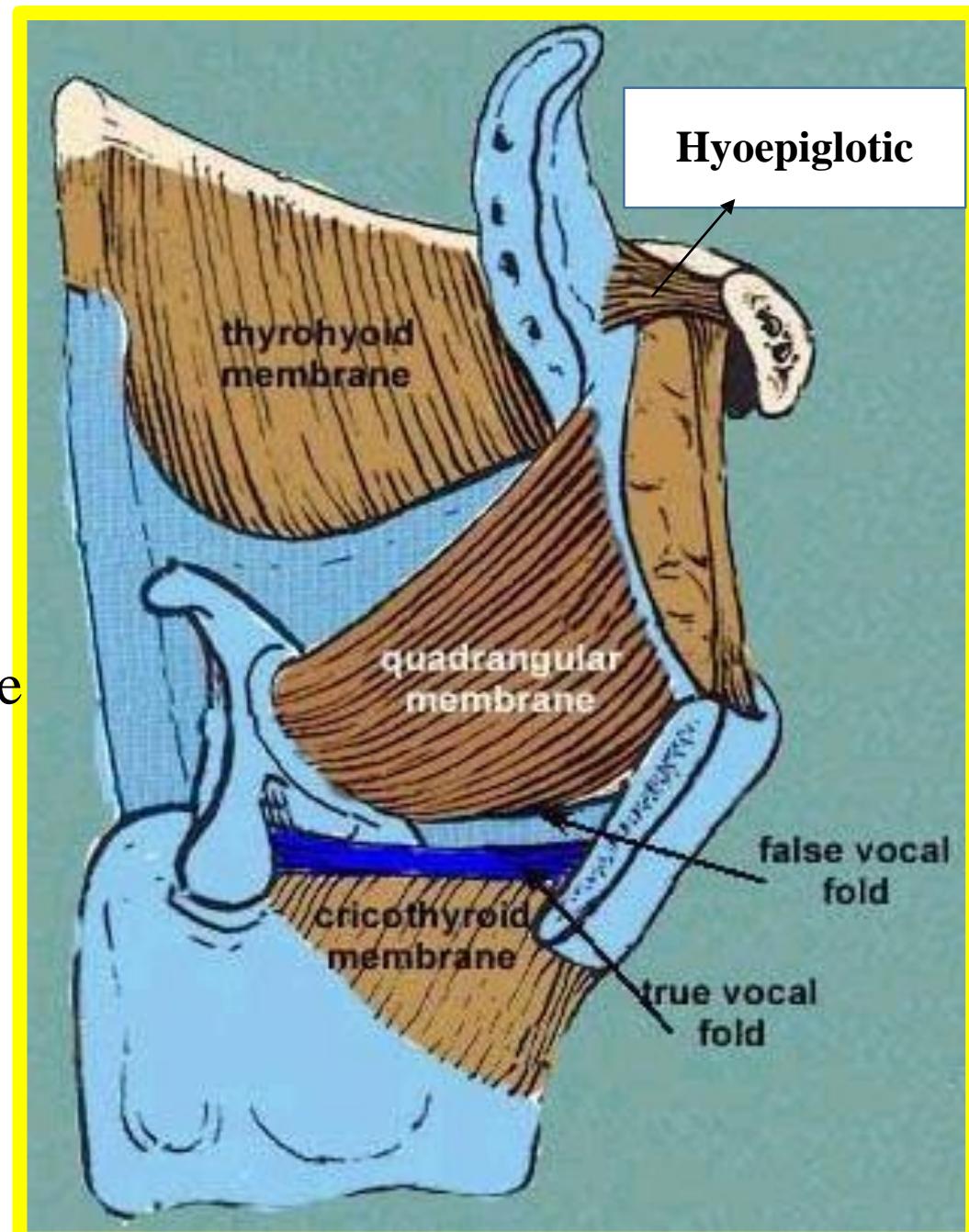
2 Quadrangular membrane:

upward continuation of cricothyroid membrane.

3 Thyroepiglottic membrane:

Between thyroid cartilage & the epiglottis.

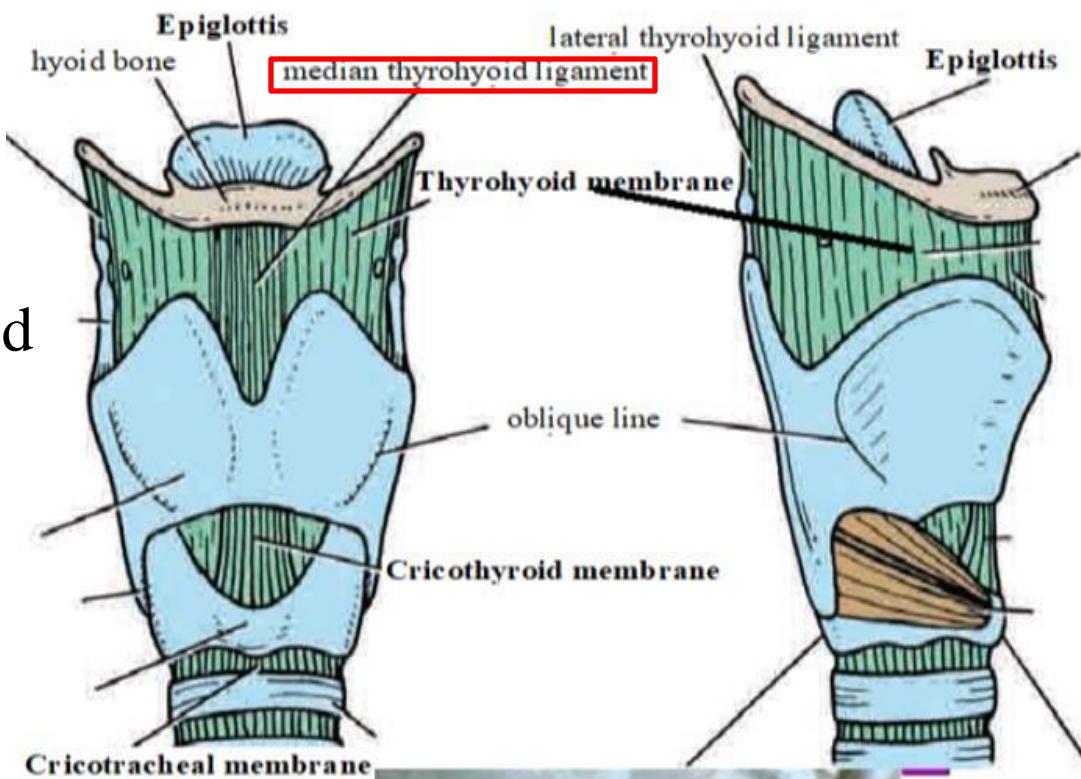
4Hyoepiglottic: between the hyoid bone and the epiglottis.



5 Thyrohyoid membrane :
upper border of the thyroid cartilage to the upper border of the hyoid bone.

It shows median thick part called **median thyrohyoid ligament** and pierced by the superior laryngeal artery & the internal laryngeal nerve.

6 Cricotracheal membrane
from the cricoid cartilage to the 1st tracheal ring.



NOT REQUIRED...

The superior laryngeal artery is a branch of the superior thyroid artery, which itself is a branch of the external carotid artery.



LARYNGEAL MUSCLES

1.Extrinsic muscles of larynx:

(a) Supra-hyoid muscles:

Elevate the hyoid and larynx.

(b) Infra-hyoid muscles:

Depress the hyoid bone and larynx.

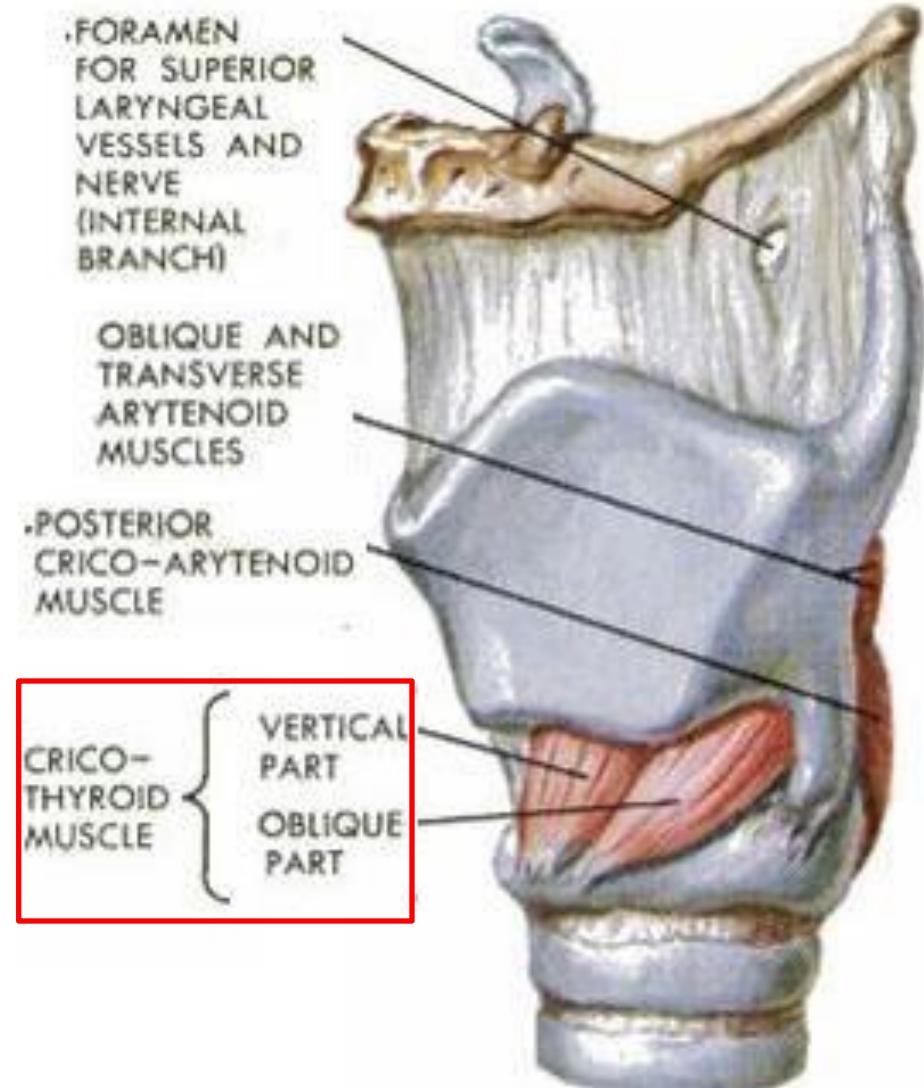
2.Inttrinsic muscles of larynx :

Example:

Cricothyroid muscle (on the external aspect of the anterior larynx).

Inttrinsic muscles of larynx

and the movementare responsible for sound production s of the laryngeal cartilages and vocal folds.



• **Laryngeal inlet:** is bounded by:

- Epiglottis –anteriorly.
- Aryepiglottic—one on each side.
- Apices of the arytenoids and interarytenoid fold posteriorly.

Cavity of larynx:

It is divided by vestibular and vocal folds into 3 zones:

1 Vestibule of the larynx; lying above the false cords.

2 Ventricle of the larynx; a depression lying between the false and true cords.

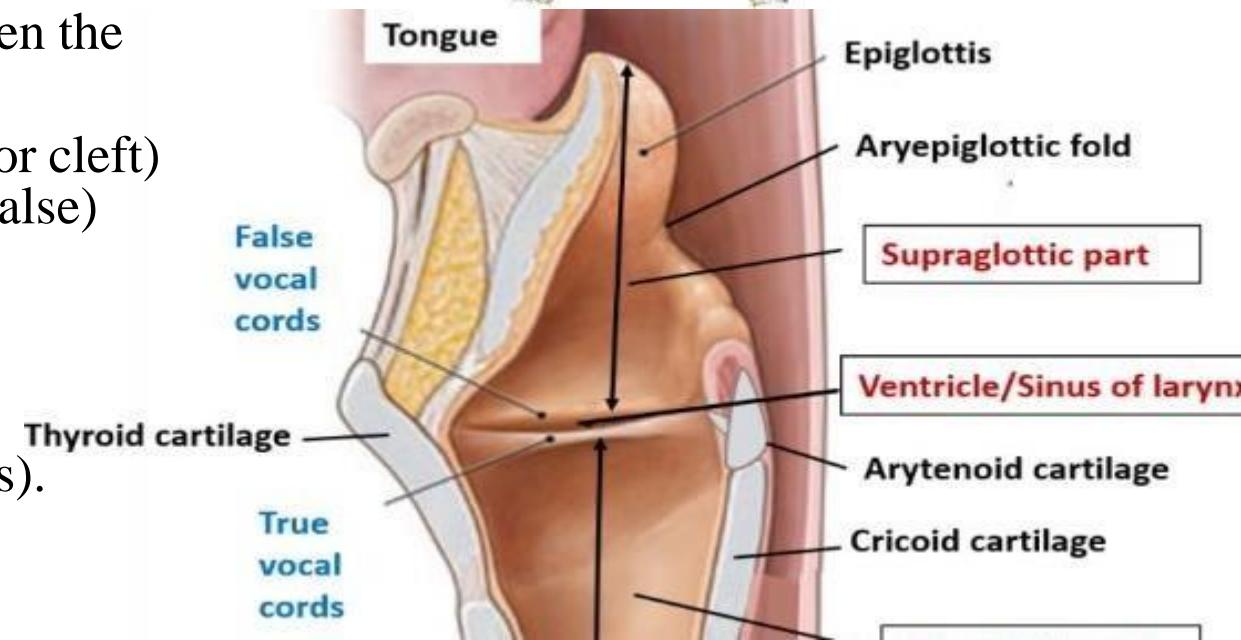
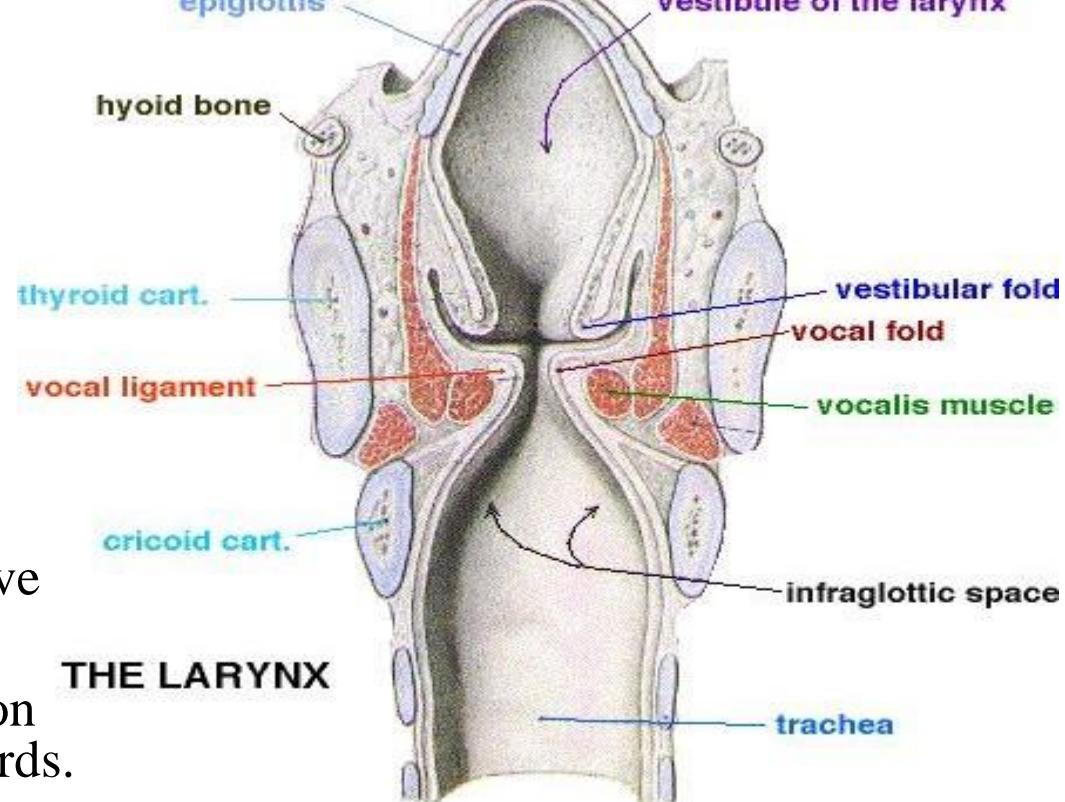
3 Subglottic zone; lying between the true cords and the trachea.

(a) **Rima vestibuli** is the slit (or cleft) between the 2 vestibular (false) cords.

(b) **Rima glottidis (glottis):**

It is the slit (or cleft) between the 2 vocal (true) cords).

It is the **narrowest part** of the laryngeal passage.



- **Vestibular fold**

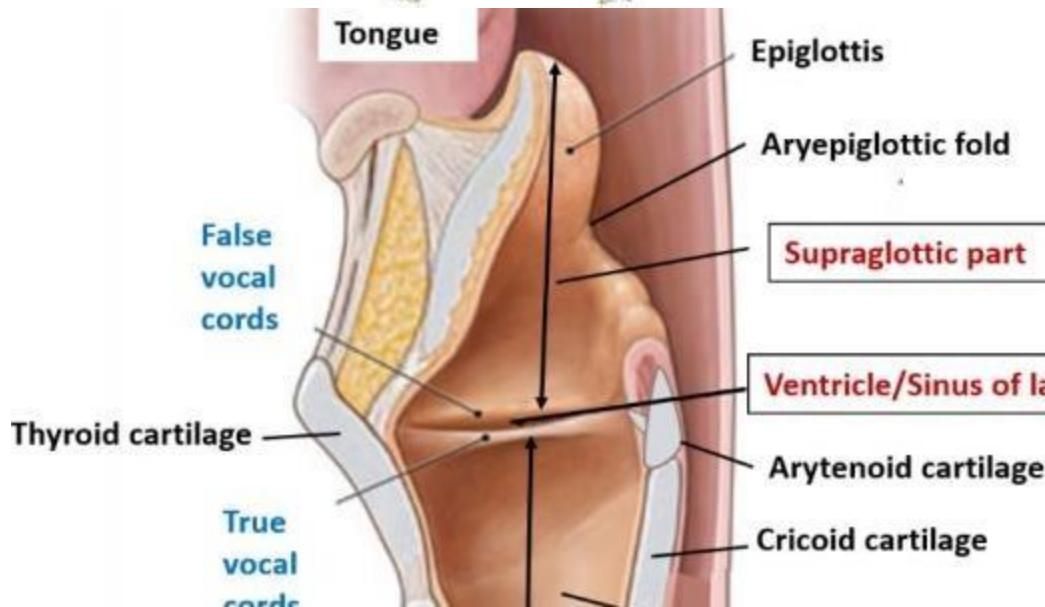
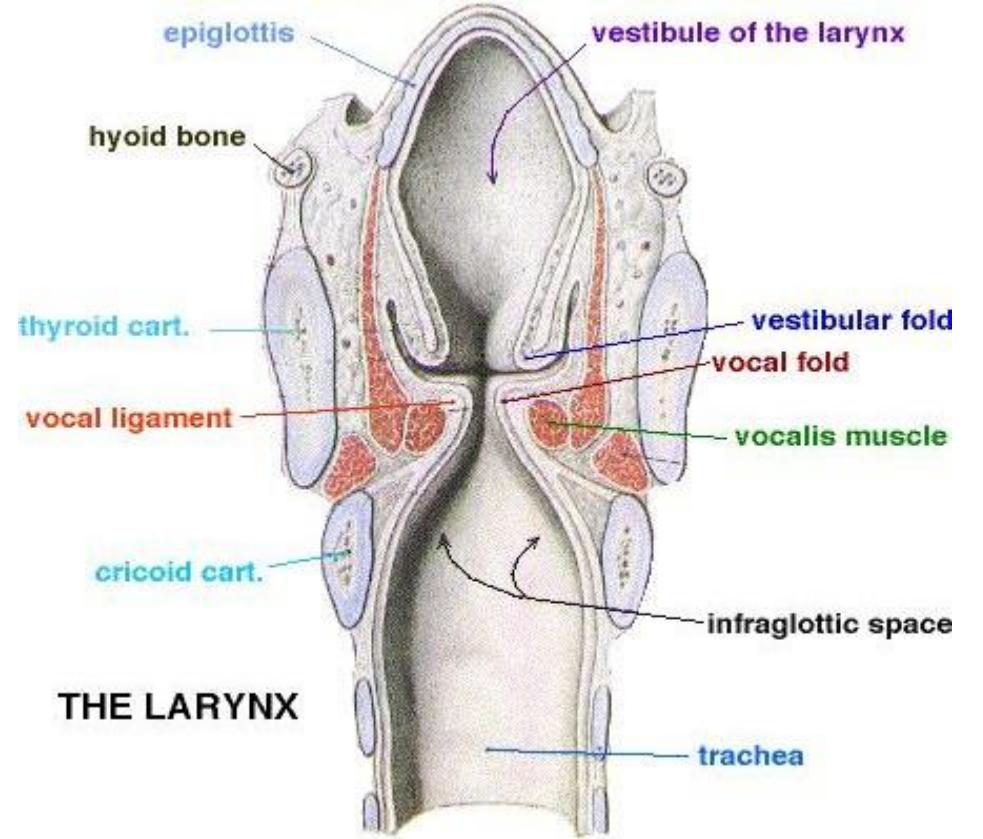
is the upper fold,
containing a small amount of
fibrous tissue,
forming false vocal cord.

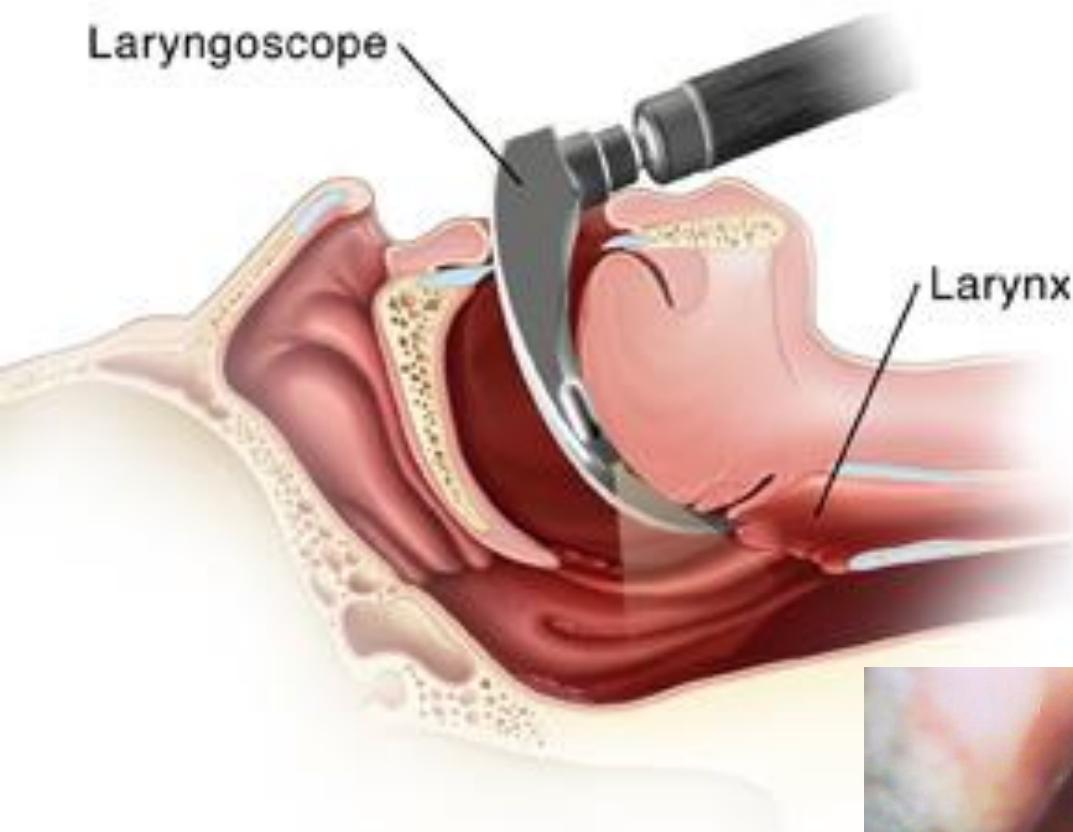
- **Vocal fold**

is the lower fold,
containing vocal ligament,
forming true vocal cord.

The 2 vocal cords produce sound
when air passes over them.

N.B.: On laryngoscopy, the vocal cords appear avascular and pearly white (because the mucosa is firmly adherent to the vocal ligaments without submucosal involvement).





Nerve supply of larynx (innervation of larynx)

**Indirect question on VAGUS n.
(vago-accessory complex)**

1. Motor. (10th)

ALL THE INTRENSIC MUSCLES OF LARYNX
ARE SUPPLIED BY
RECURRENT LARYNGEAL NERVE
EXCEPT
CRICO-THYROID MUSCLE
IS SUPPLIED BY
EXTERNAL LARYNGEAL NERVE

2. Sensory:-

- a)-laryngeal mucous membrane above vocal cords:- by internal laryngeal nerve**
- b)-laryngeal mucous membrane below vocal cords:- by recurrent laryngeal nerve**

1.Arterial supply:

a)- above vocal cords:

superior laryngeal artery

from superior thyroid artery.

b)- below vocal cords:

inferior laryngeal artery

from inferior thyroid artery

2.Venous drainage:

Veins correspond to arteries.

3.Lymphatic drainage:

Upper part to upper deep cervical LN

Lower part to lower deep cervical LN

