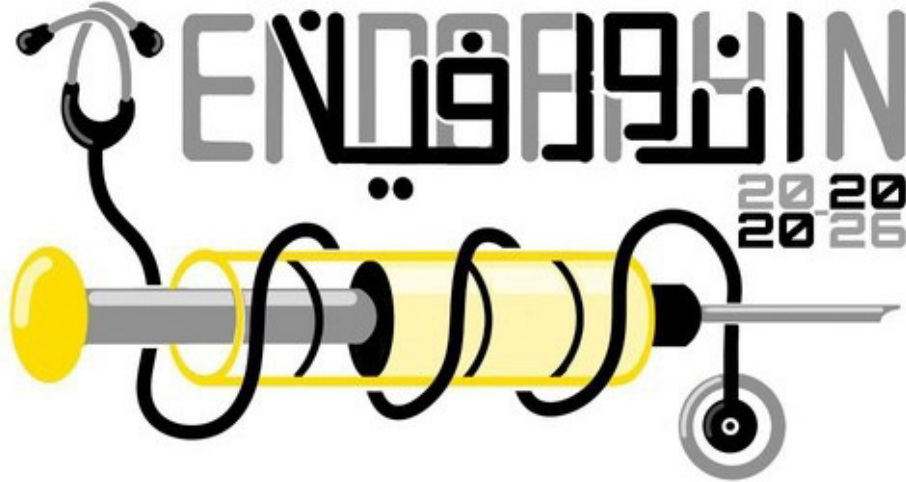


Anatomy



Sheet: 6

Lecture title: Pha

Date:

Done by: Huda Shehadeh

Edited by: Huda Shehadeh

If you come by any mistake (whether it be spelling , grammatical or scientific) while browsing this sheet, Kindly report it to Academic Team Facebook Account.



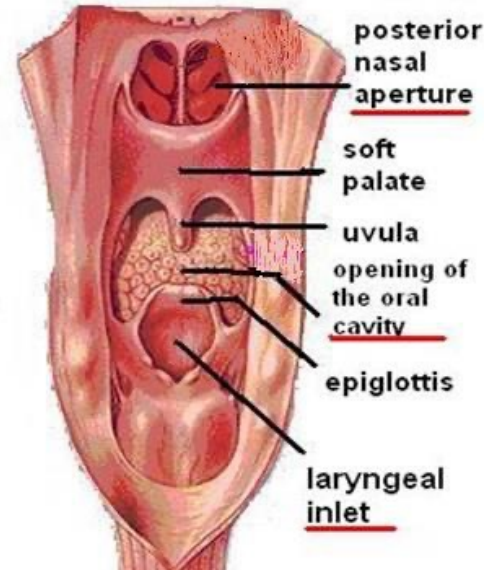
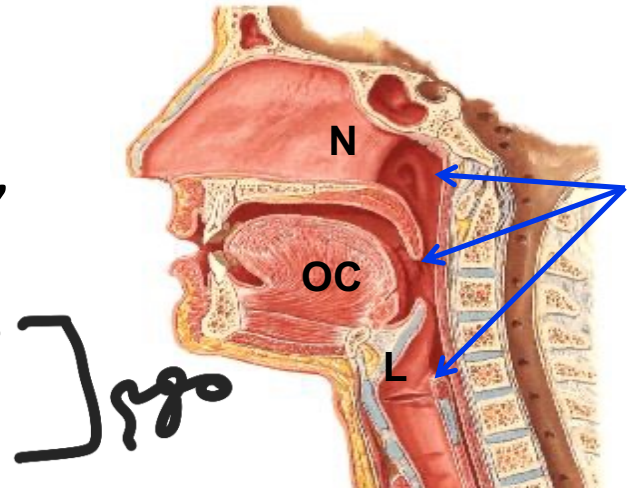
Pharynx

Dr. Refat AboGhazleh



Pharynx

- Muscular tube lying behind the **nose, oral cavity & larynx**.
- Extends from the base of the skull to level of the 6th cervical vertebra, where it is continuous with the **esophagus**.
- The anterior wall is deficient and shows (from above downward):
 - **Posterior nasal apertures**
 - **Opening of the oral cavity**
 - **Laryngeal inlet**

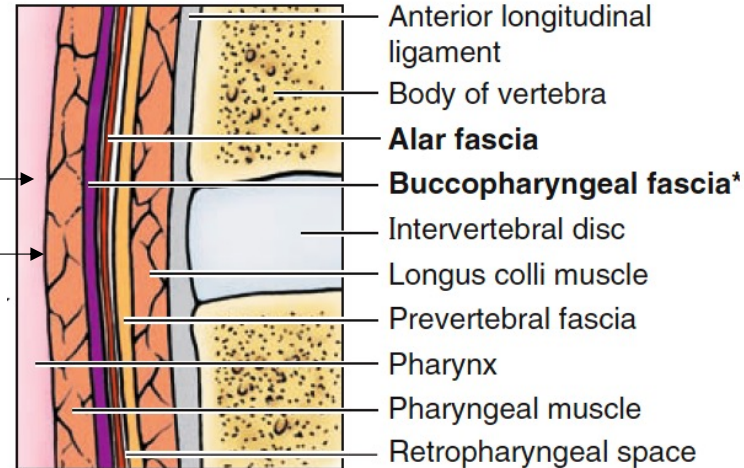


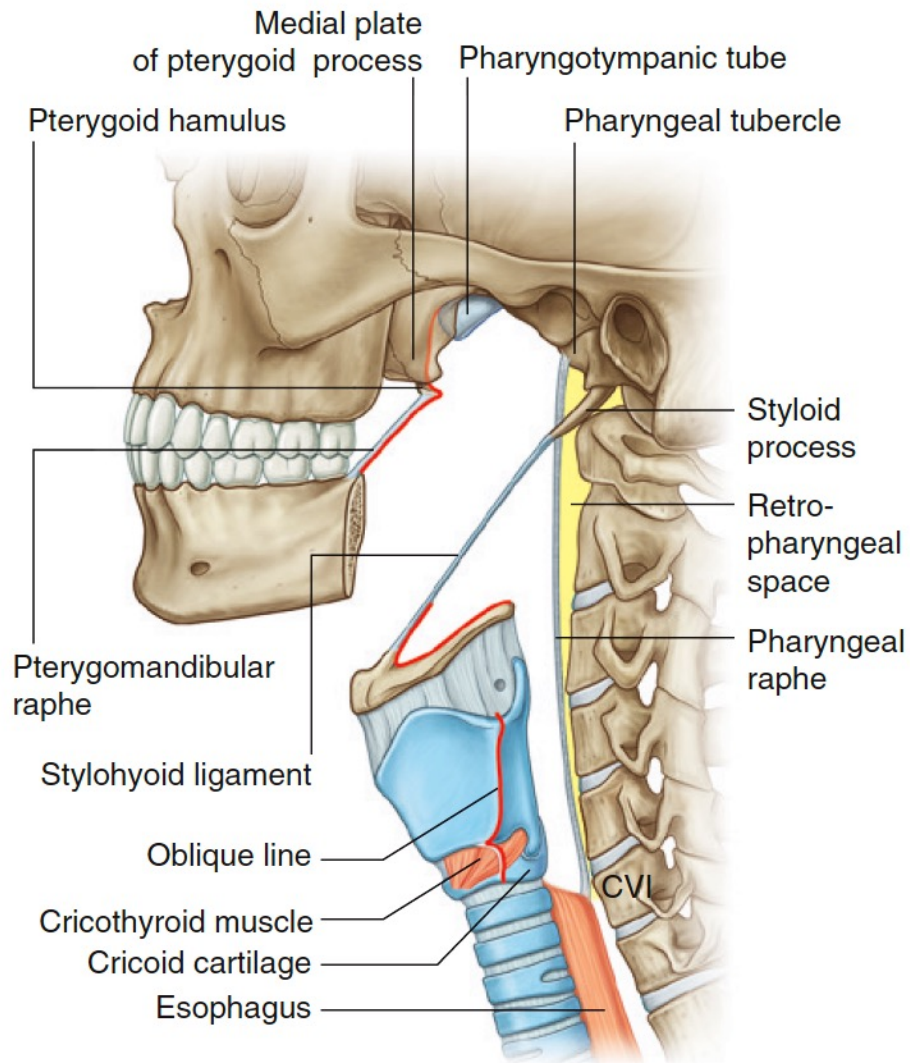
Pharyngeal Wall

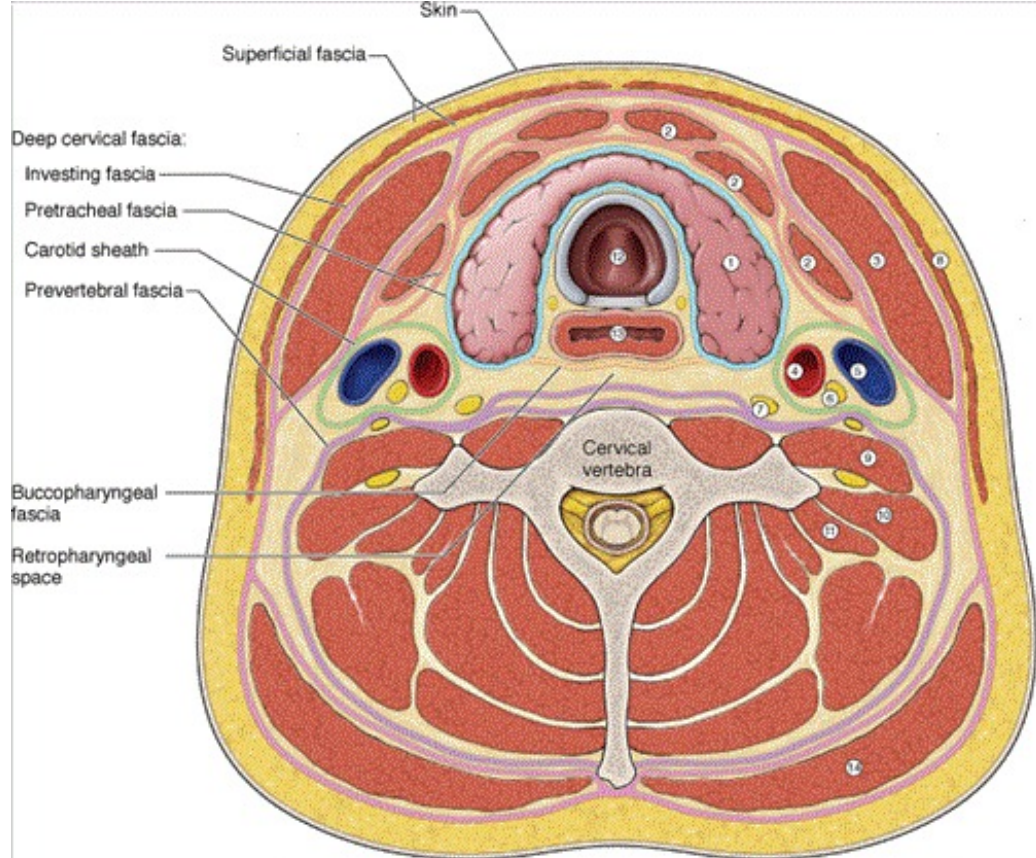
- It is a **musculo-membranous wall**, composed of:

- **Mucosa & submucosa**
- **Pharyngobasilar fascia**
- **Muscles:** circular & longitudinal
- **Buccopharyngeal fascia**

- The **buccopharyngeal fascia** is separated from the **prevertebral fascia** by the **retropharyngeal space**.





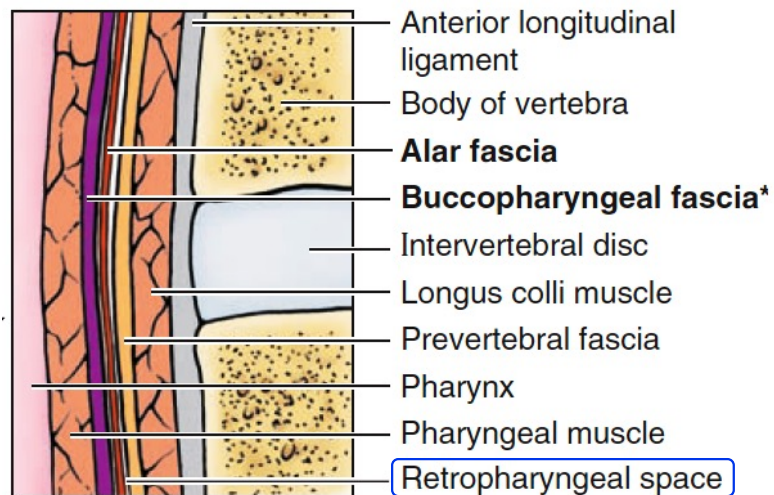
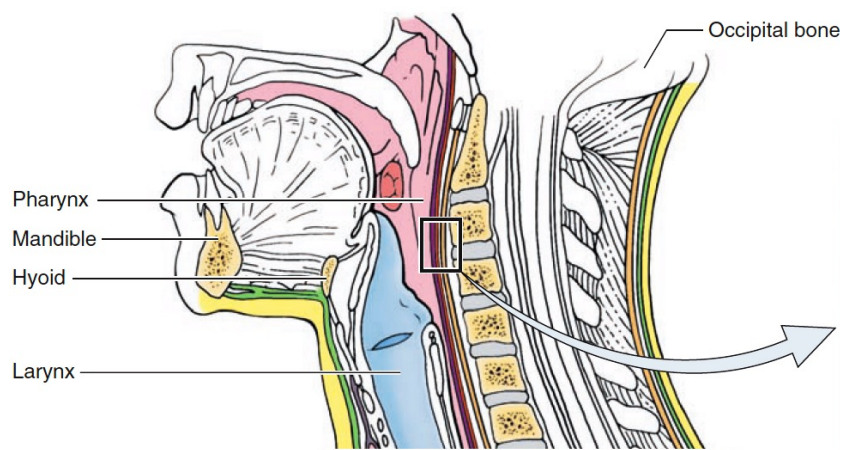


KEY

- | | |
|---------------------------|----------------------|
| 1. Thyroid gland | 8. Platysma m. |
| 2. Infrahyoid mm. | 9. Ant. scalene m. |
| 3. Sternocleidomastoid m. | 10. Mid. scalene m. |
| 4. Common carotid a. | 11. Post. scalene m. |
| 5. Internal jugular v. | 12. Trachea |
| 6. Vagus n. | 13. Esophagus |
| 7. Sympathetic trunk | 14. Trapezius m. |

Retropharyngeal Space

- A potential space between the **buccopharyngeal fascial** lining of the pharynx and the **prevertebral fascia**.
- Contains loose areolar tissue.
- Closed:
 - **Superiorly** (by the **base of the skull**)
 - **Laterally** (by the **carotid sheath**)
- **Open inferiorly into the superior mediastinum.**
- Allows movement of pharynx, esophagus, larynx, and trachea during swallowing.

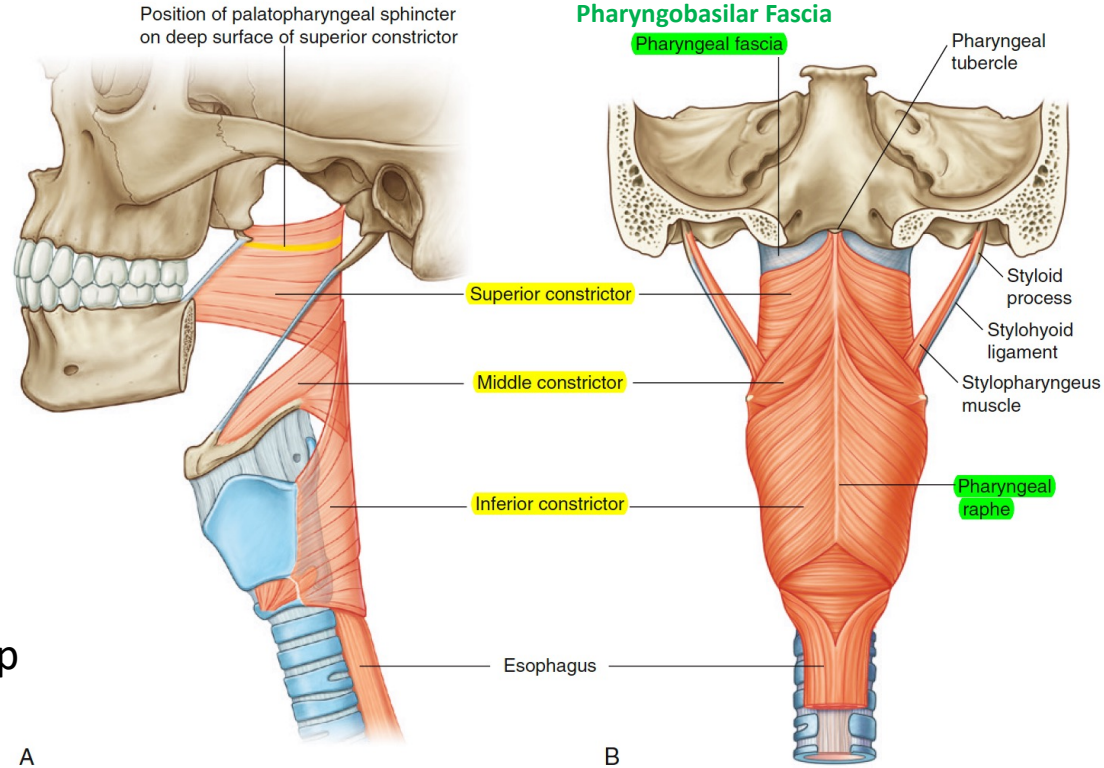




Retropharyngeal abscess

Circular (Constrictor) Muscles “External Layer”

- Three in number:
Superior, Middle & Inferior
- Extend around the pharynx and are inserted **posteriorly** into a **fibrous raphe** that extends from the **pharyngeal tubercle** on the occipital bone to the **esophagus**.
- The three muscles overlap each other.



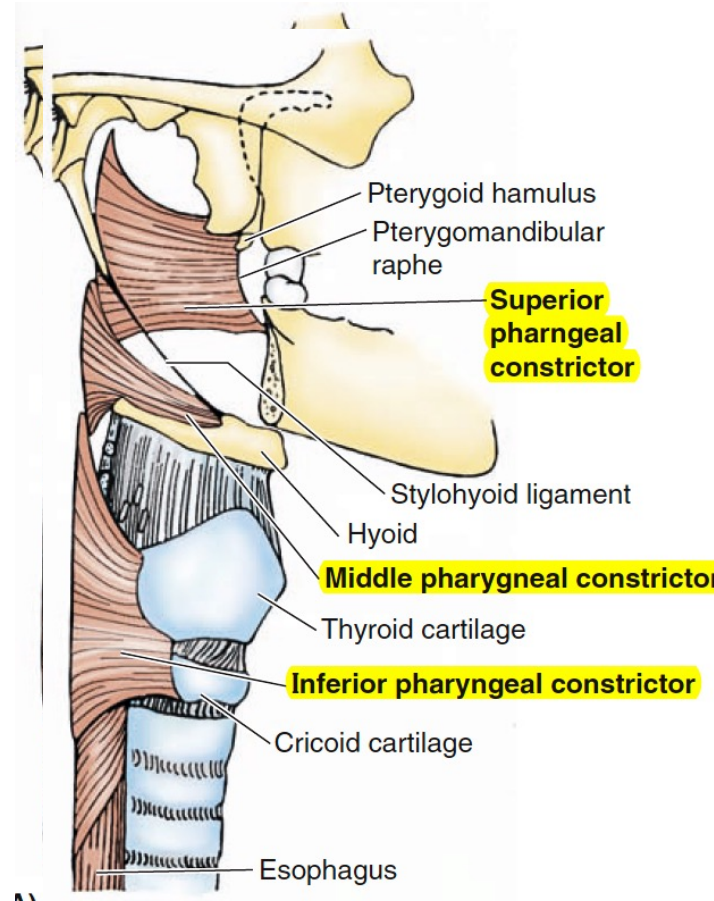
The gap between the superior border of the superior constrictor and the occipital bone is filled by thickened **pharyngobasilar fascia**.

• Superior constrictor

- **Origin:** pterygoid hamulus, pterygomandibular ligament, mylohyoid line
- **Insertion:** pharyngeal tubercle, pharyngeal raphe

• Middle constrictor

- **Origin:** lower part of stylohyoid ligament, greater & lesser horn of hyoid bone
- **Insertion:** pharyngeal raphe



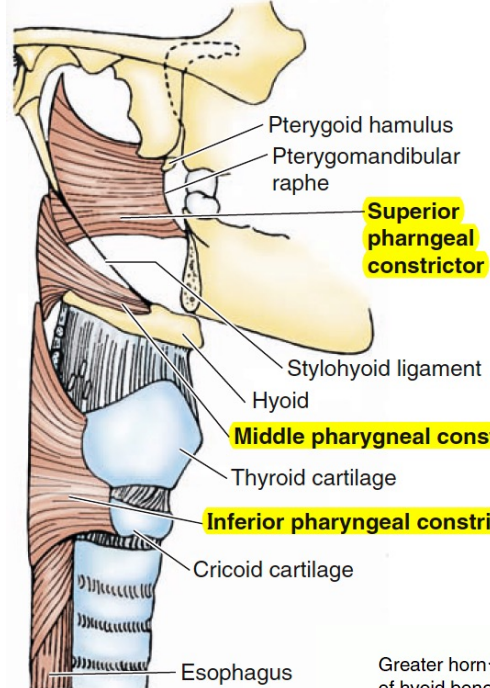
A)
A) Right lateral view

- **Inferior constrictor**

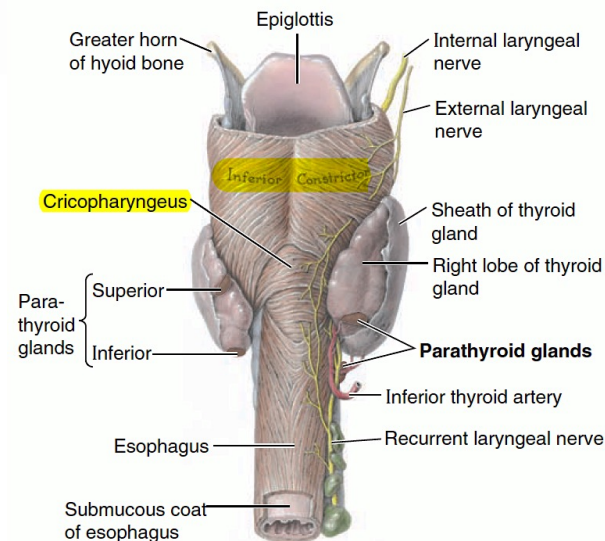
- **Origin:** oblique line of thyroid cartilage, cricoid cartilage
- **Insertion:** pharyngeal raphe

- **Functions:**

- The constrictor muscles propel the bolus of food down into the esophagus.
- **Cricopharyngeus** (lower fibers of the inferior constrictor) act as a sphincter, preventing the entry of air into the esophagus between the acts of swallowing.



A) Right lateral view



(A) Posterior view

Longitudinal Muscles

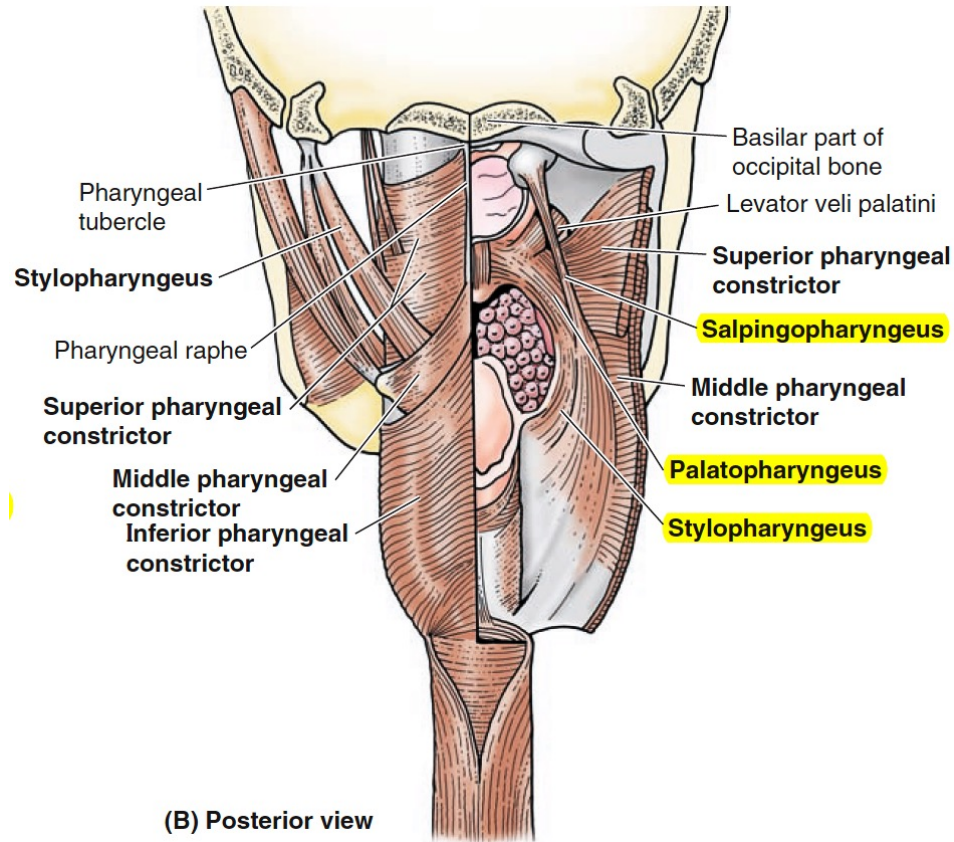
“Internal Layer”

- **Three in number:**

- **Salpingopharyngeus**
- **Palatopharyngeus**
- **Stylopharyngeus**

- **Function:**

- Elevate the larynx & pharynx during swallowing.



- **Salpingopharyngeus**

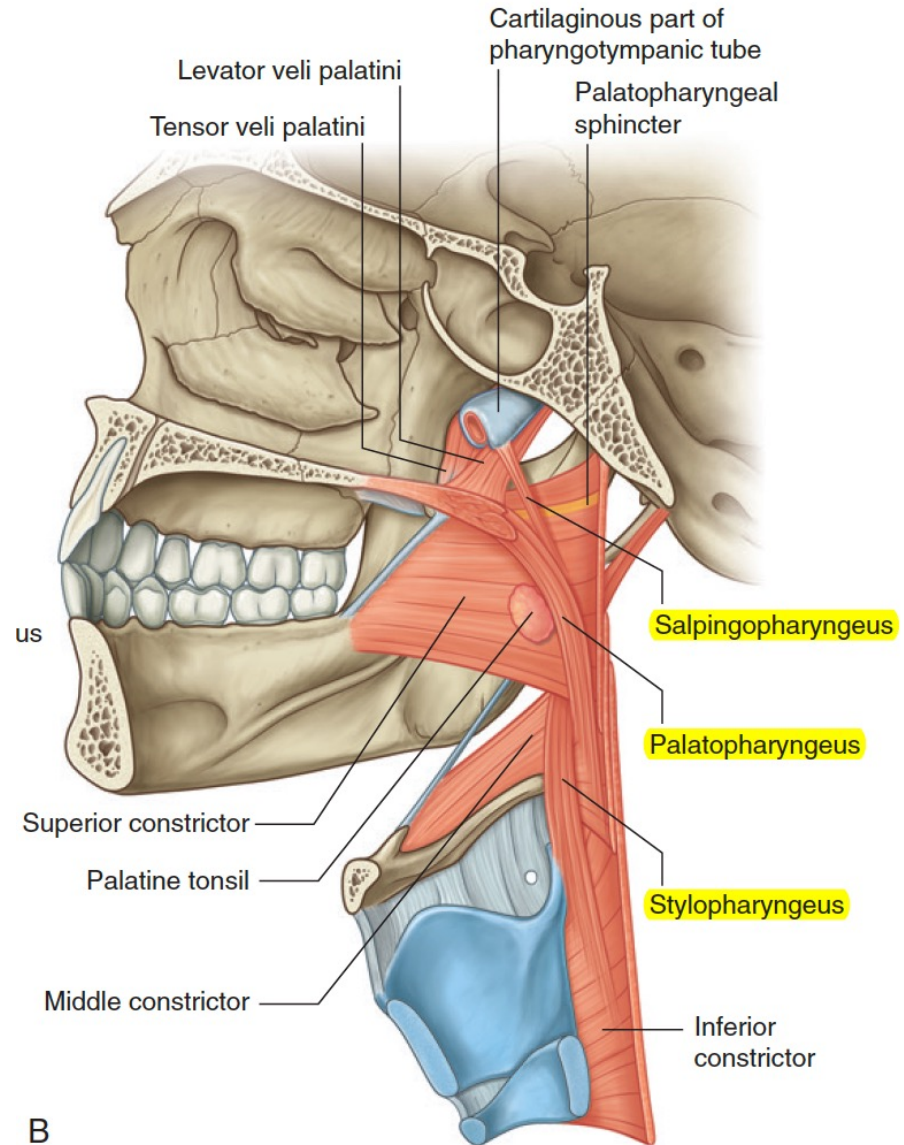
- **Origin:** auditory tube
- **Insertion:** blends with palatopharyngeus.

- **Palatopharyngeus**

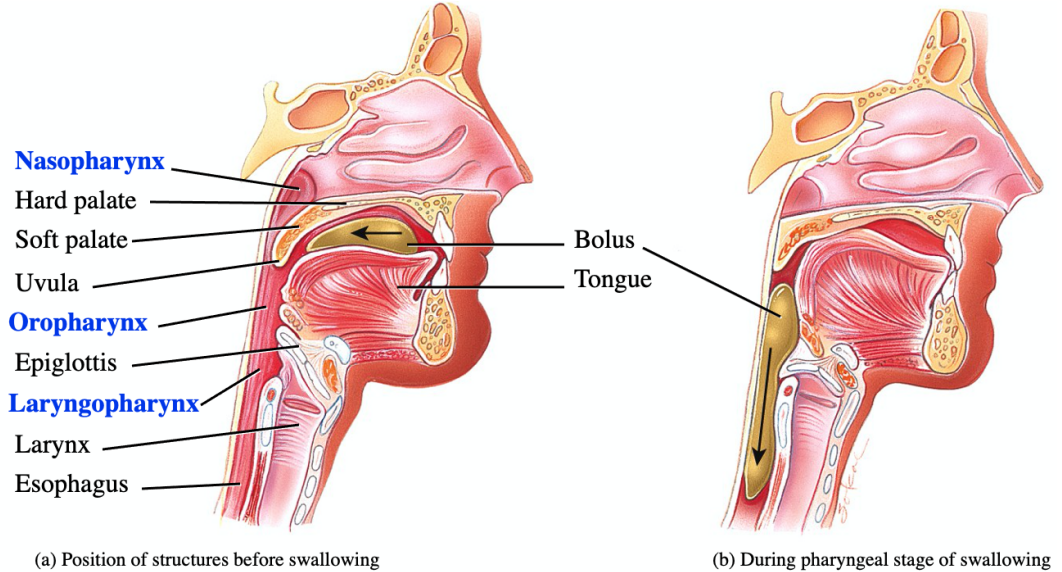
- **Origin:** palatine aponeurosis
- **Insertion:** posterior border of thyroid cartilage, pharynx and esophagus.

- **Stylopharyngeus**

- **Origin:** styloid process
- **Insertion:** posterior border of thyroid cartilage.



Division



- **Pharynx** is divided into three parts:

- **Nasopharynx:**

- Superior part, communicates with the nasal cavity through **posterior nasal apertures**.

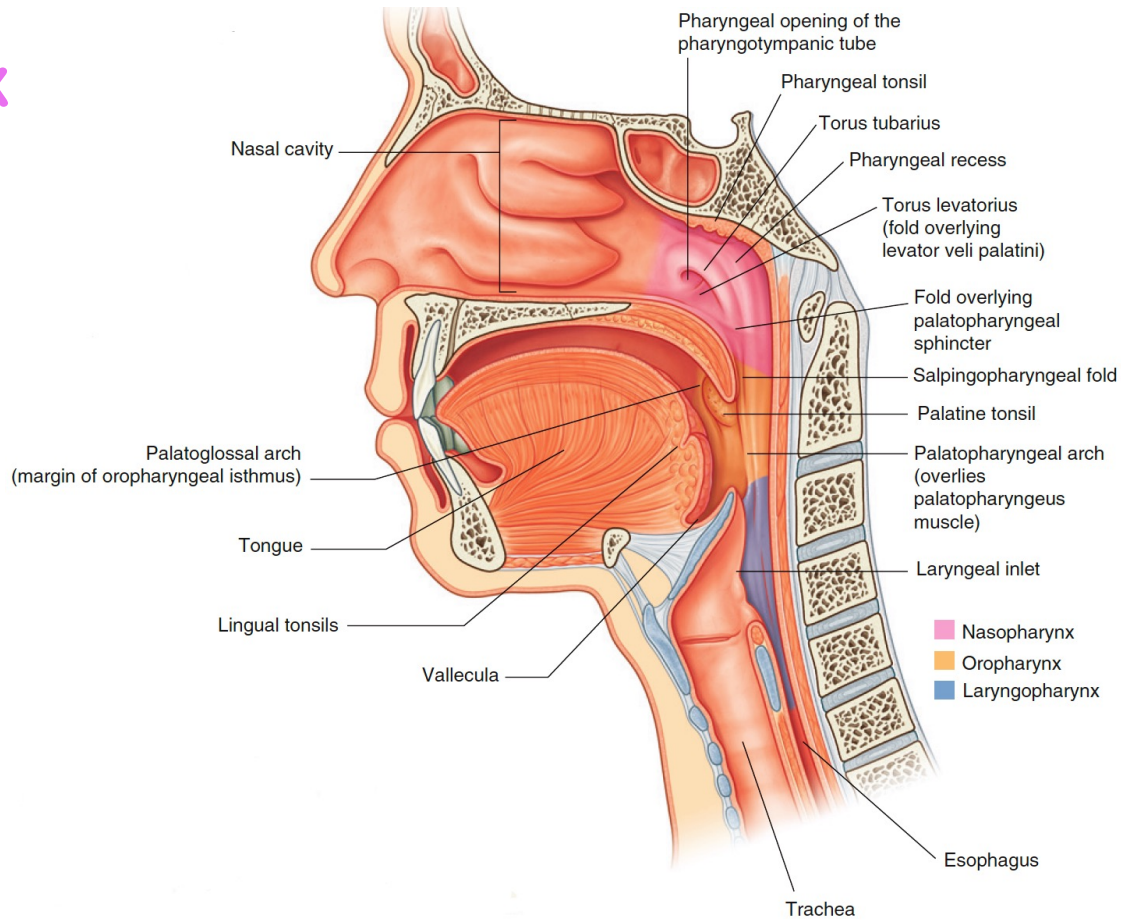
- **Oropharynx:**

- Middle part, communicates with the oral cavity through the **oropharyngeal isthmus**.

- **Laryngopharynx:**

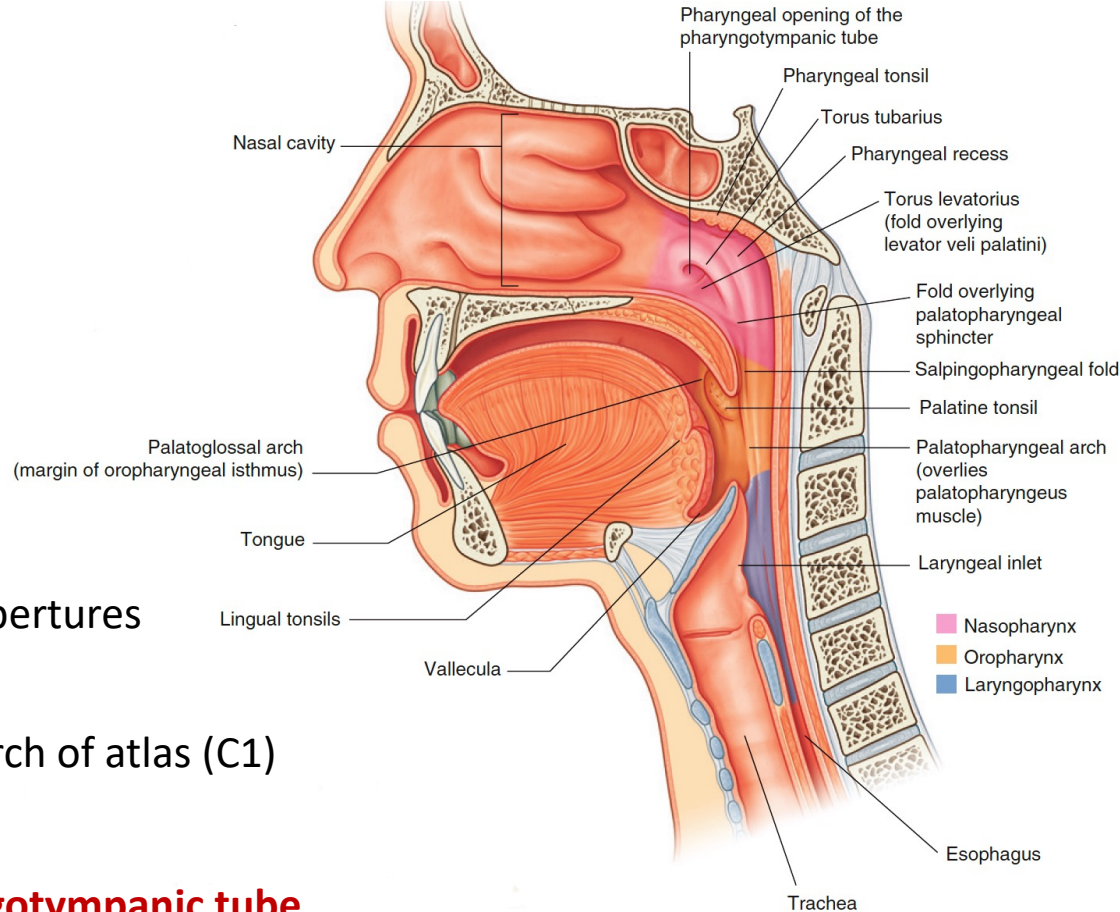
- Inferior part, communicates with the larynx through the **laryngeal inlet**.

Nasopharynx



Boundaries:

- **Roof:** body of sphenoid & basal part of the occipital bone.
Pharyngeal tonsils (adenoides) present in the submucosa
- **Floor:** upper surface of **soft palate** & the **pharyngeal isthmus** (opening between the free margin of soft palate and posterior pharyngeal wall)



- **Anterior wall:**

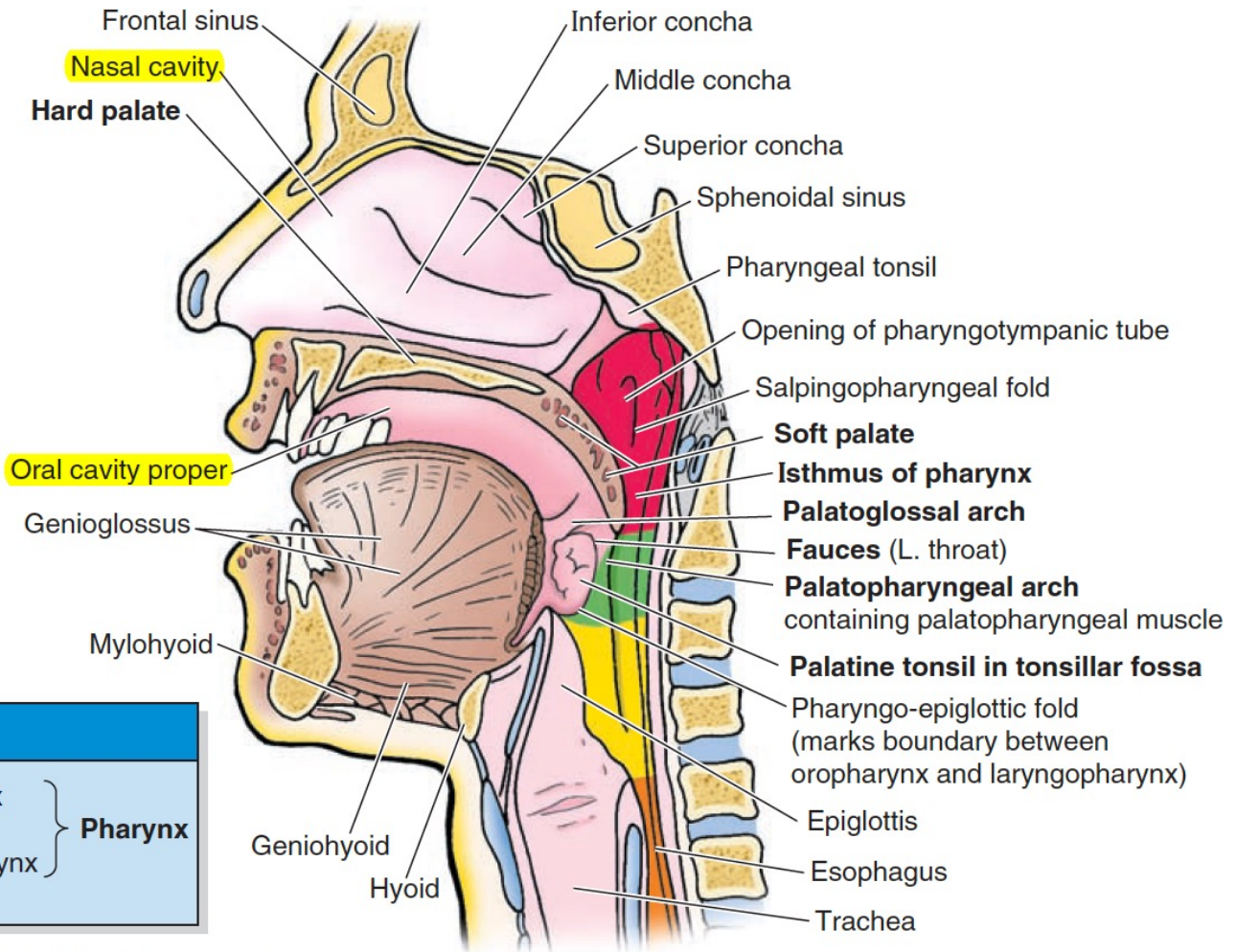
Shows posterior nasal apertures

- **Posterior wall:**

Supported by anterior arch of atlas (C1)

- **Lateral wall shows:**

- **Opening of pharyngotympanic tube**
- **Tubal elevation (torus tubarius)**, produced by posterior margin of tube.
- **Pharyngeal recess**
- **Tubal tonsil**
- **Salpingopharyngeal fold** (raised by salpingo-pharyngeus muscle)



Key	
■ Nasopharynx	} Pharynx
■ Oropharynx	
■ Laryngopharynx	
■ Esophagus	

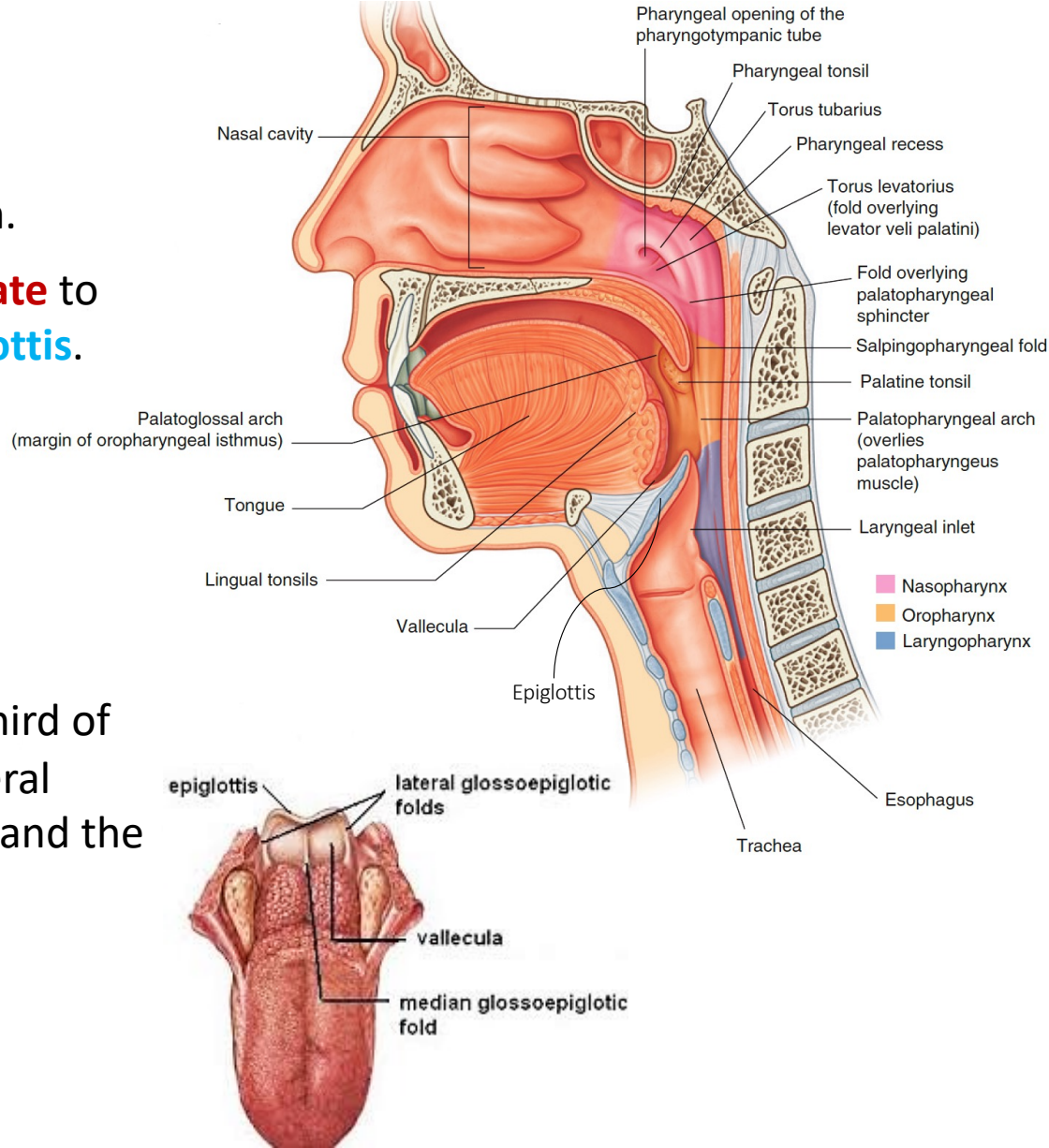
Medial view of right half of viscerocranium

Oropharynx

- Lies behind the mouth.
- Extends from **soft palate** to upper border of **epiglottis**.

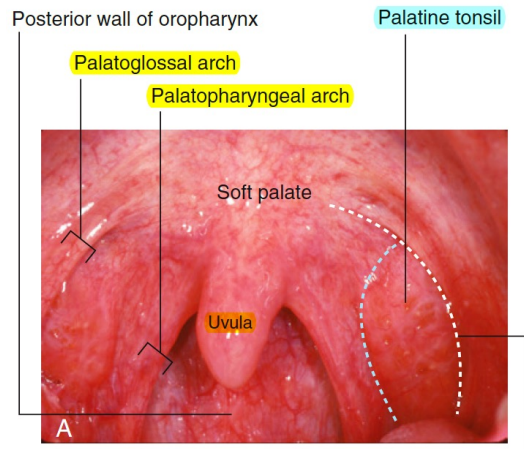
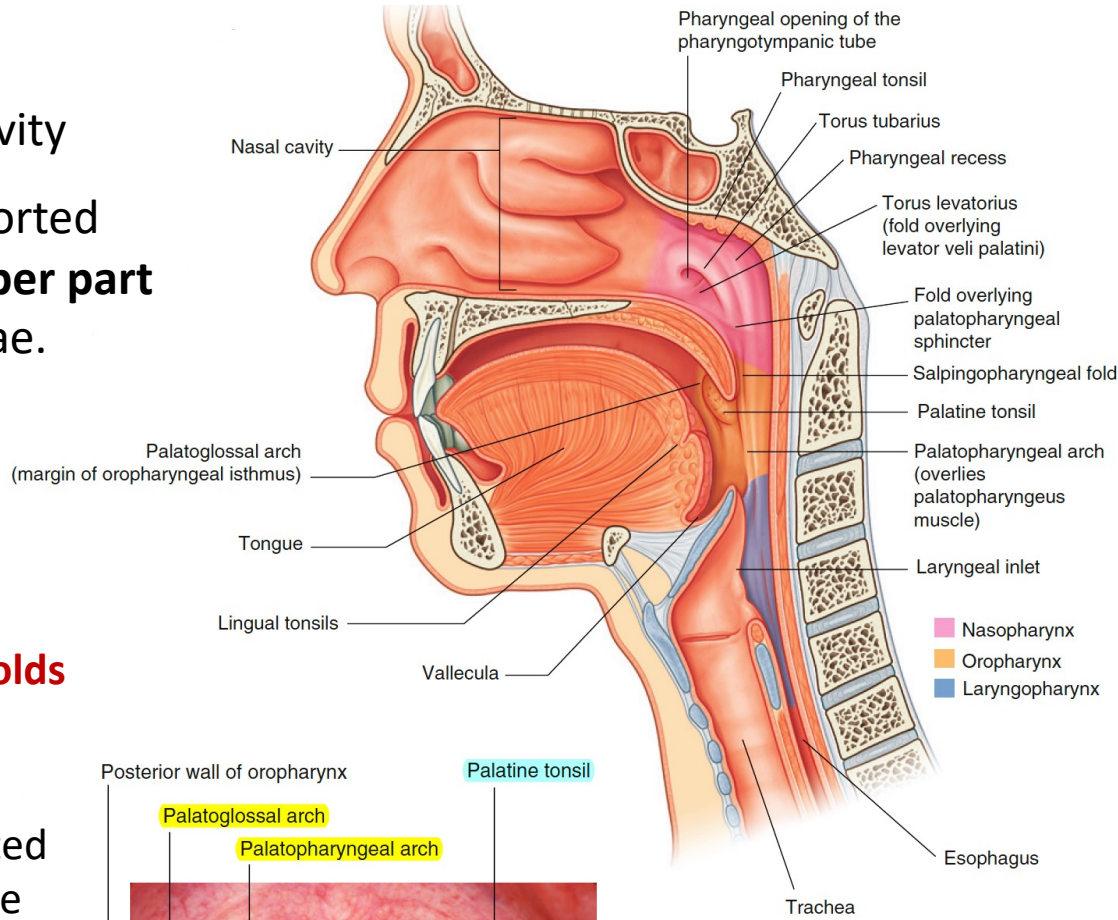
Boundaries:

- **Roof:** soft palate and pharyngeal isthmus.
- **Floor:** posterior one third of tongue, median & lateral glossoepiglottic folds, and the valleculae.



- **Anterior wall:**
opening of the oral cavity
- **Posterior wall:** supported by **body of C2** and **upper part of body of C3** vertebrae.

- **Lateral wall shows:**
 - **Palatopharyngeal folds** posterior to the **palatoglossal folds**.
 - **Palatine tonsil** located between them in the **Tonsillar fossa**

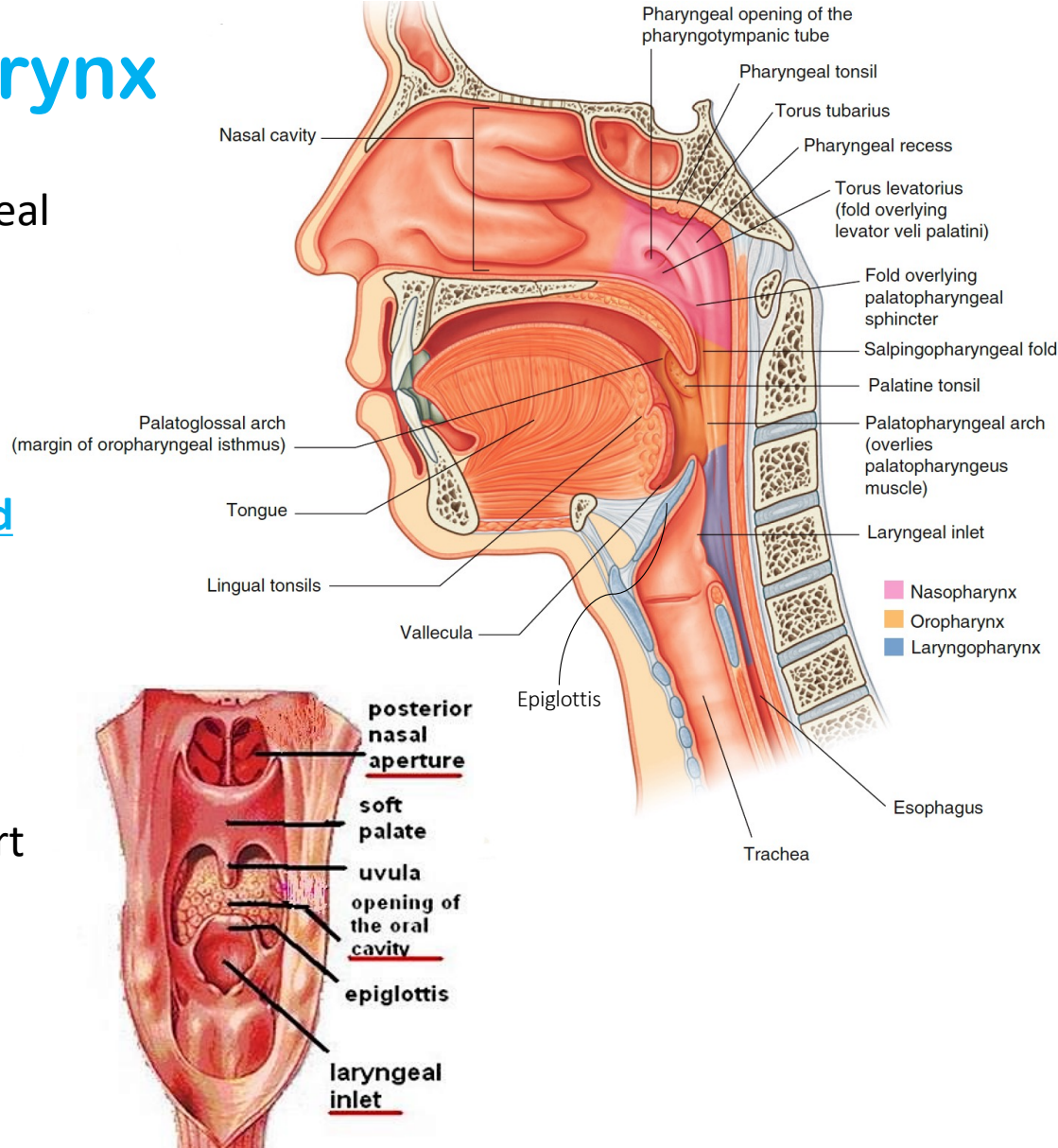


Laryngopharynx

- Lies behind the laryngeal inlet & the **posterior surface of larynx**.
- Extends from **upper border of epiglottis** to **lower border of cricoid cartilage**.

Boundaries:

- Anterior wall:** has opening of the larynx in the upper part and below that is the mucosa covering the posterior surface of larynx.

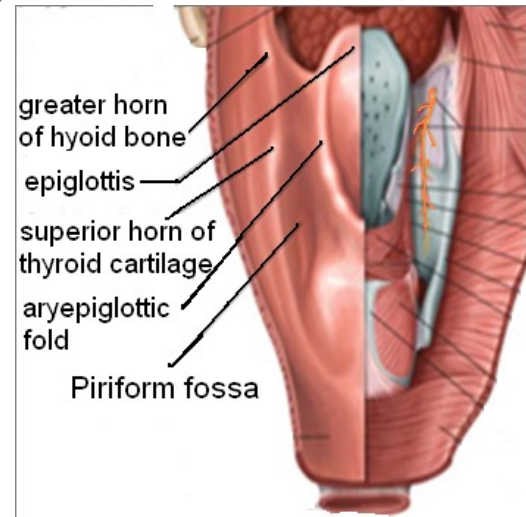
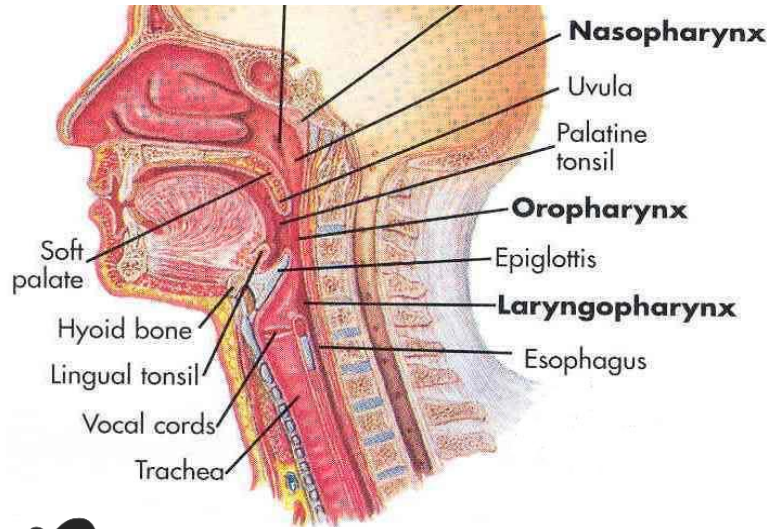


- **Posterior wall:**
supported by **bodies of C3, 4, 5, 6 vertebrae.**

- **Lateral wall:**

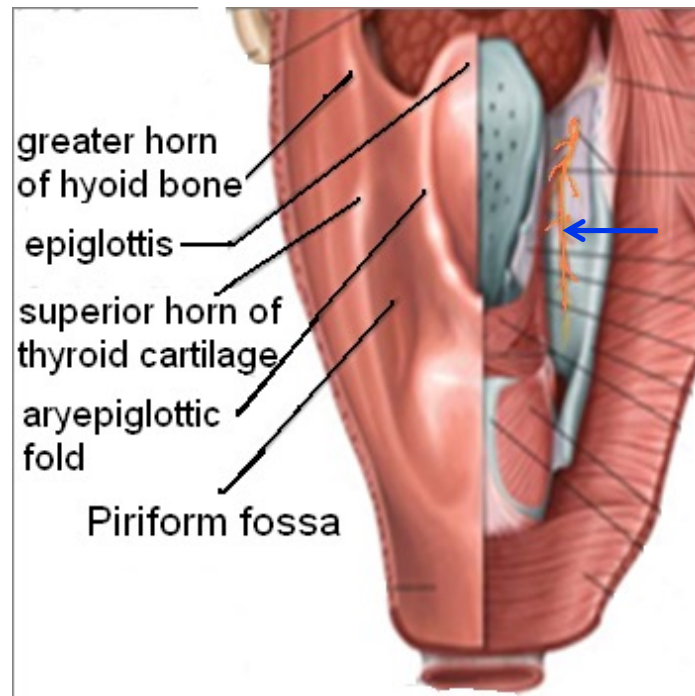
- Supported by **thyroid cartilage** and **thyrohyoid membrane.**
- On each side of laryngeal inlet, lies the **piriform fossa.**

3/190

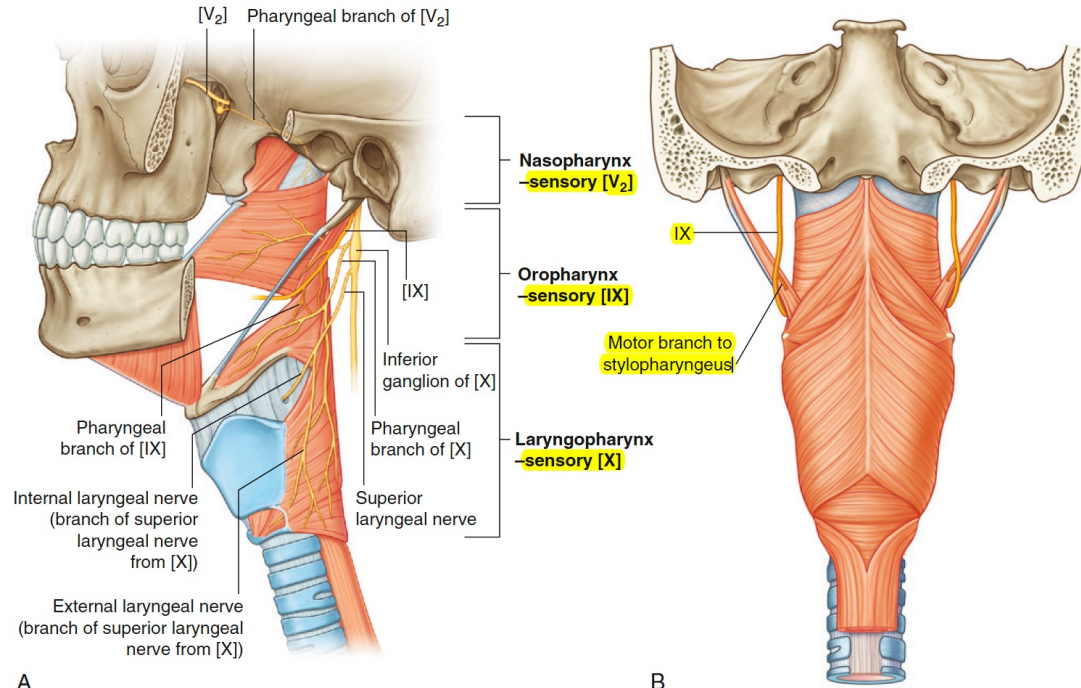


Piriform Fossa

- A small depression situated on either side of the laryngeal inlet.
- Leads obliquely backward and downward from the region of the back of the tongue to the esophagus
- It is a **common site for the lodging of foreign bodies.**
- ❖ **Bounded:**
 - **Medially** by the **aryepiglottic fold**
 - **Laterally** by the **lamina of thyroid cartilage** & the thyrohyoid membrane.
- Branches of **internal laryngeal** (& **recurrent laryngeal**) **nerve** lie deep to the mucous membrane of the fossa and are **vulnerable to injury during removal of a foreign body.**



Nerve Supply



• Sensory Nerve Supply:^A

- **Nasopharynx:** Maxillary nerve (V₂).
- **Oropharynx:** Glossopharyngeal nerve (IX)
- **Laryngopharynx:** Internal laryngeal branch of the vagus nerve (X).

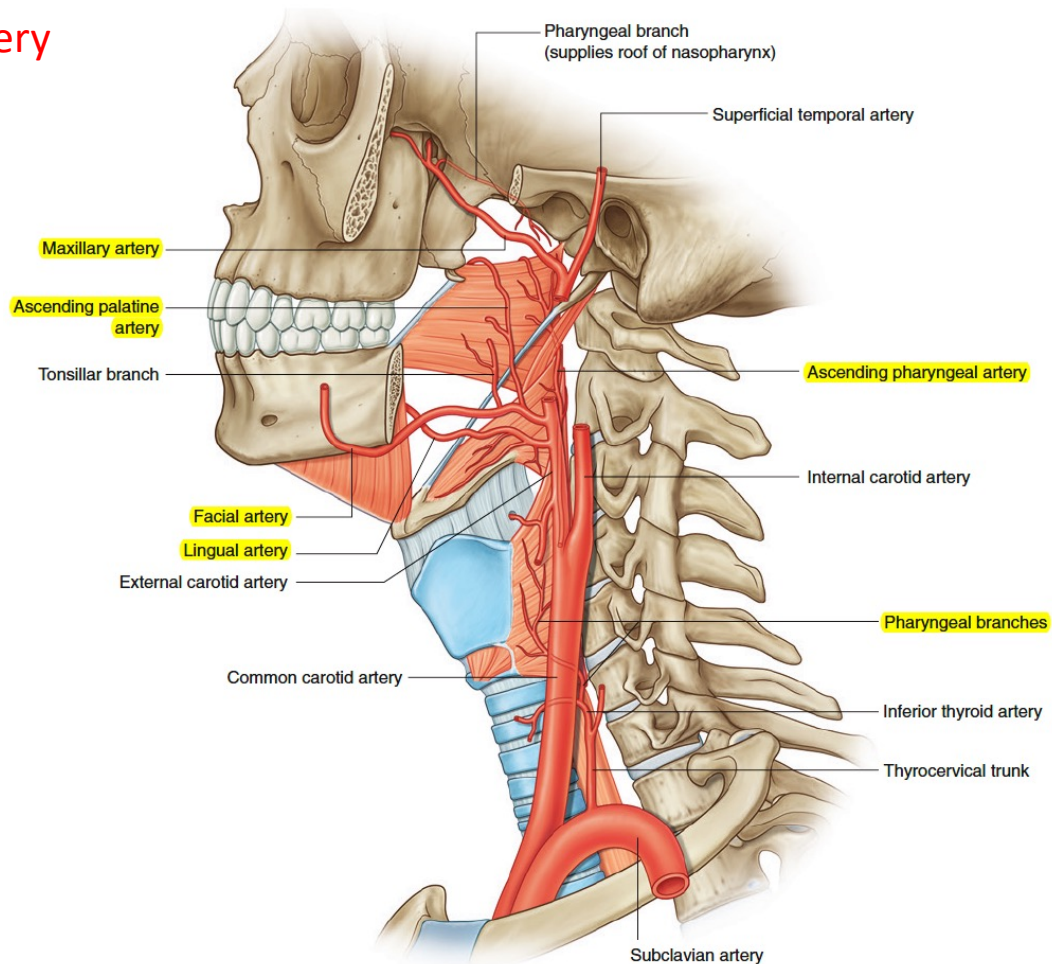
• Motor Nerve Supply:

- All the muscles of pharynx, **except** the **stylopharyngeus**, supplied by the **pharyngeal plexus**.
- The stylopharyngeus is supplied by the **glossopharyngeal nerve**.

Blood Supply & Lymphatics

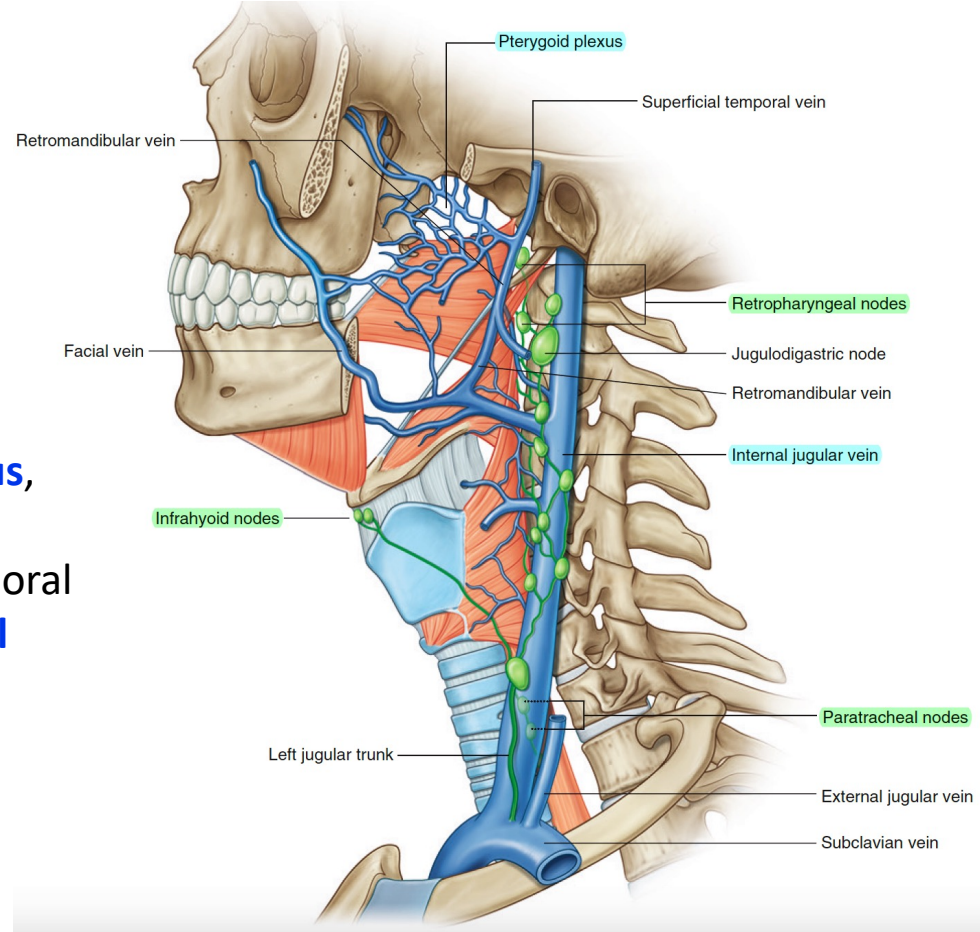
Arterial supply is derived from branches of:

- Ascending pharyngeal artery
- Ascending palatine artery
- Facial artery
- Maxillary artery
- Lingual artery



Blood Supply & Lymphatics

Veins of the pharynx form a **plexus**, which drains superiorly into the **pterygoid plexus** in the infratemporal fossa, and inferiorly into the **facial** and **internal jugular veins**.

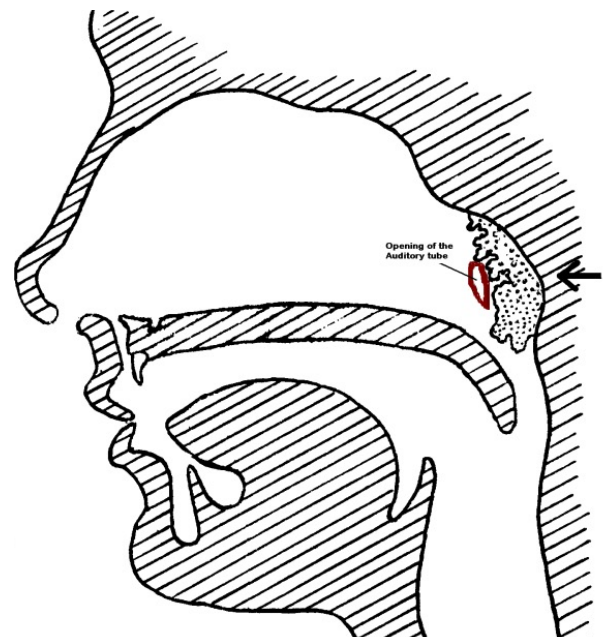


- The **lymphatics drain** into the **deep cervical lymph nodes** either directly, or indirectly via the **retropharyngeal** or **paratracheal lymph nodes**.

Clinical Notes

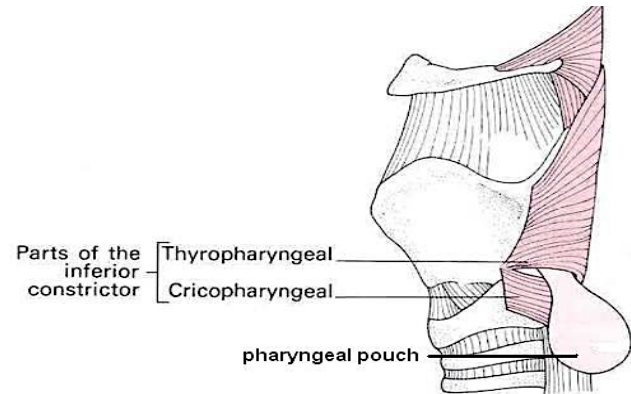
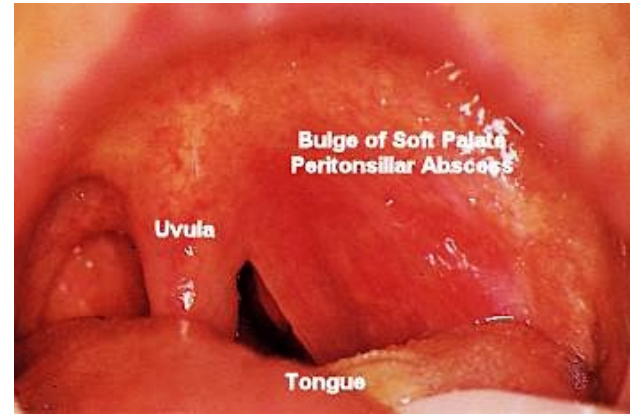
Adenoids (enlarged pharyngeal tonsils) & **adenoidectomy**.

- **Adenoids** results in obstruction to nasal breathing and make mouth breathing necessary. The patient develops a typical facial expression called the '**adenoid facies**'. May also cause impaired hearing.
- **Otitis media** (middle ear infection), secondary to infection of **nasopharynx**.
- Tonsillitis & Tonsillectomy



Adenoid facies

- **Peritonsillar abscess** (quinsy), is a complication of tonsillitis and consists of a collection of pus beside the tonsil (peritonsillar space).
- **Piriform fossa**: a common site for the lodging of foreign bodies
- **Pharyngeal pouch**, posteromedial herniation of mucosal diverticulum between **thyropharyngeal** and **cricopharyngeal parts** of the **inferior constrictor muscle** leading to dysphagia (difficulty in swallowing). It occurs mainly in older people.
- **Retropharyngeal abscess**, may spread to the superior mediastinum.



Thank You



YouTube

References

- *The Anatomical Basis of Clinical Practice*, Susan Standring, © 2016, Elsevier Limited. All rights reserved.
- *Clinical Oriented Anatomy*. Copyright © 2010 Lippincott Williams & Wilkins, a Wolters Kluwer business. Keith L. Moore,
- *ATLAS OF HUMAN ANATOMY*, Frank H. Netter, SIXTH EDITION. Copyright © 2014 by Saunders, an imprint of Elsevier Inc.
- *GRAY'S ANATOMY FOR STUDENTS, FOURTH EDITION*, Copyright © 2020 Elsevier Inc.
- *Clinical Anatomy by Region*, Richard. Snell, Copyright © Lippincott Williams & Wilkins, a Wolters Kluwer business.
- *ATLAS OF CLINICAL GROSS ANATOMY*, Copyright © 2013, 2005, by Saunders, an imprint of Elsevier Inc. Photographs © 2013 by Darrell K. Petersen.