



LARYNX

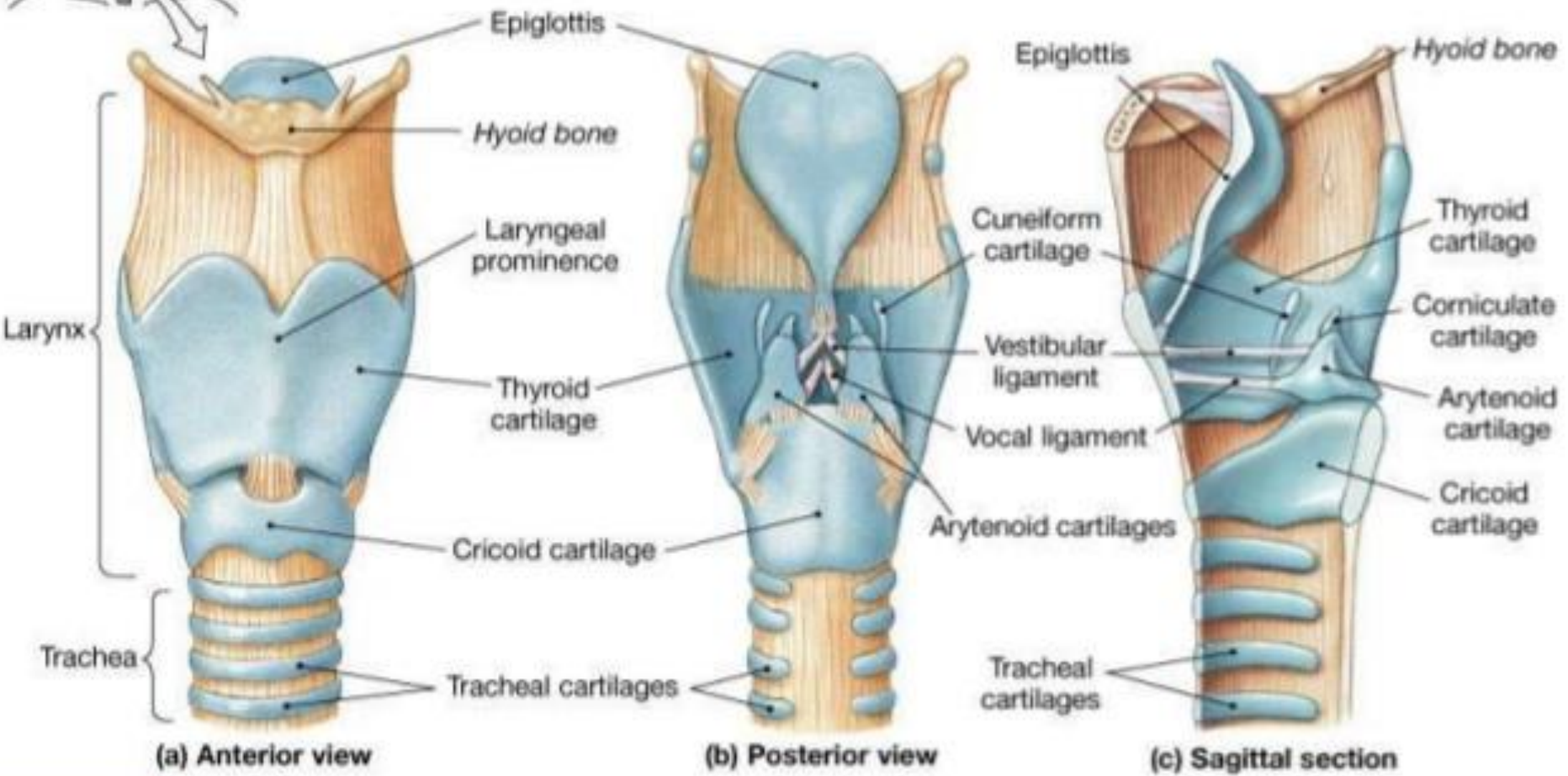
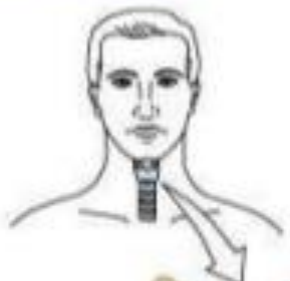
By Dr Mahvish javed

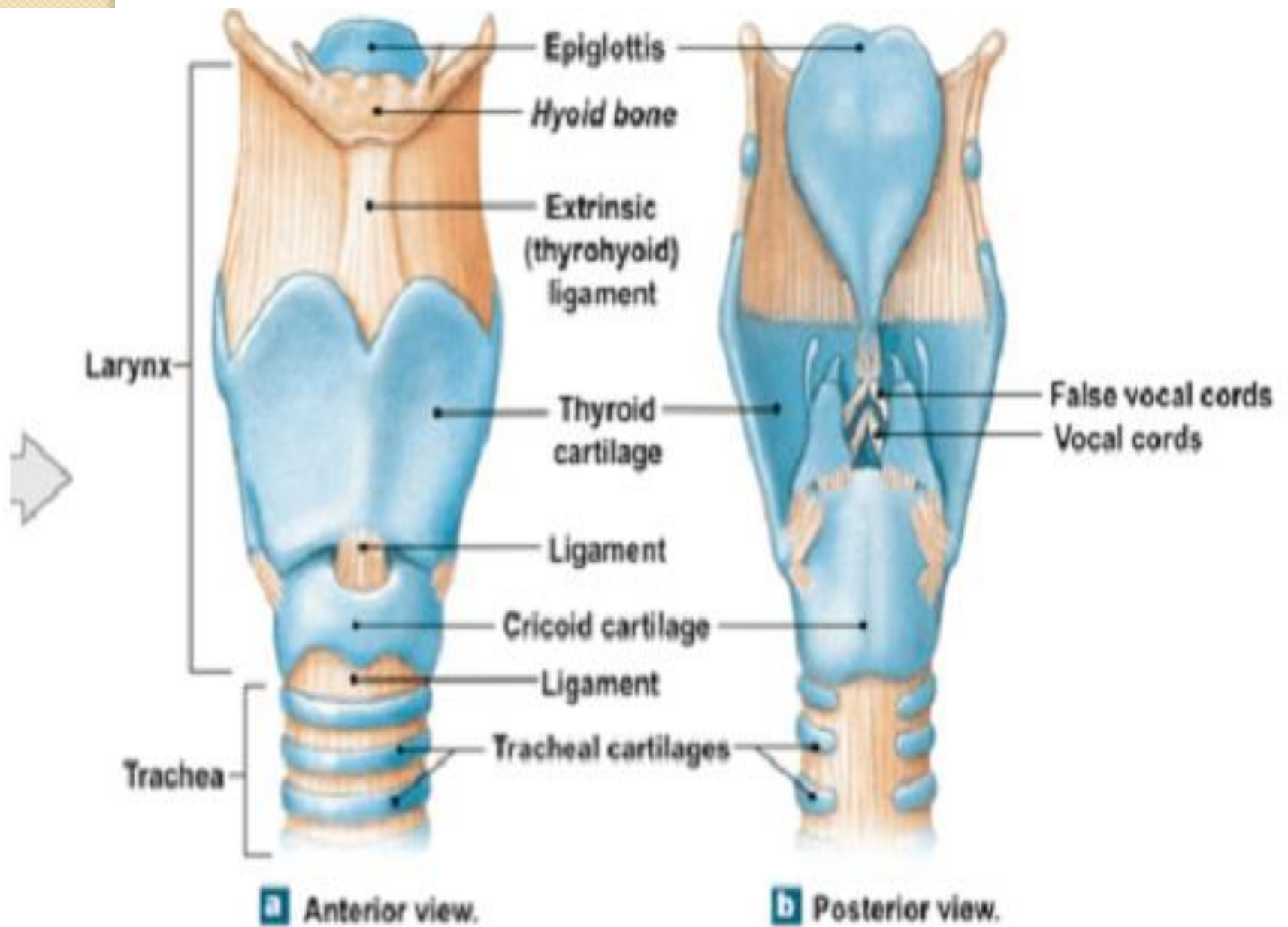
Assistant professor KGMC Peshawar

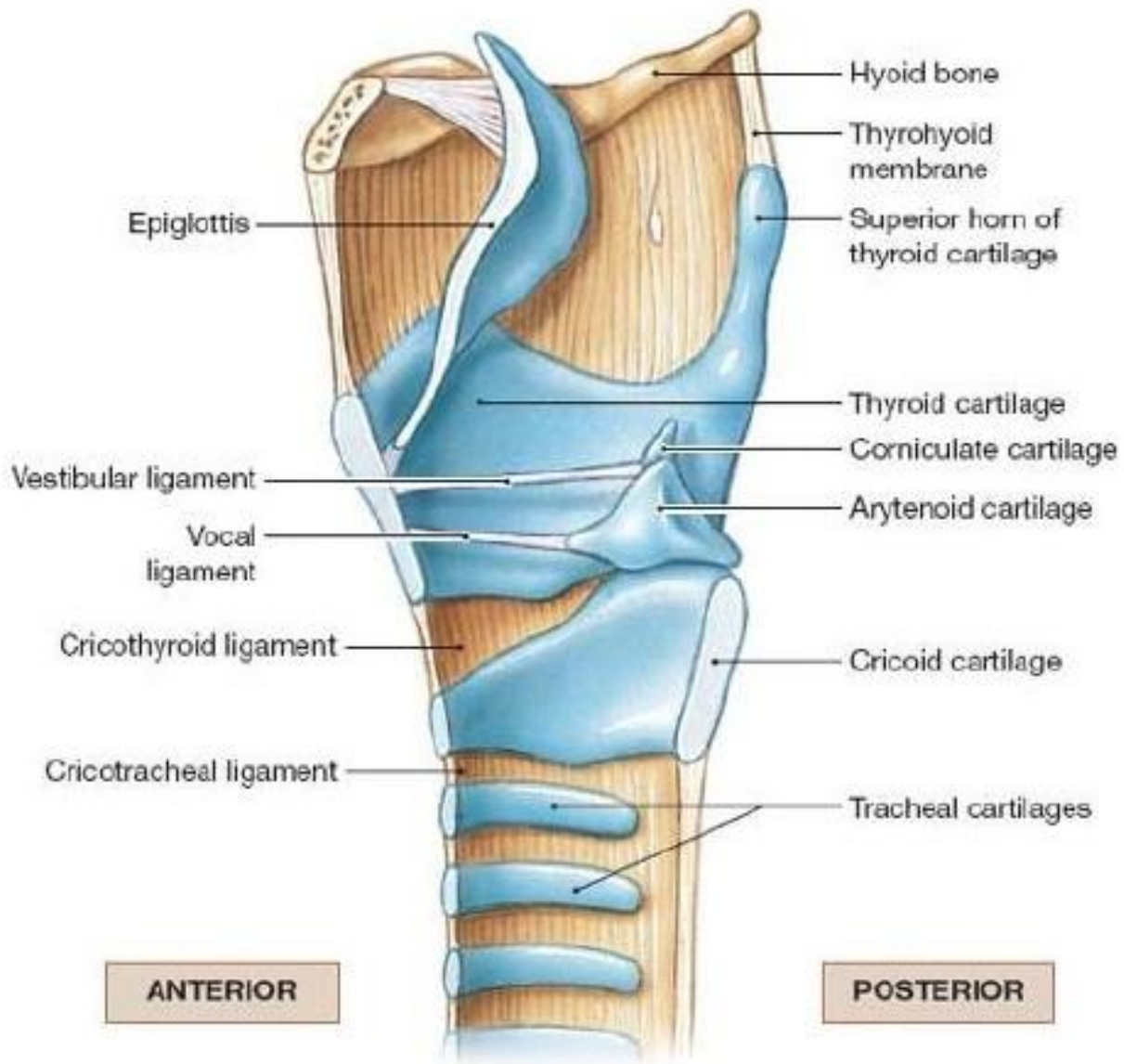
LARYNX

- It is the musculocartilaginous structure, lined with mucous membrane,
- connected to the superior part of the trachea and to the pharynx.
- the essential sphincter guarding the entrance into the trachea.
- functioning secondarily as the organ of voice.
- It is formed by nine cartilages connected by ligaments and eight muscles.
- begins at the level of vertebra C4 or C5 and ends at the level of vertebra C7

The Anatomy of the Larynx







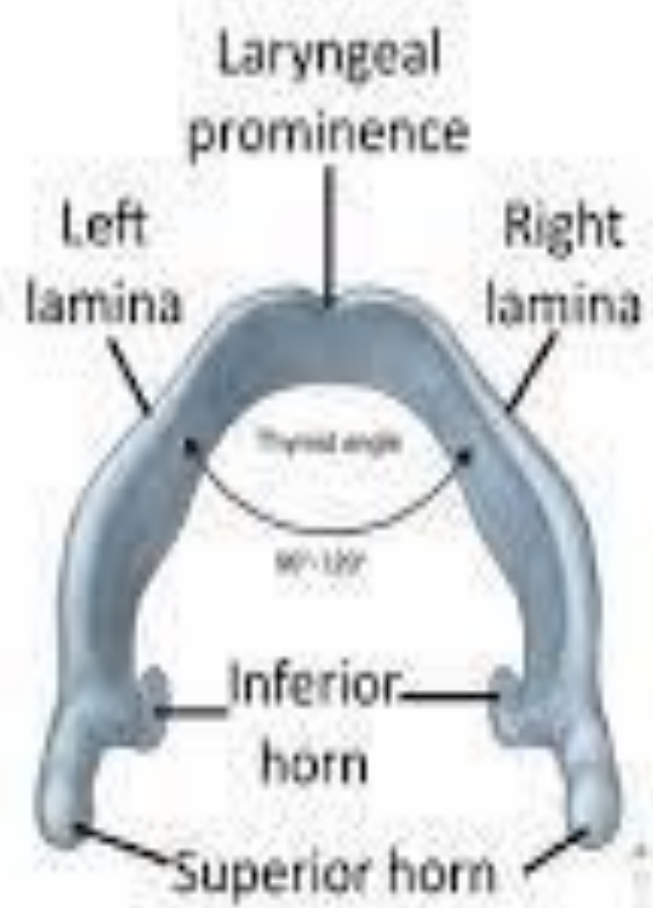
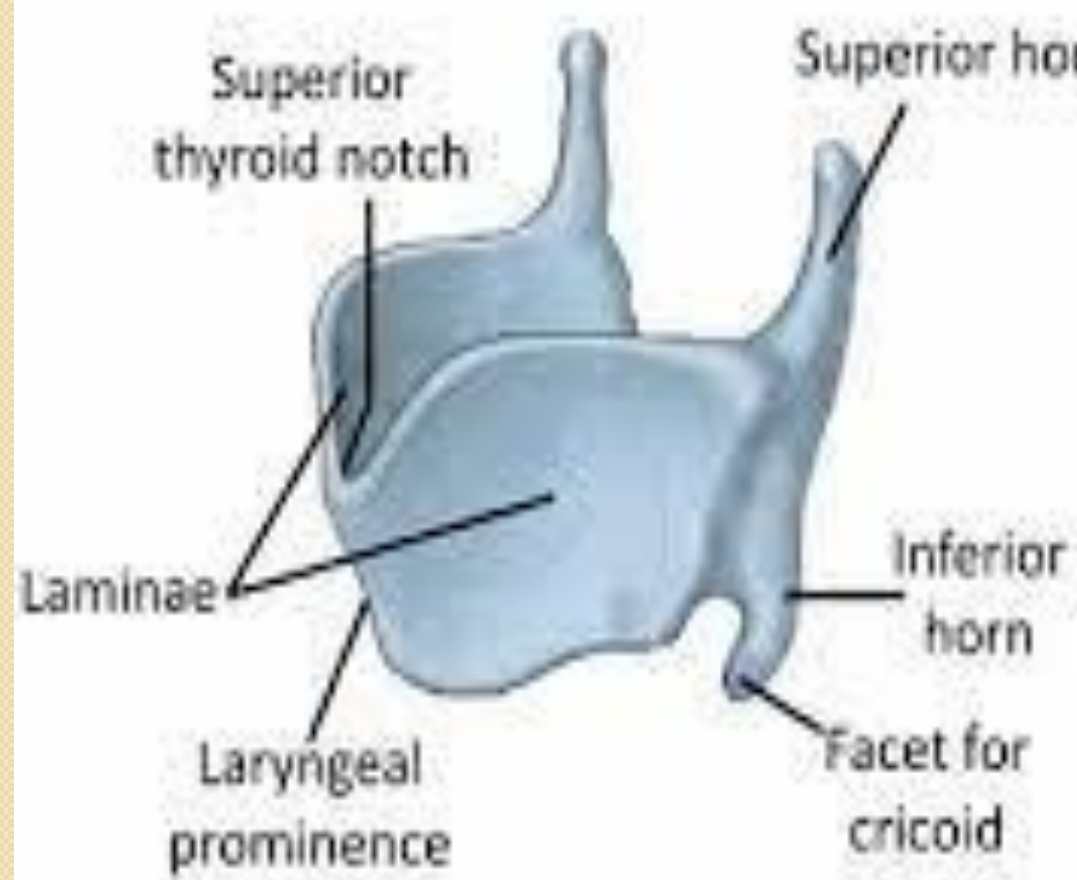
(d) Larynx, sagittal section

CARTILAGES

- There are 9 cartilages of larynx
- 3 are paired and 3 are unpaired
- ❖ **UNPAIRED**
- Thyroid cartilage
- Cricoid cartilage
- Epiglottis
- ❖ **PAIRED**
- Arytenoid
- Corniculate
- Cuneiform

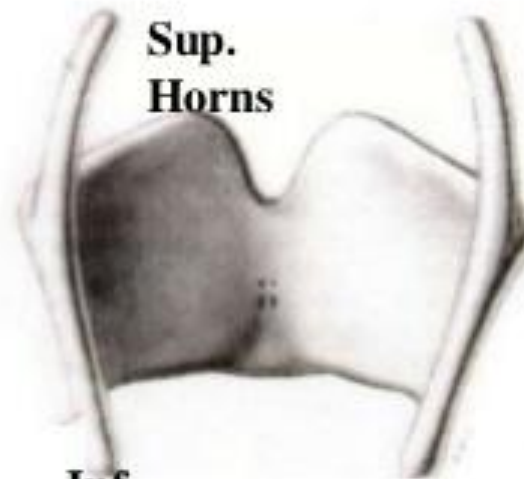
THYROID CARTILAGE

- The largest laryngeal cartilage (“shield-shaped”)
- It forms most of the anterior and lateral walls of the larynx .
- The thyroid cartilage, when viewed in sagittal section, is incomplete posteriorly.
- The anterior surface of this cartilage bears a thick ridge, the laryngeal prominence.
- This ridge is easily seen and felt, and the thyroid cartilage is commonly called the Adam’s apple.



CARTILAGES

A. THYROID CARTILAGE – Shield shaped
- has Sup. & Inf. Horns from upper & lower edges



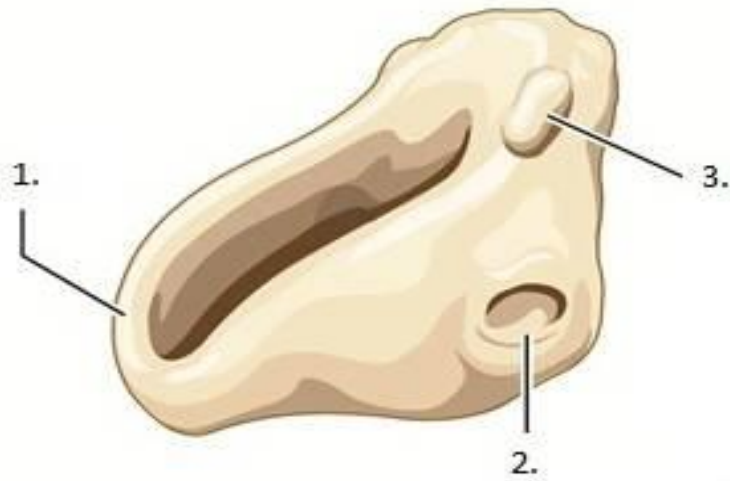
Inf.
Horns

- Inf. horns make synovial hinges joint with Cricoid Cartilage;
- Laryngeal Prominence = Adam's Apple, more prominent in males

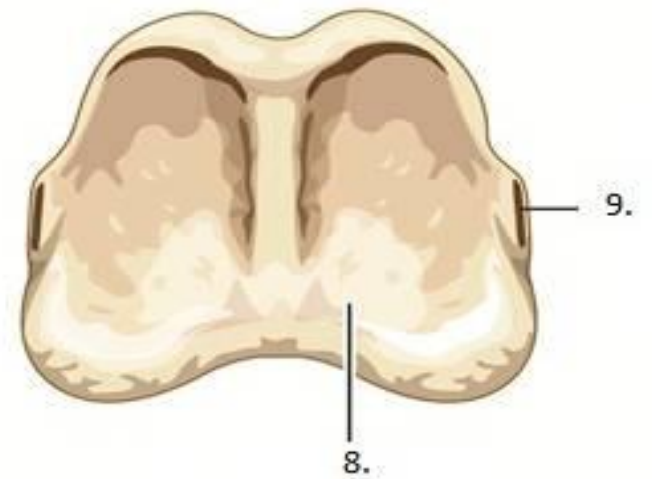
CRICOID CARTILAGE

- “ringshaped” cartilage.
- It is a complete ring whose posterior portion is greatly expanded, providing support in the absence of the thyroid cartilage.
- Forms most of the posterior wall of larynx
- The cricoid and thyroid cartilages protect the glottis and the entrance to the trachea

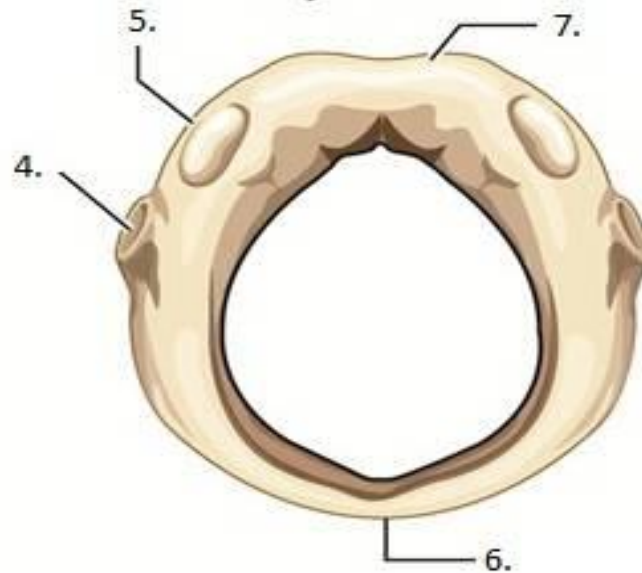
Side oblique view

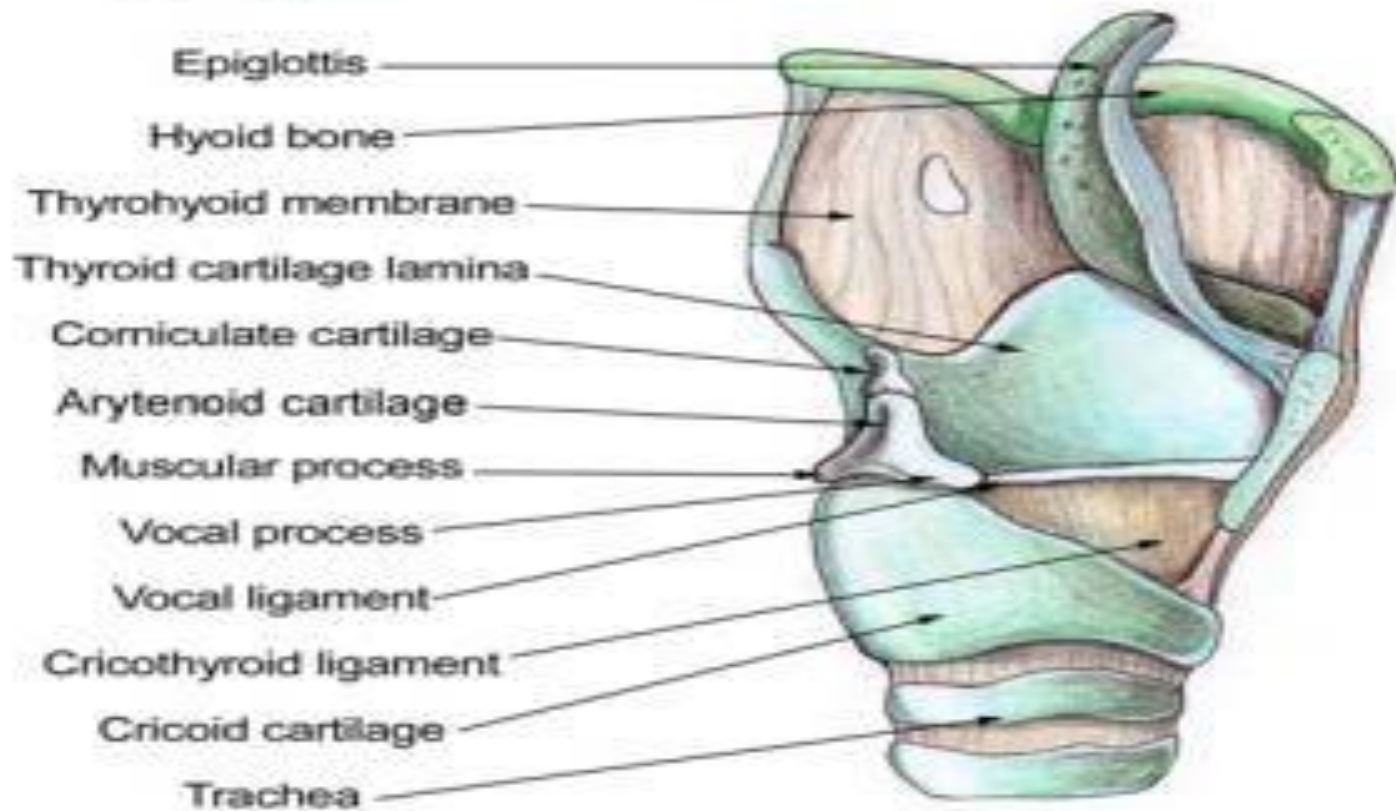
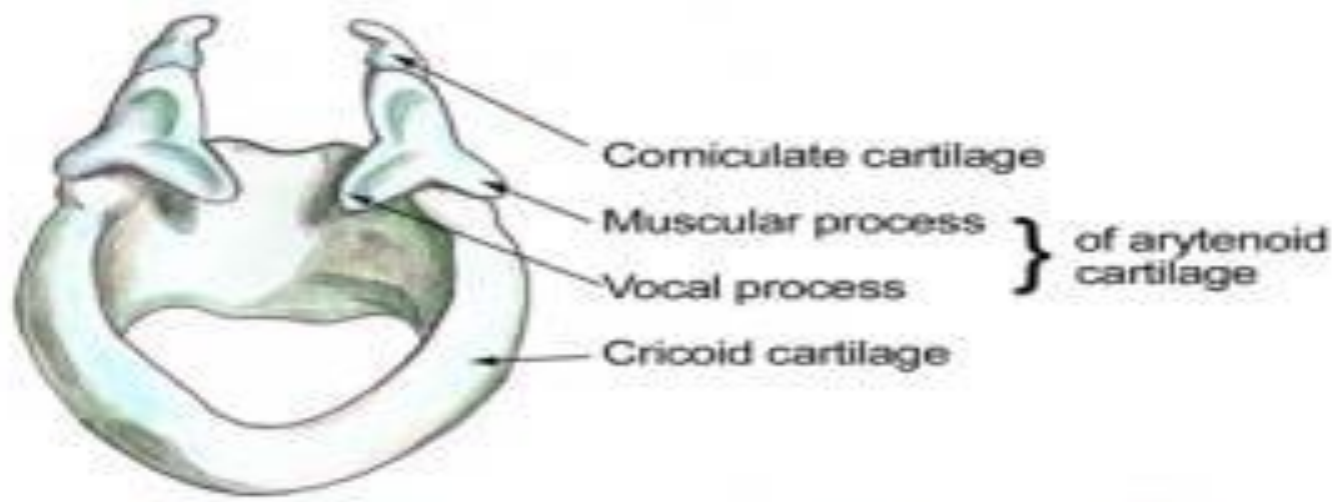


Back view



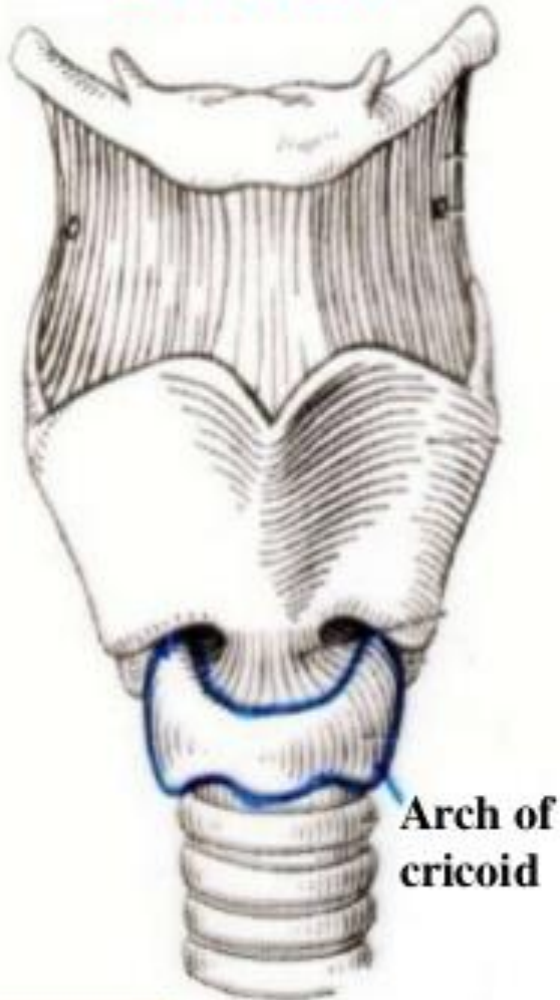
Top view



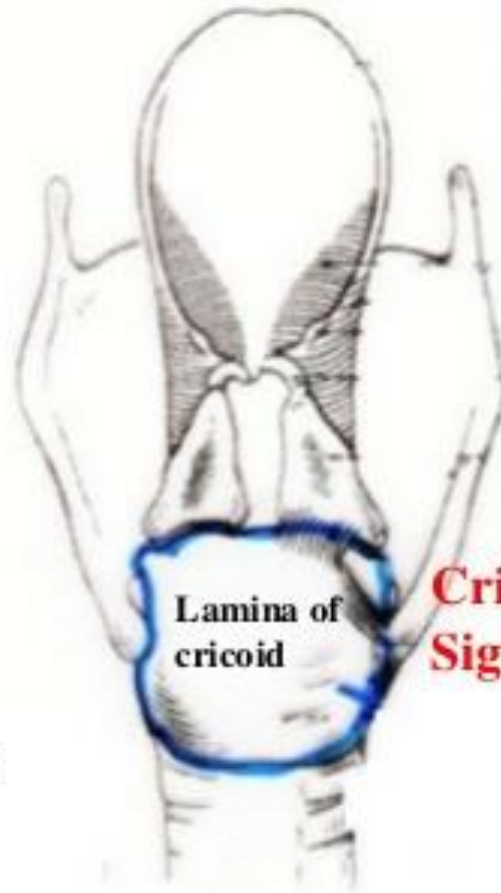


CARTILAGES

ANT. VIEW



POST. VIEW



B. CRICOID

**complete
ring of
cartilage has
narrow Arch ant.,
broad Lamina post.**

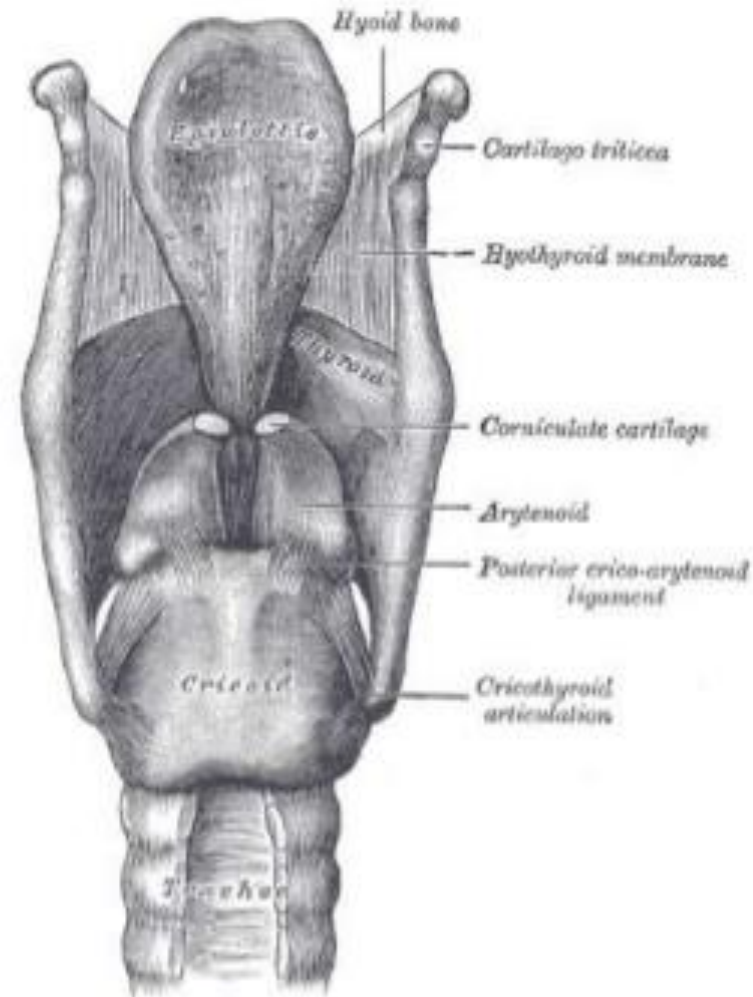
**Cricoid means
Signet Ring**

EPIGLOTIS

- Thin, leaf-like, elastic fibrocartilage
- Projects upward behind tongue & hyoid
- During swallowing, the larynx is elevated, and the epiglottis folds back over the glottis, preventing the entry of liquids or solid food into the respiratory passageways.
- Neonates & infants – omega shaped, long, floppy

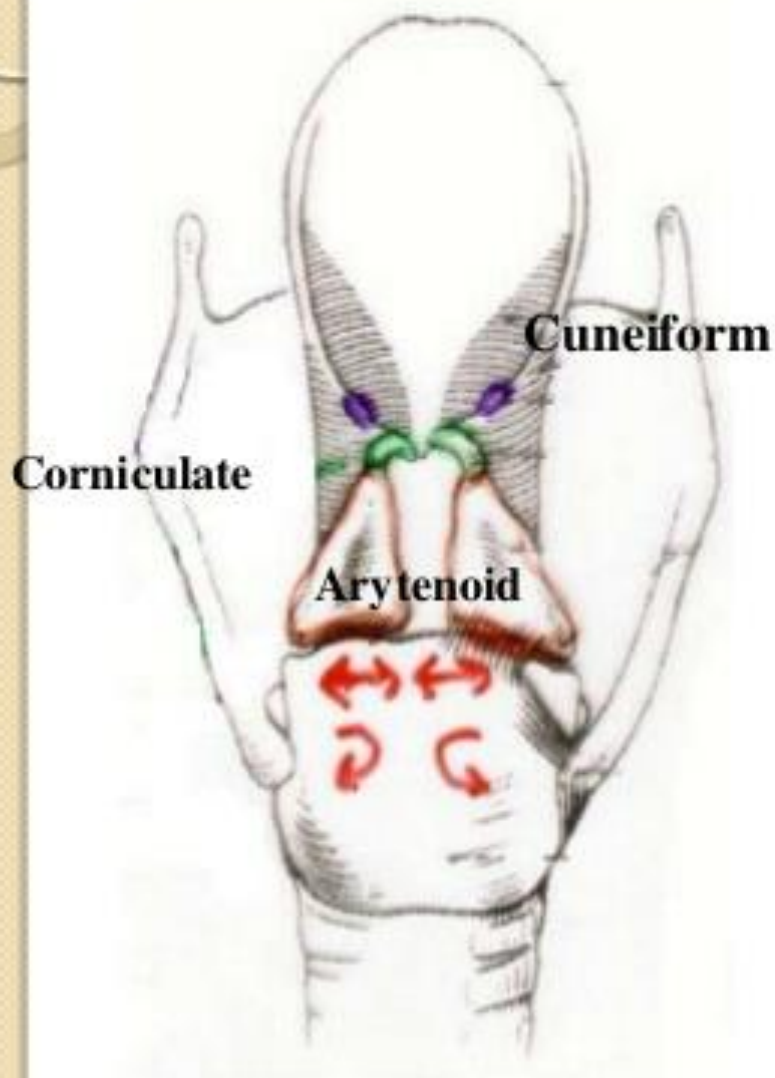
LARYNX: CARTILAGES

POST. VIEW



F. EPIGLOTTIS
- leaf shaped cartilage
posterior to root of tongue
- connected to body of hyoid and post side of thyroid cartilage

PAIRED CARTILAGES



- **Arytenoid** - 2 pyramidal shaped cartilages above lamina – have synovial joints with Cricoid
- **Corniculate** - nodules above arytenoids in aryepiglottic folds
- **Cuneiform** - rod shaped, above corniculate cartilages



Cricoarytenoid joint

Anterolateral view (left)

Superior process

Muscular process

Right lateral view

Vocal process

Superior process

Medial view

Vocal process

Muscular process

Anterior view

Superior process

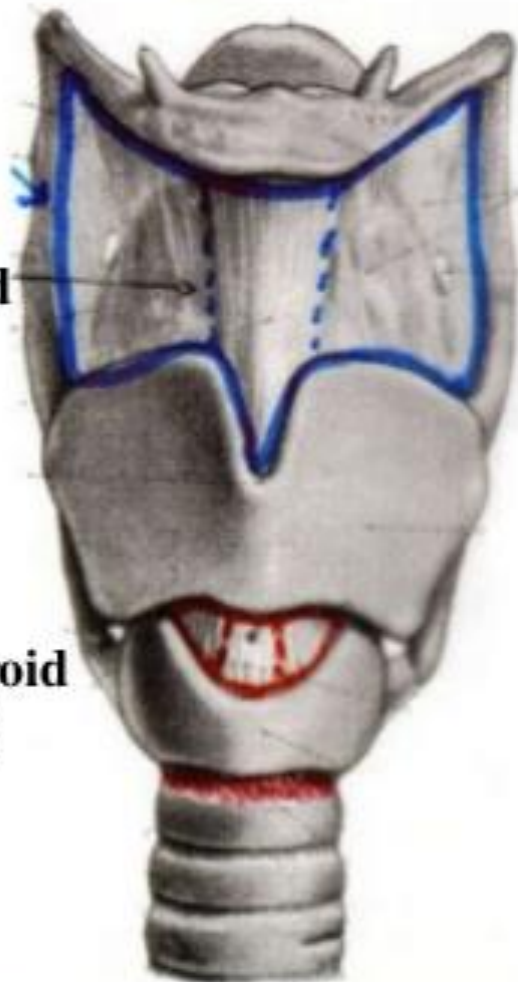


EXTRINSIC LIGAMENTS OF LARYNX

Connects cartilages to hyoid and trachea

Median
Thyrohyoid
Ligament

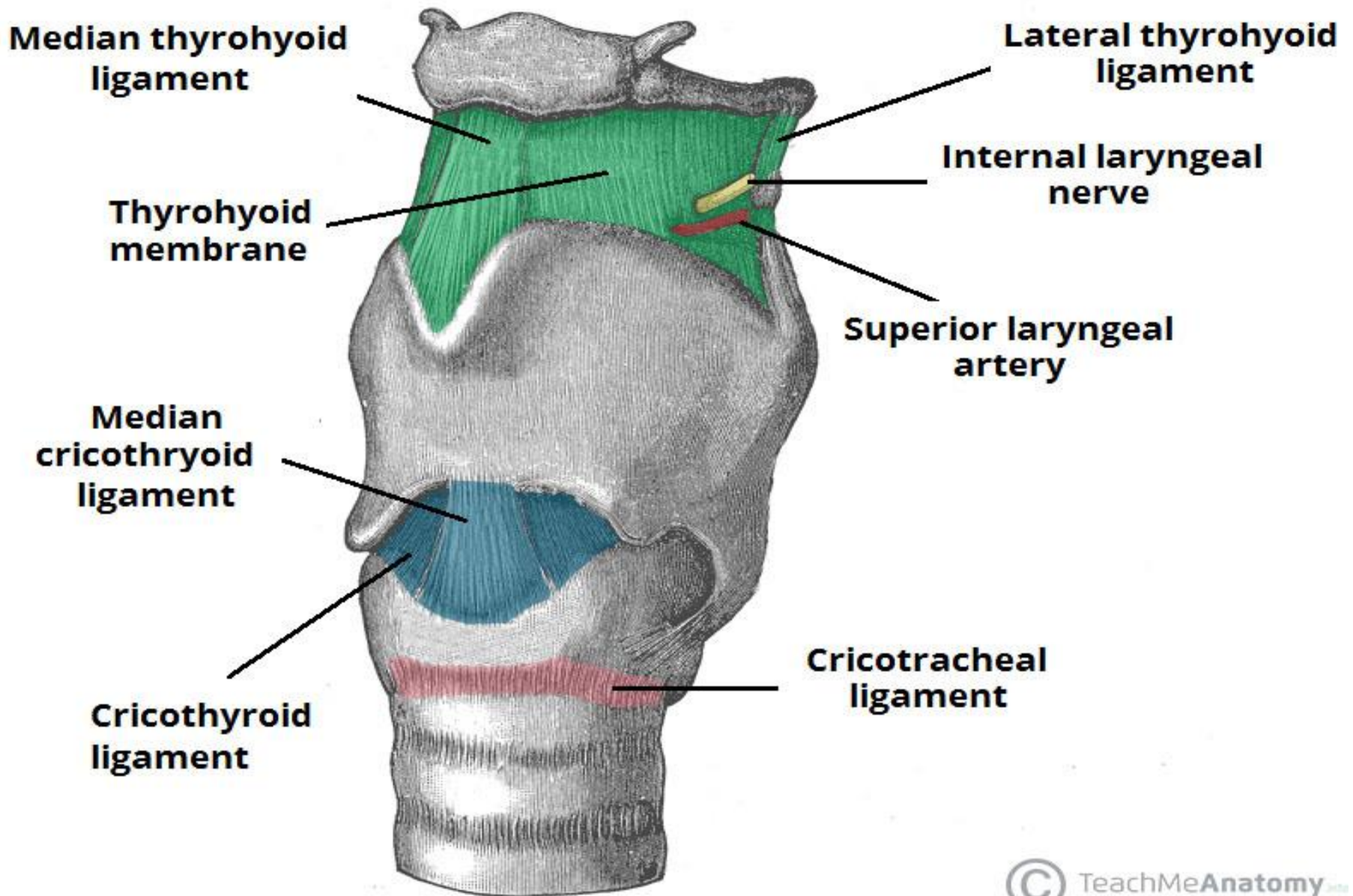
Median
Cricothyroid
Ligament



1. Thyrohyoid ligament
links larynx to hyoid;

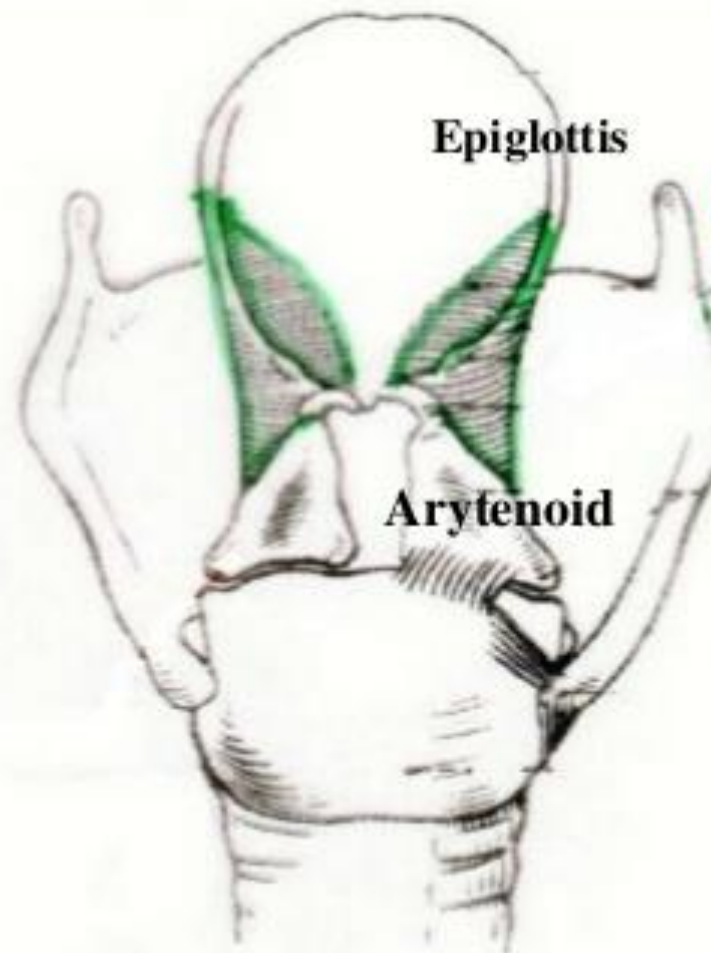
2. Cricothyroid ligament
links thyroid to cricoid;

3. Cricotracheal ligament
links Cricoid to first
tracheal cartilage



INTRINSIC LIGAMENTS

Connects cartilages to each other and forms the internal framework



1. Quadrangular Membrane links

Arytenoid

To epiglottis

Forms the vestibular ligament

2. CONUS ELASTICUS:

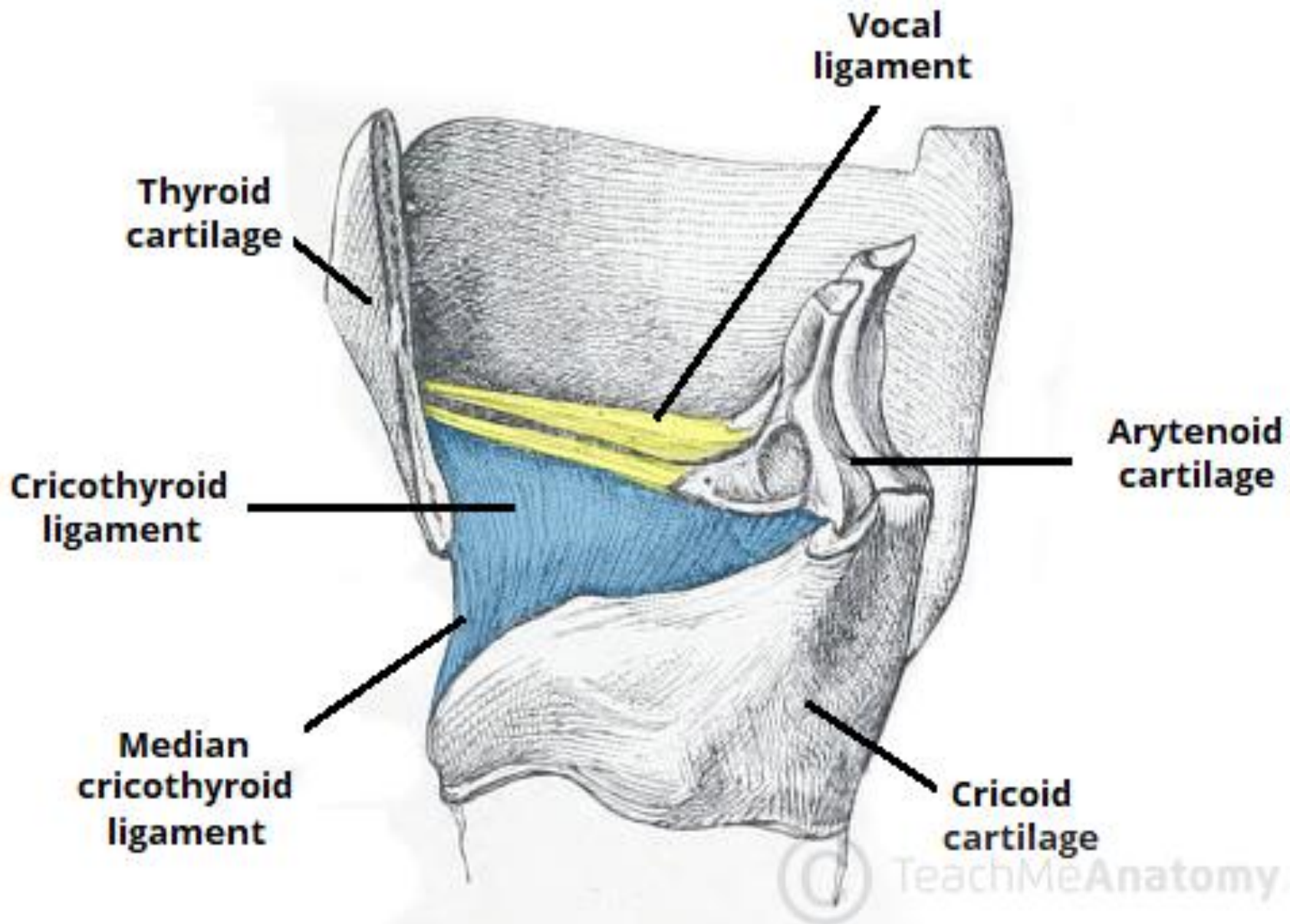
forms vocal

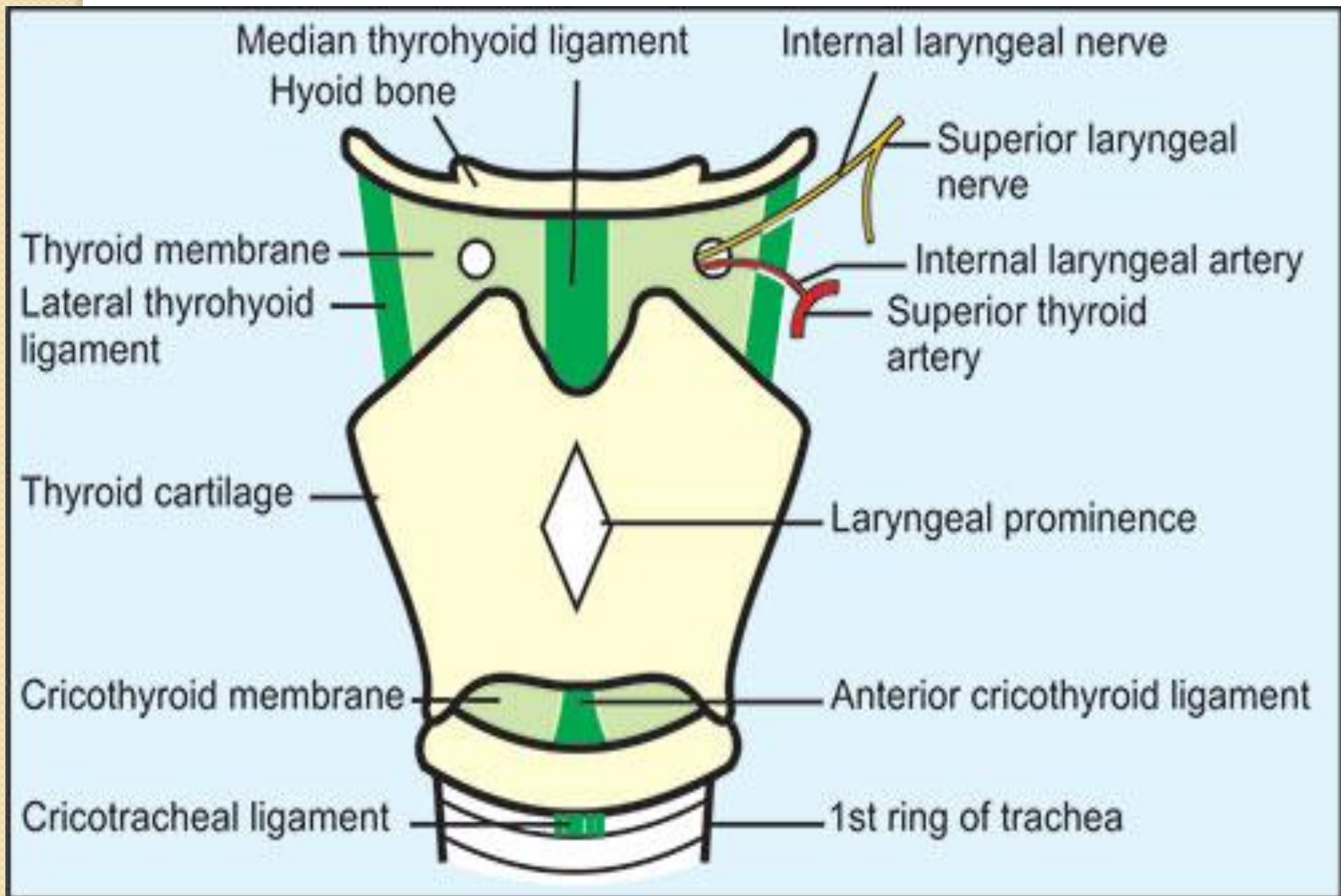
ligament ,

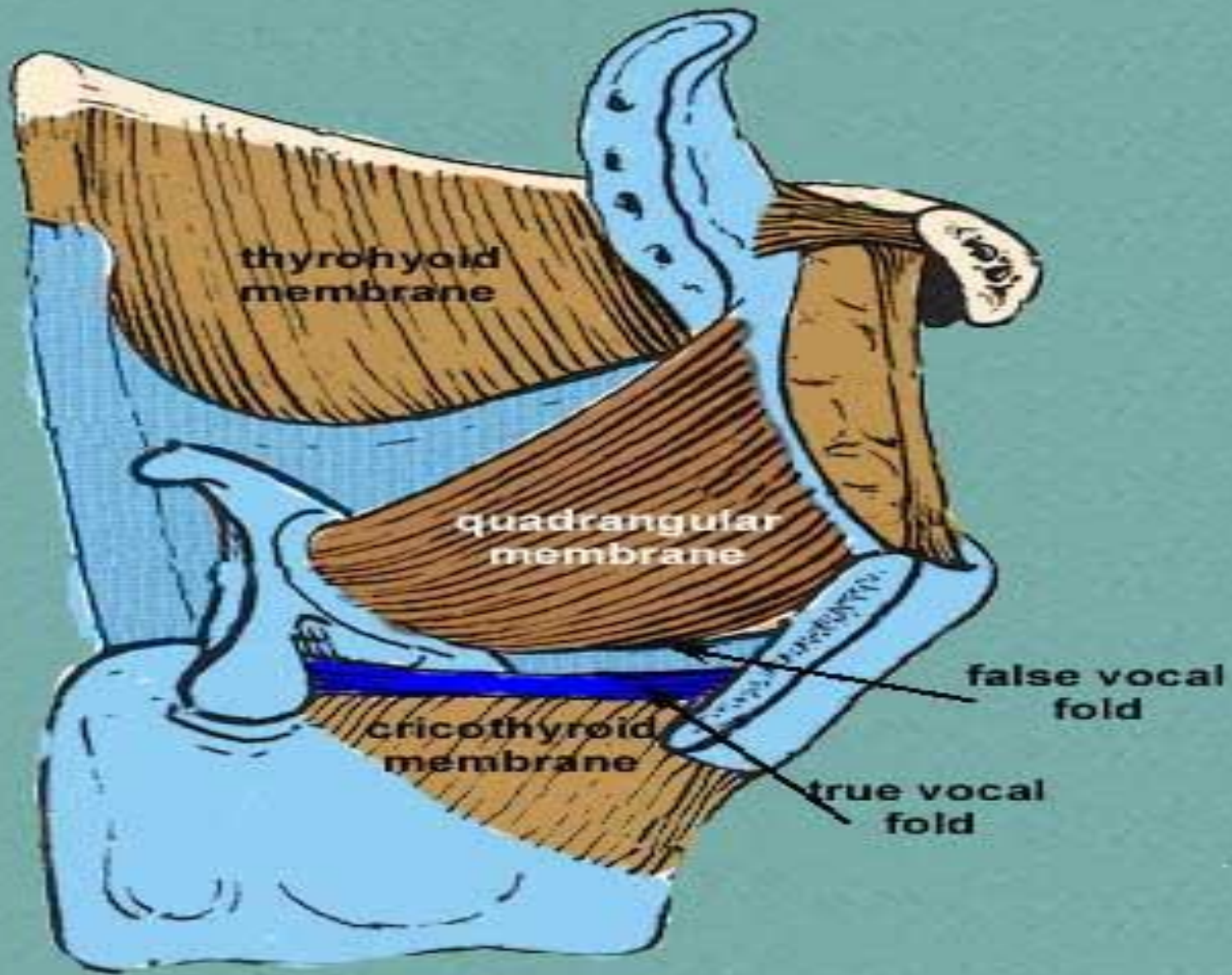
framework of

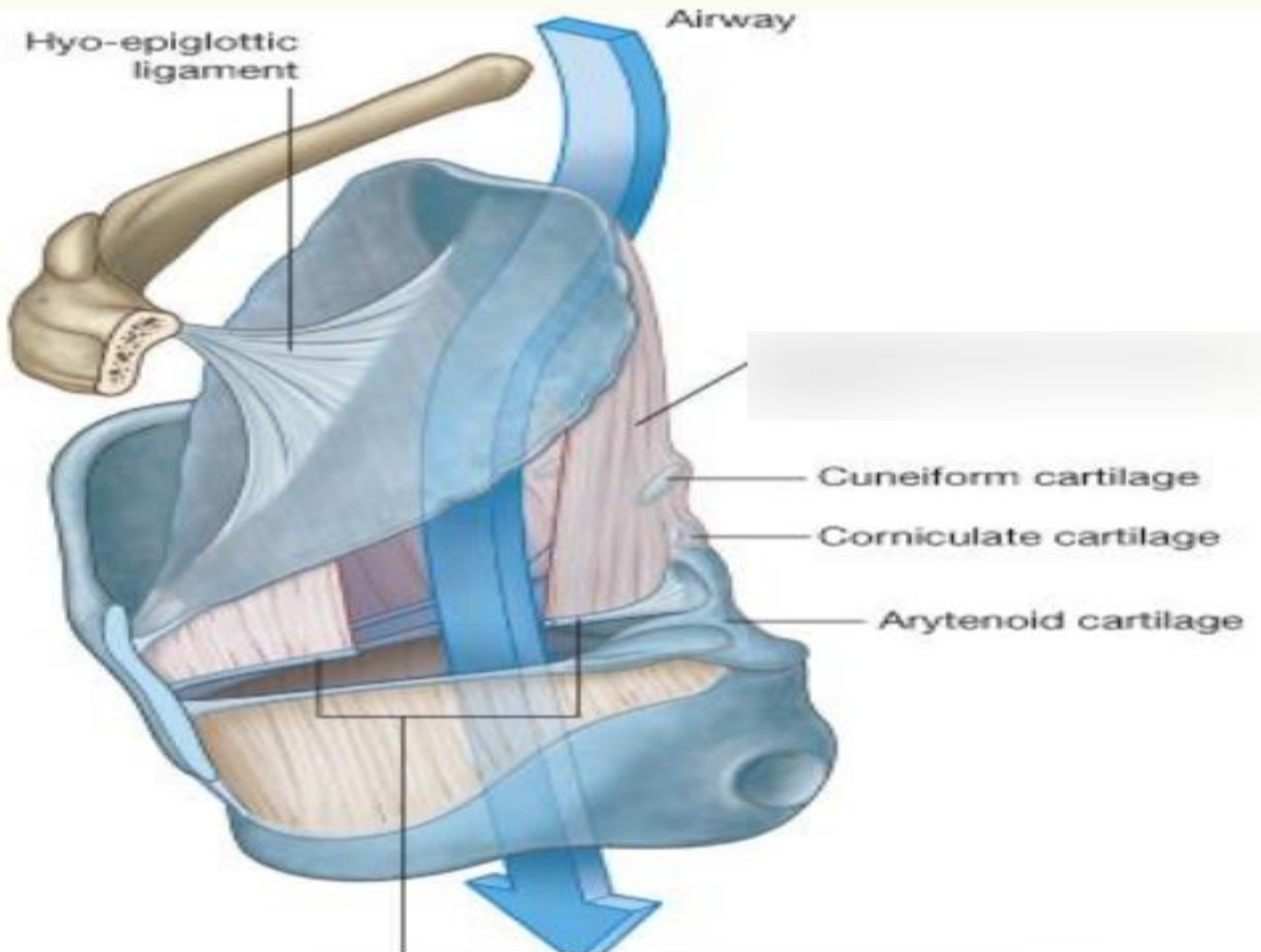
vocal fold / true

cord









CAVITY OF LARYNX

- Cavity of larynx contains the vestibular folds, vocal folds, glottis
- These vestibular folds and vocal folds divide cavity of larynx into 3 compartments
 - Superior vestibule
 - Ventricle / sinus of the larynx
 - Subglottic space

cavity

- **Vestibule;**
- Upper chamber /between laryngeal inlet and vestibular folds
- **Middle part**
- Vestibular fold above and vocal cord below
- **Infra glottic space**
- Inferior segment, between vocal folds and inferior segment of larynx

Subdivisions of Laryngeal Cavity

Supraglottic part/
Vestibule

Ventricle/
Sinus of larynx

Infraglottic part

Vestibular fold

Vocal fold

Epiglottis

Hyoid bone

Thyrohyoid membrane

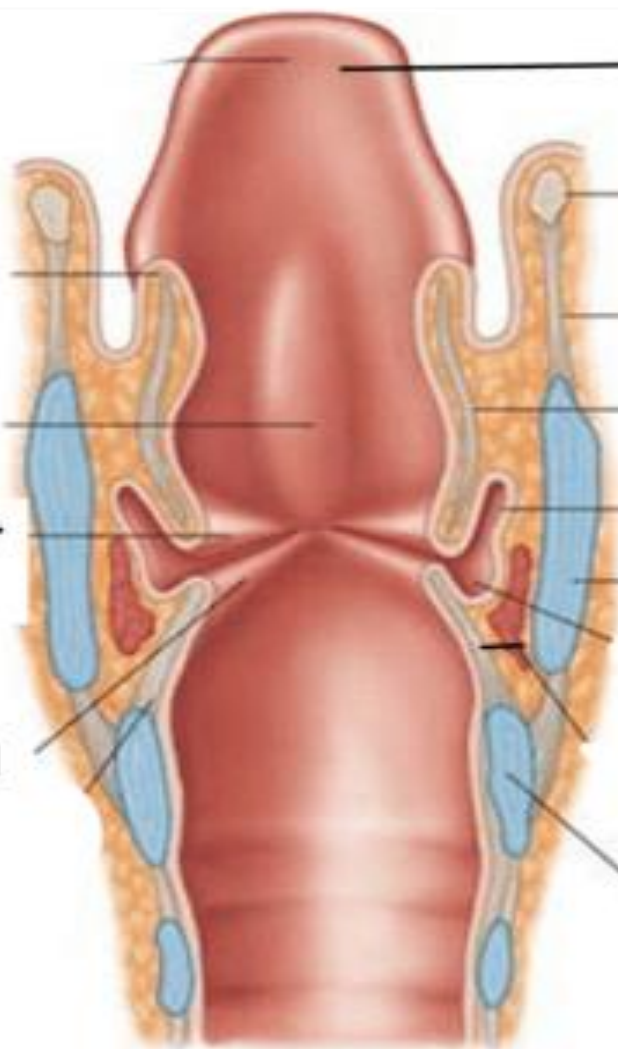
Quadrangular membrane

Saccule

Thyroid cartilage

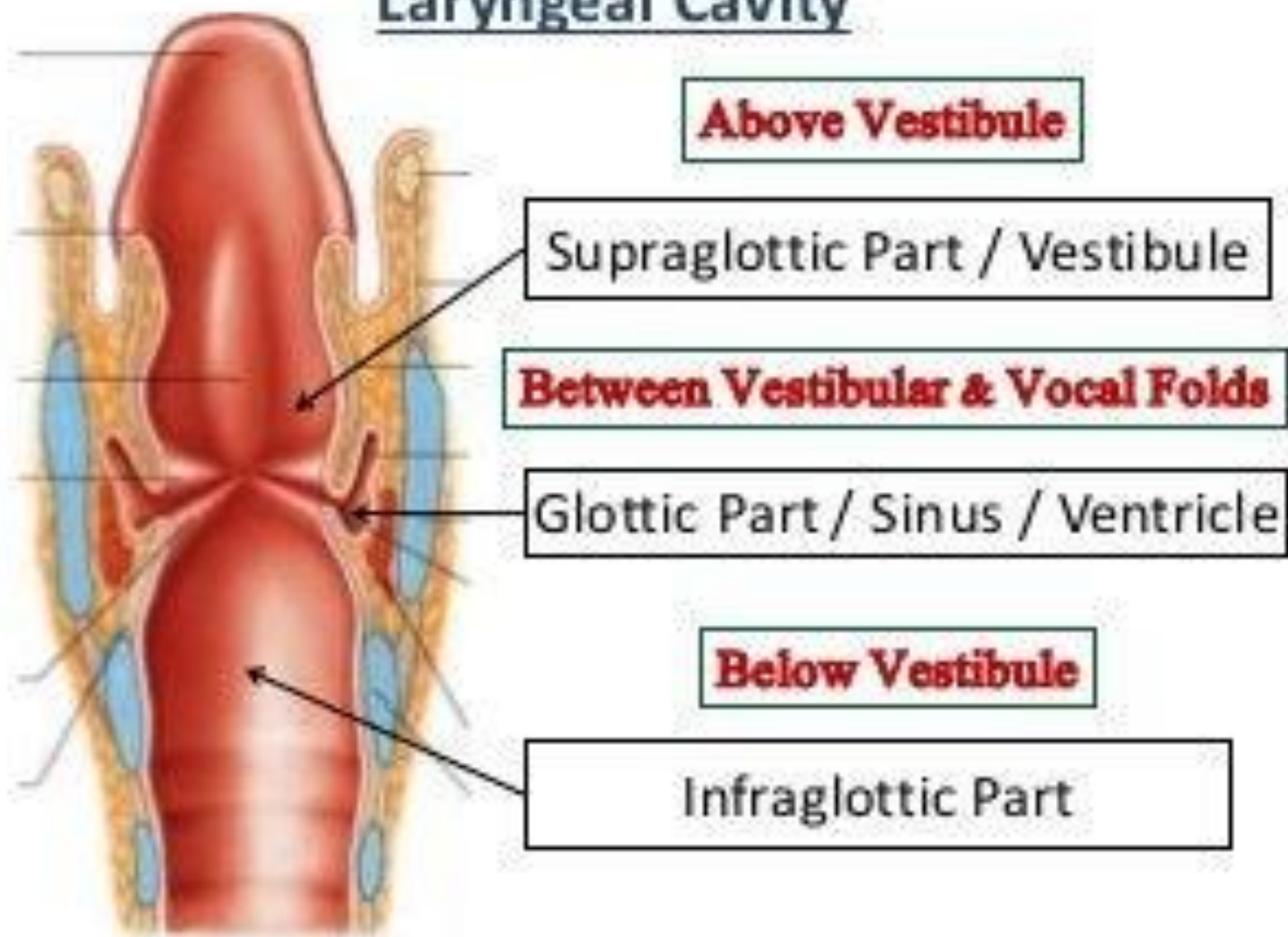
Cricovocal membrane

Cricoid cartilage



Coronal Section of Larynx

Laryngeal Cavity



Vestibular folds(false vocal cords)

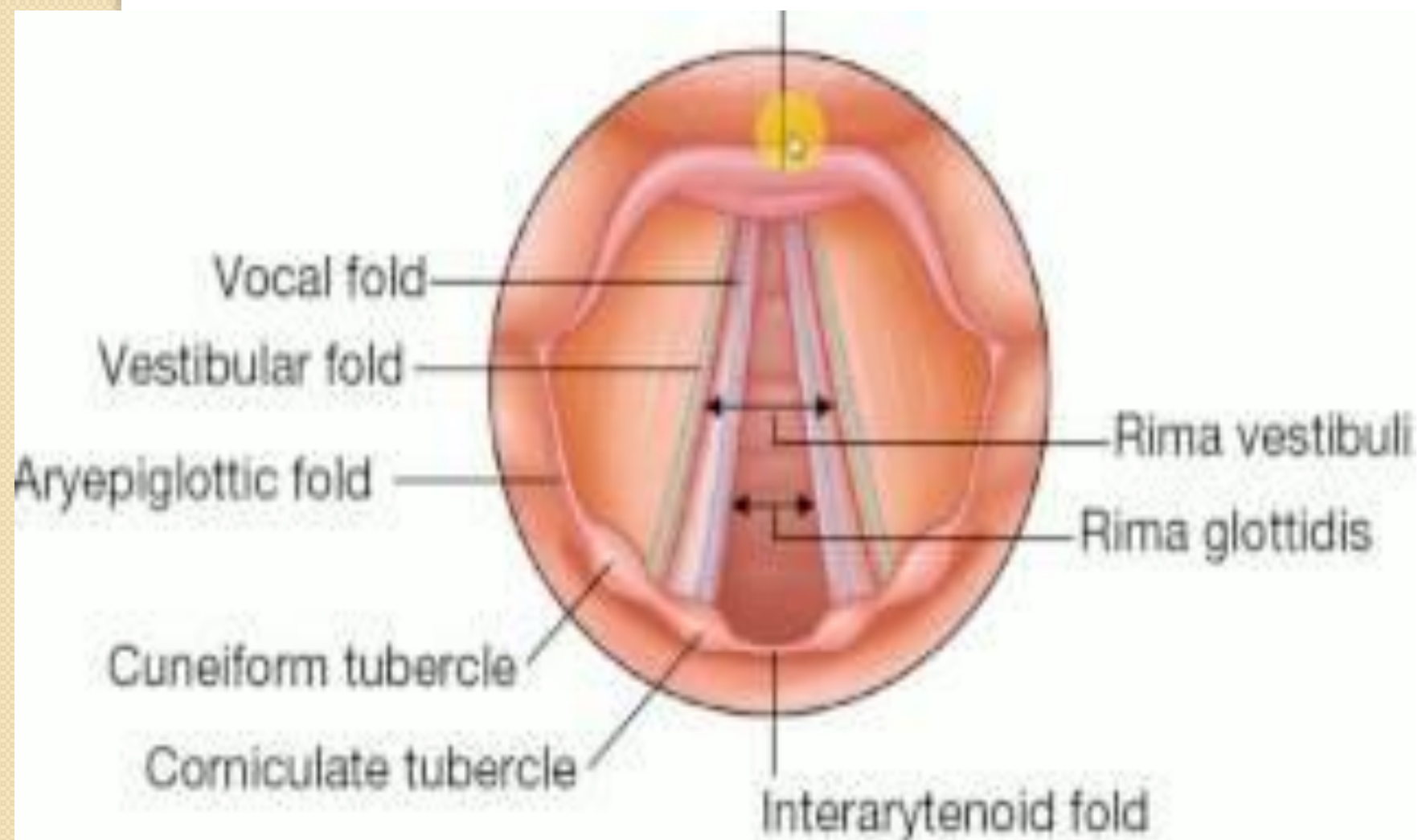
- They are protective in function
- No function in voice production
- They become swollen during anaphylactic shock causing suffocation

Vocal folds (true vocal cords)

- These are the sharp edged folds of mucus membrane
- source of sound from larynx
- They produce audible vibrations
- Act as sphincter when tightly adducted

Glottis

- It is the vocal apparatus of larynx
- Makes up the vocal folds and processes together with rima glottidis



C

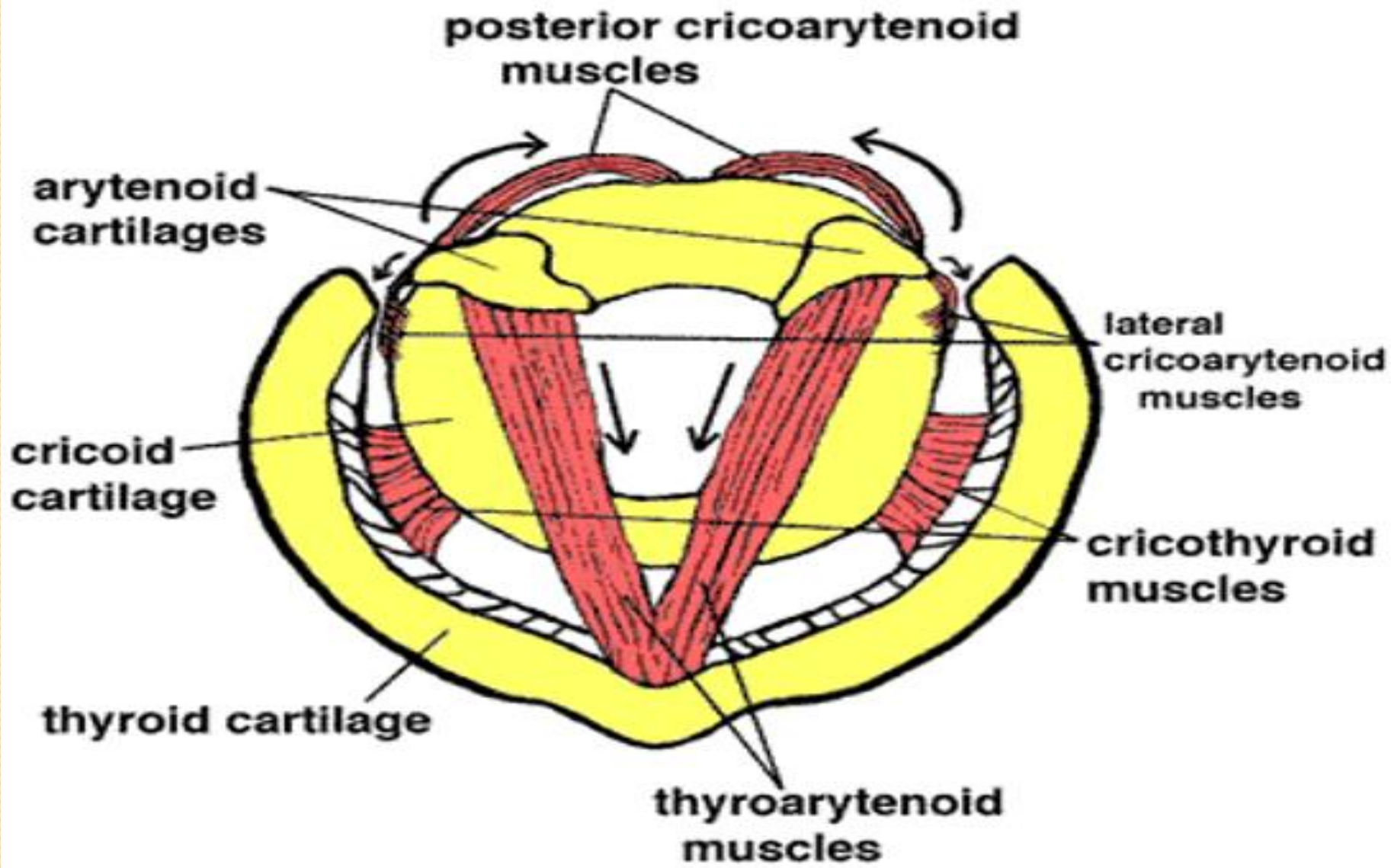
INTRINSIC MUSCLES

- All the *Intrinsic muscles* of the larynx are paired except tranverse inter arytenoid muscle.
- These are:
- 1)abductors of vocal cords=posterior crico-arytenoid.
- 2)adductors of vocal cords=lateral crico-arytenoid,interarytenoid,thyroarytenoid,cricothyroid.
- 3)tensors & adductors of vocal cords=cricothyroid,vocalis & thyro-arytenoid.
- 4)openers of the laryngeal inlet=thyroepiglottic
- 5)closers of the laryngeal inlet=interarytenoid & aryepiglottic.

INTRINSIC MUSCLES OF LARYNX

- Thyroaryatenoid
- Oblique Arytaenoid
- Transverse Arytaenoid
- Posterior Cricoarytenoid
- Lateral Cricoarytenoid



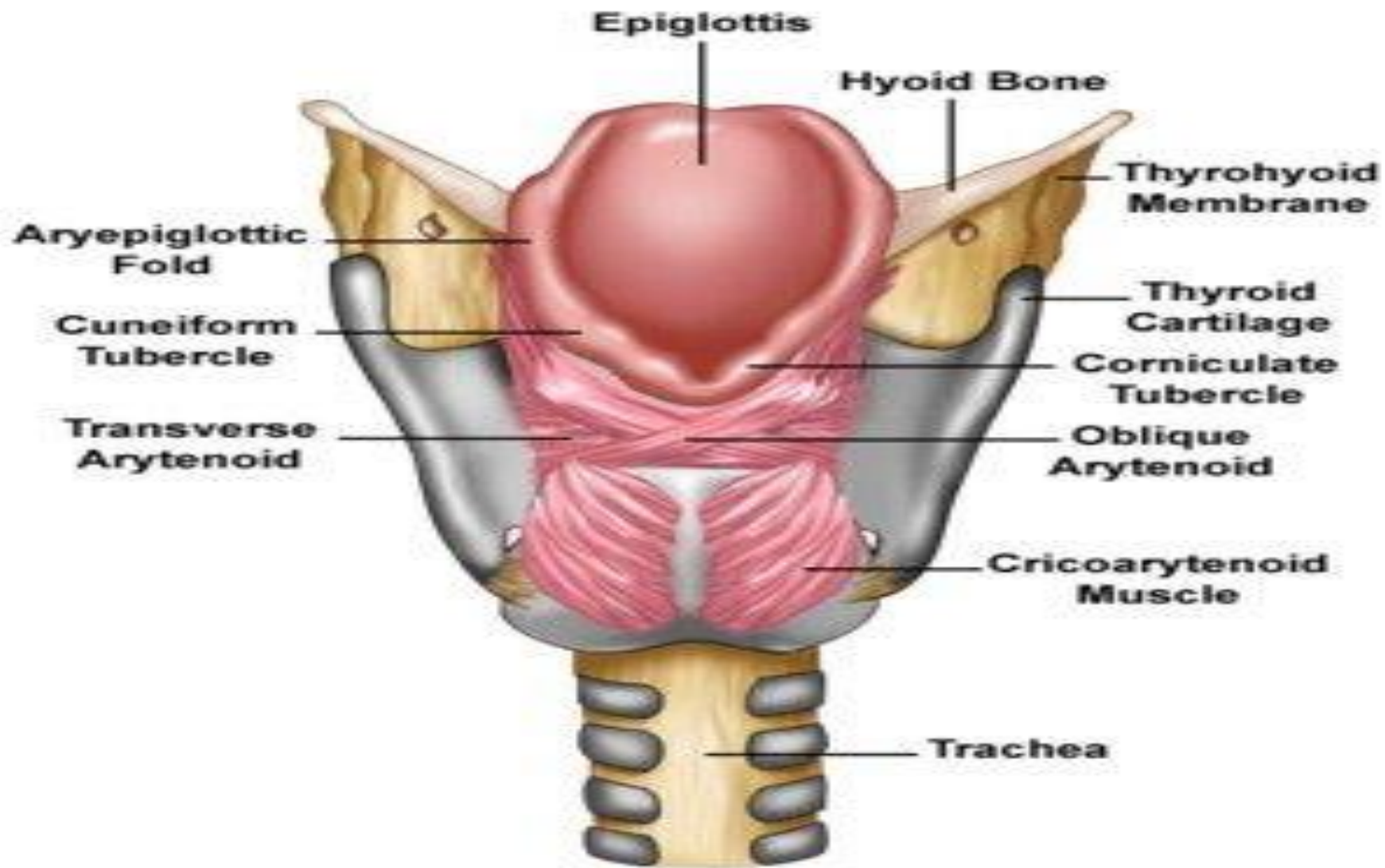




Ary-epiglotticus

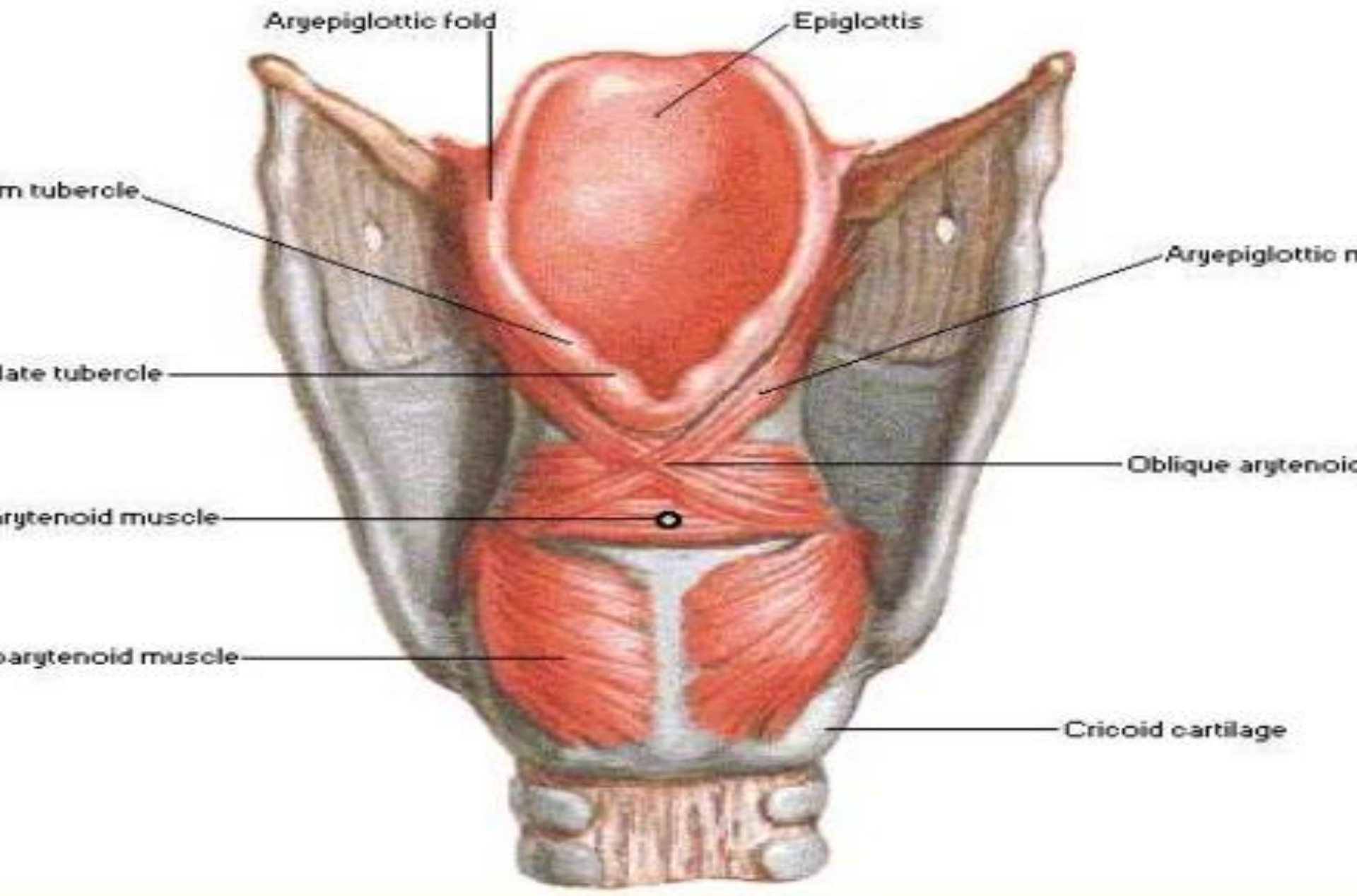
Oblique Arytenoid

CLOSE laryngeal inlet



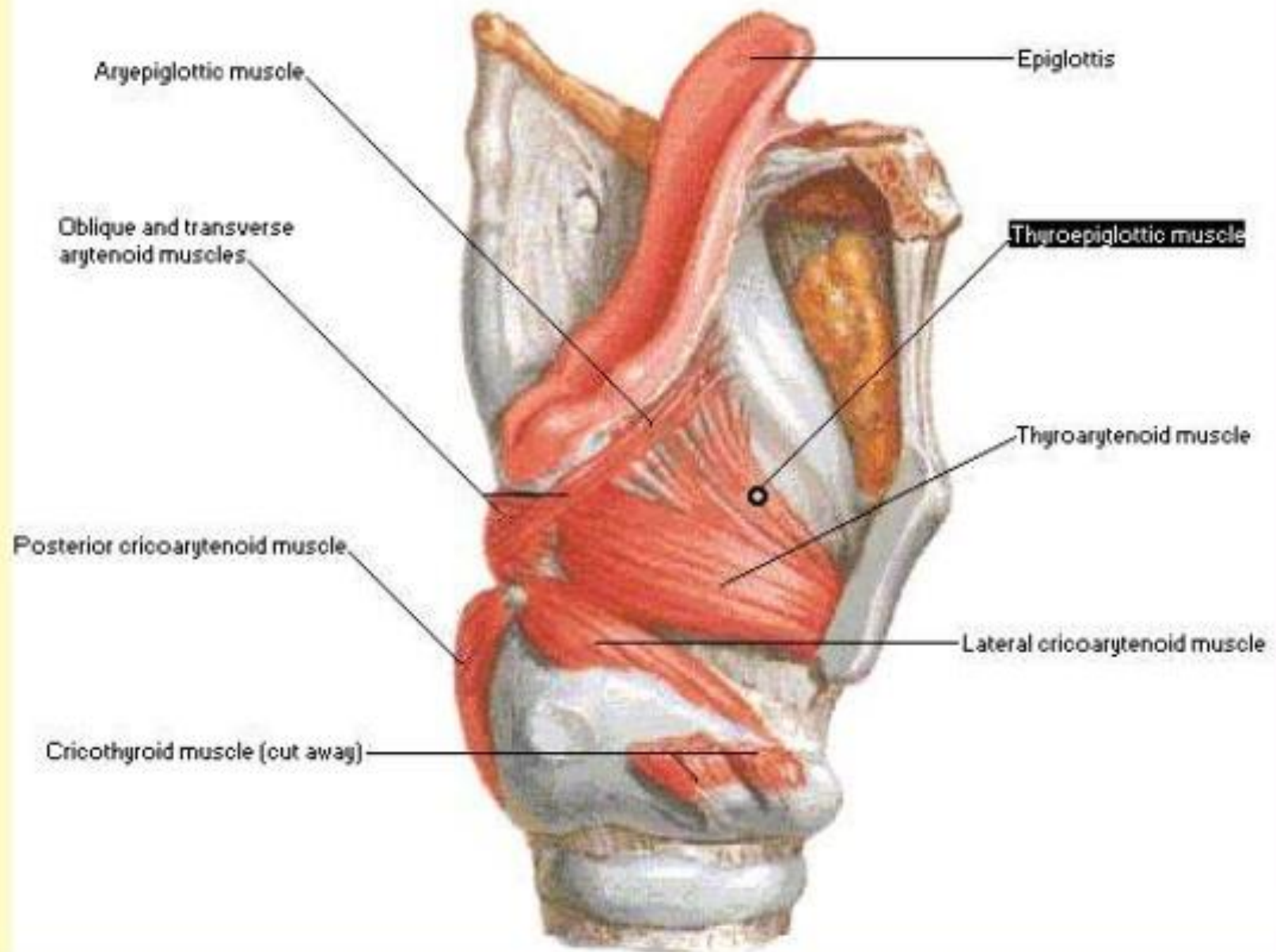
Intrinsic Muscles of Larynx

Posterior View



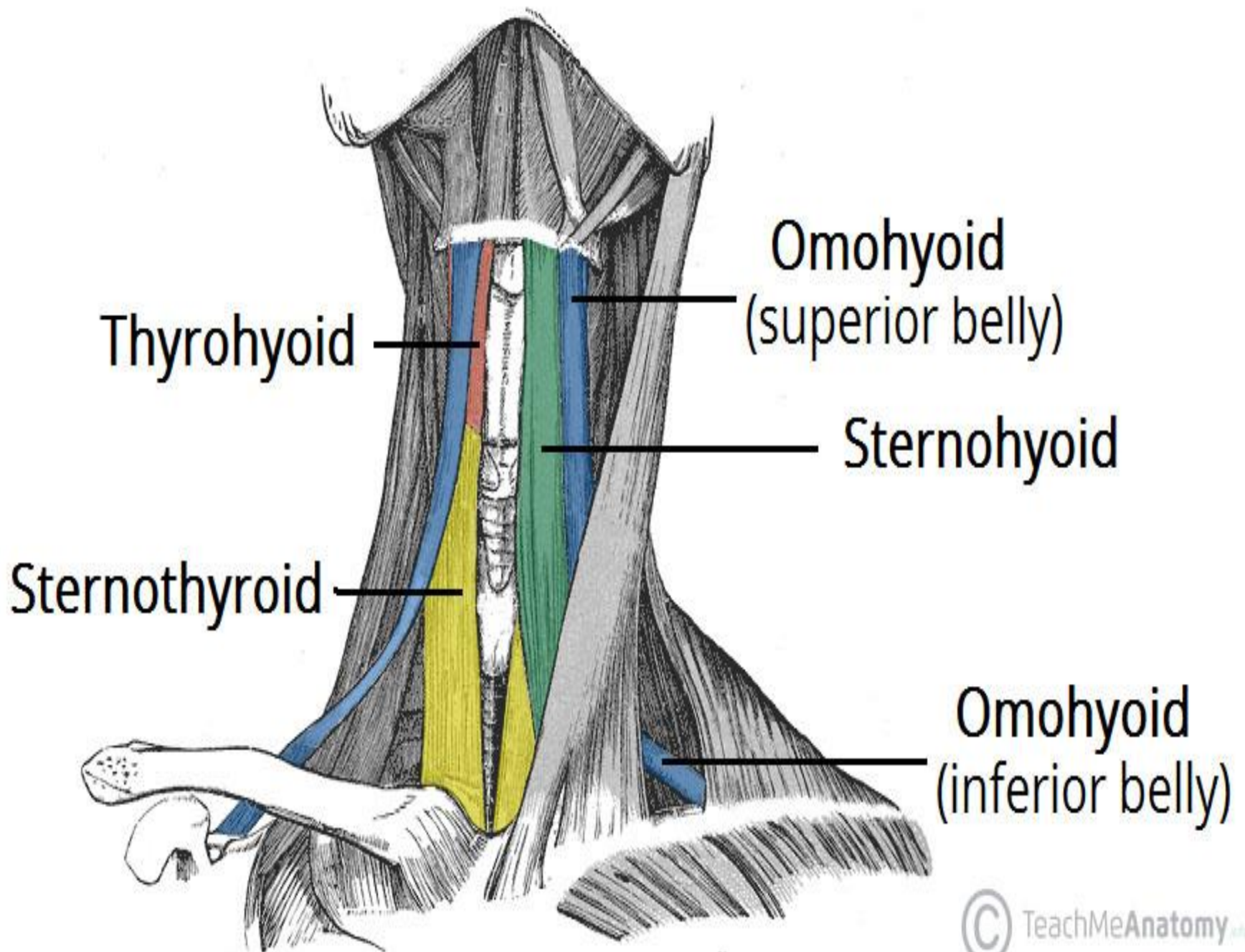
Intrinsic Muscles of Larynx

Lateral Dissection



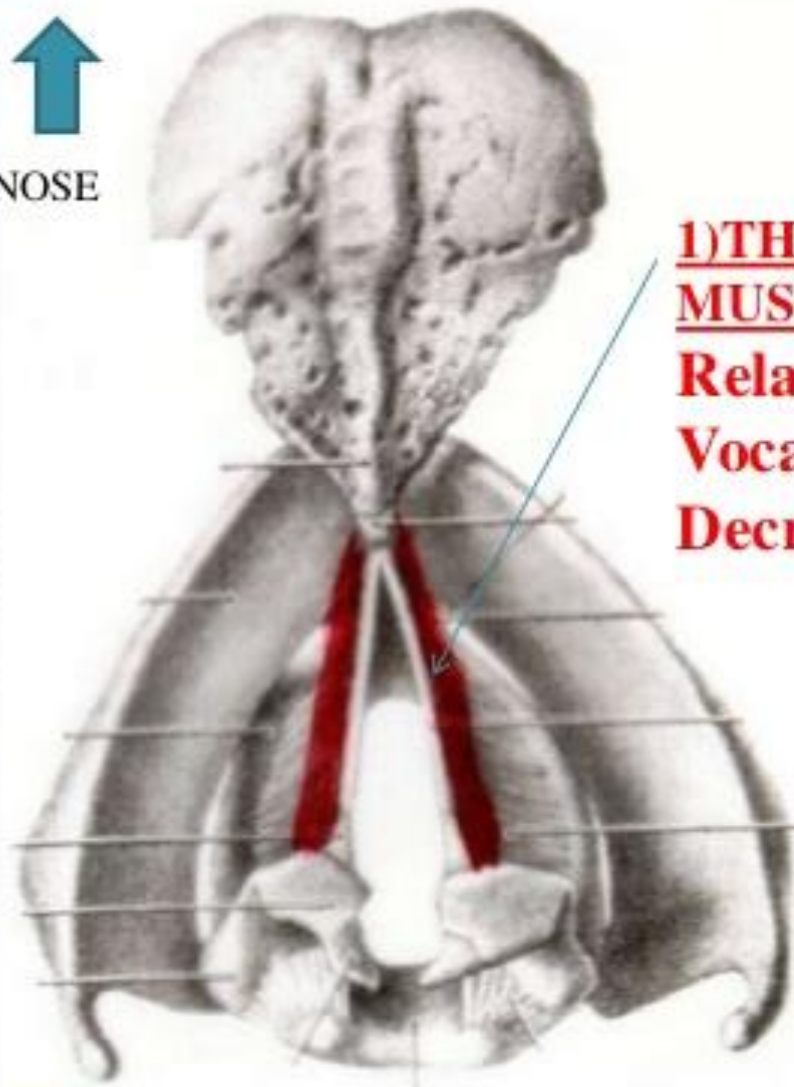
EXTRINSIC MUSCLES

- These are divided into two groups:
- 1)cervical muscles:
- A)suprahyoid muscles,which act as elevators of the larynx
- B)infrahyoid muscles(strap muscles),which acts as depressors of the larynx.
- 2)pharyngeal muscles including the inferior constrictor muscle.



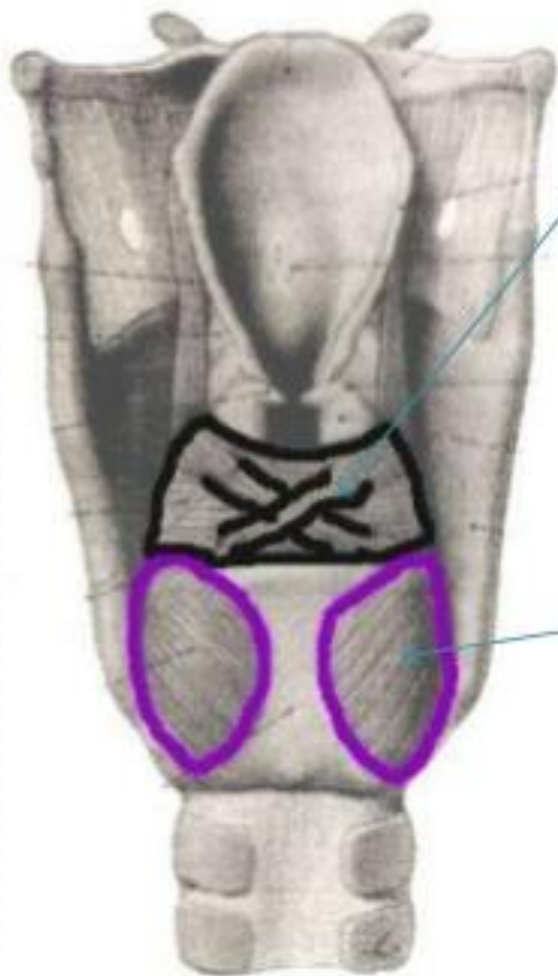
MUSCLES OF LARYNX


NOSE



**1) THYROARYTENOID
MUSCLE -**
**Relaxes
Vocal Ligaments
Decreases pitch**

MUSCLES OF LARYNX



2) ARYTENOID
(Transverse and oblique arytenoid) -
Adduct vocal folds

3) LATERAL CRICO-ARYTENOID
- Adduct
vocal folds

**4) POSTERIOR
CRICOARYTENOID**
- Abducts
vocal fold



**Arytenoids
Can rotate/slide**

**Adduct closes rima glottidis
Abduct opens rima glottidis**

NERVES OF LARYNX – Branches of Vagus

A. Superior Laryngeal N.

divides to -

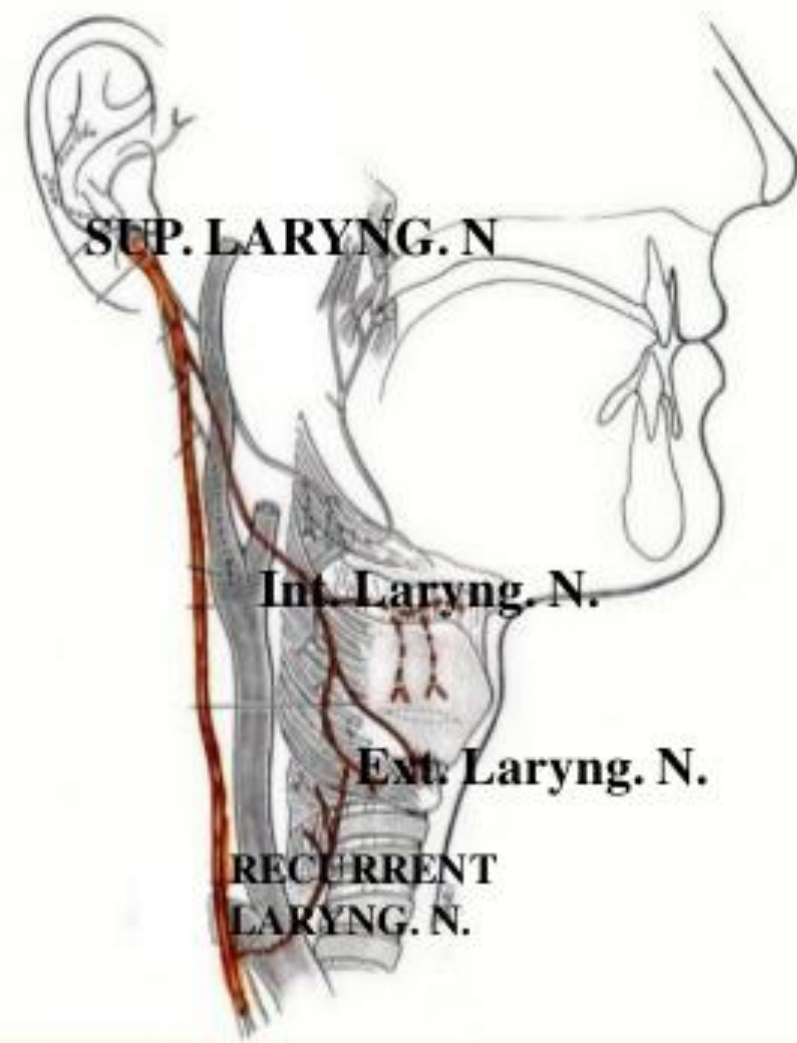
1. Internal Laryngeal N.
GVA Sensory to Larynx
Above True Vocal Folds

2. External Laryngeal N.
SVE Motor to Cricothyroid

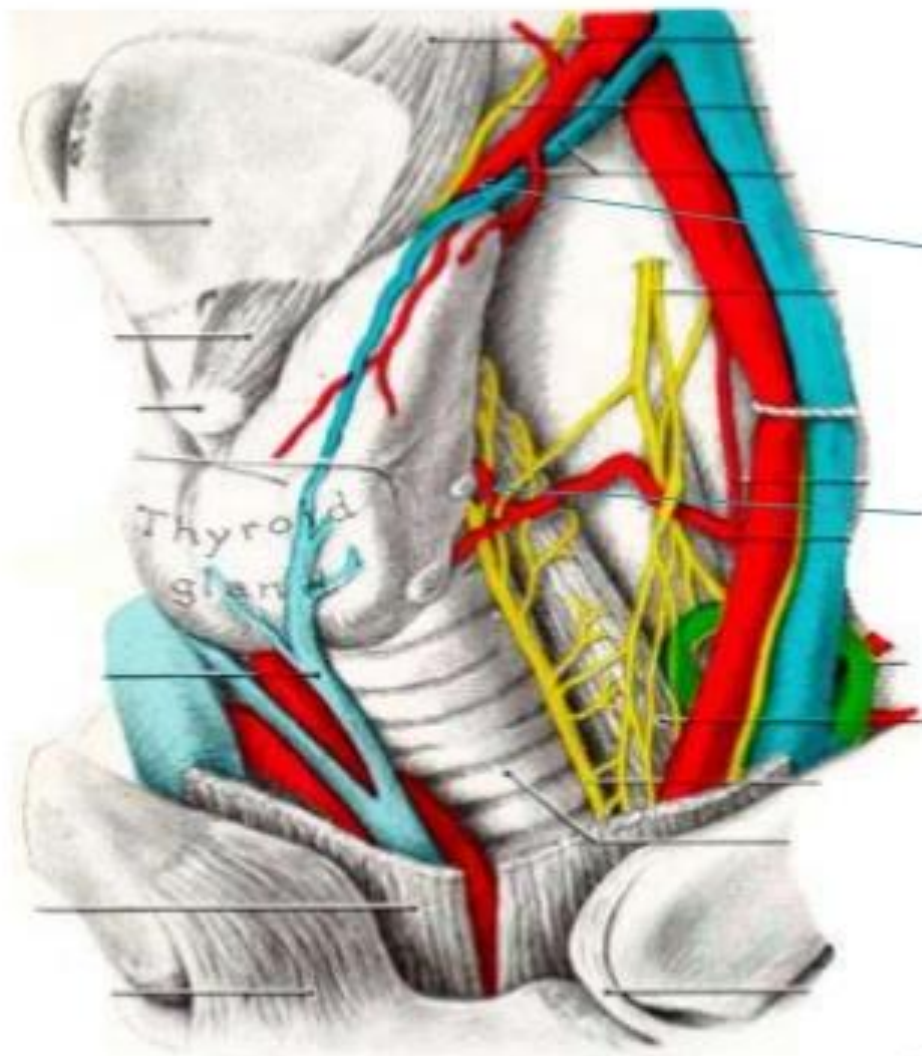
B. Recurrent Laryngeal N.

- GVA Sensory to Larynx
Below True Vocal Folds
- SVE motor to all other
Muscles of Larynx

GVA=GENERAL VISCERAL AFFERENT
SVE=SPECIAL VISCERAL EFFERENT



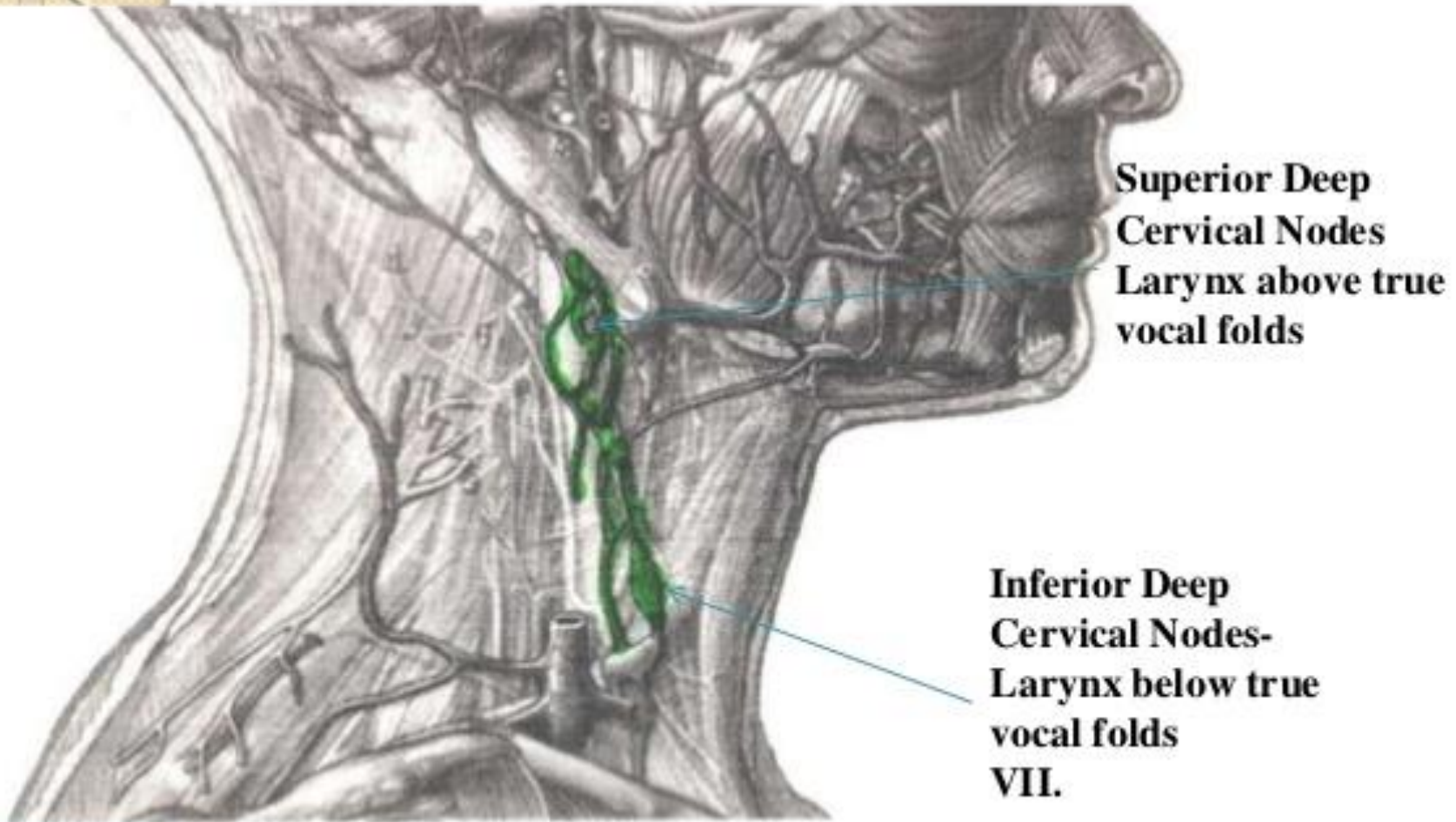
LARYNX - ARTERIAL SUPPLY



Sup. Laryngeal A.
from Sup. Thyroid
artery

Inf. Laryngeal A.
from Inf. Thyroid
artery

LARYNX - LYMPHATICS



**Note: Mucosa Tightly Attached to vocal folds
Anaphylactic Shock Swell Vestibular folds --Suffocation**

LARYNGOSCOPE VIEW OF LARYNX

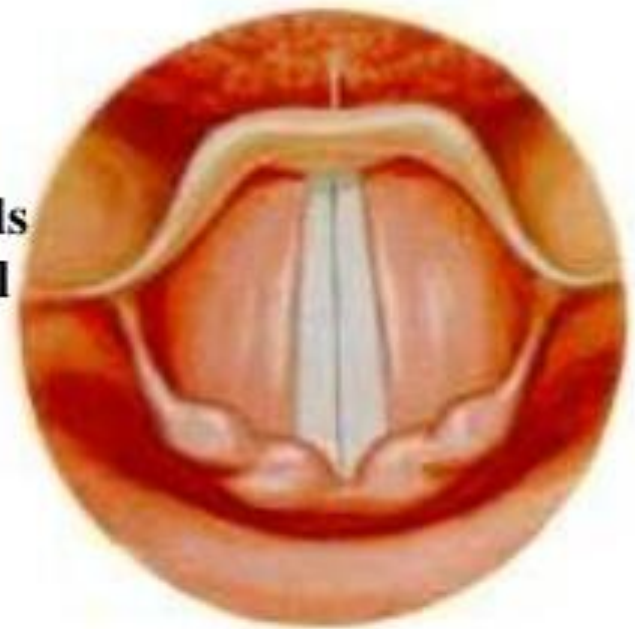
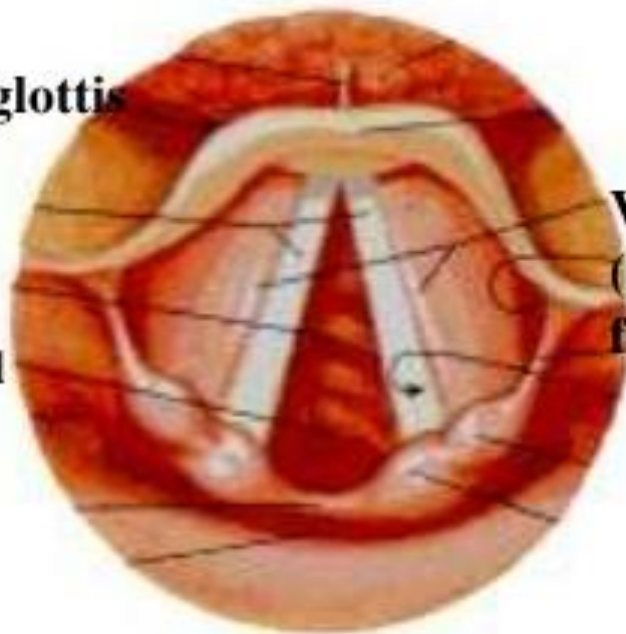
Ant.

Tongue

Epiglottis

Vestibular
Folds
(false vocal
folds)

Vocal Folds
(true vocal
folds)



vocal folds
adducted when
talking or singing

Post.

