PHARYNX and LARYNX

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Middle meningeal artery

Ascends between roots of auriculotemporal nerve

Posterior superior alveolar artery pierces back of maxilla

Inferior alveolar artery goes with inferior alveolar nerve to enter mandibular foramen
The maxillary artery leaves the infratemporal fossa by passing thru the pterygomaxillary fissure to enter the pterygopalatine fossa.

Its 3 terminal branches are: infraorbital, descending palatine and sphenopalatine.
Pharynx

Food & Air Passage
Objectives

By the end of lecture, the student should be able to…

Locate the pharynx relative to other areas of the head and neck.

Identify the muscles of pharynx and their innervation.

List the structures within each sub-region of the pharynx.

Describe movements of soft palate & sealing of oropharynx from nose.

Summarize innervation of pharyngeal and laryngeal muscles.

Summarize deglutition and cranial nerves involved.

Locate the gag reflex and indicate the sensory nerve for this reflex.
The pharynx is a fibromuscular tube with 3 regions that open anteriorly. The upper part is an air passageway, the middle is a food/liquid & air passageway, and the lower is a food/liquid passageway.
Skeletal Muscles of Pharynx

- Constrictors innervated by vagus
- Stylopharyngeus innervated by glossopharyngeal

Two additional internal muscles we’ll get to later…
Key relationship: Glossopharyngeal nerve wraps around the stylopharyngeus muscle.

Pharyngeal Plexus:
- VS to pharyngeal mucosa
- SM to pharyngeal constrictors

Somatomotor branch of vagus to constrictors
Pharynx Interior

Nasopharynx:
1. Pharyngeal tonsils
2. Auditory tube ostia
3. Salpingopharyngeal fold

Oropharynx:
4. Palatine tonsils

Laryngopharynx:
5. Piriform recess

Slit open constrictors to examine interior
Lateral Wall of Pharynx

1. Pharyngeal tonsils
2. Torus tubarius
3. Auditory tube opening
4. Salpingopharyngeal fold
5. Salpingopharyngeus muscle
6. Levator veli palatini muscle
7. Tensor veli palatini muscle
8. Palatine tonsil
9. Palatoglossal fold/muscle
10. Palatopharyngeus fold/muscle
Summary Rule for Innervation of Pharynx and Soft Palate Muscles

All muscles of the pharynx and palate are innervated by the vagus nerve, except:

• Stylopharyngeus which is IX
• Tensor veli palatini which is V₃
Deglutition

Stage 1
Tongue (XII) pushes bolus against hard palate.

Stage 2
Tongue (XII) pushes bolus to oropharynx; soft palate elevated by levator (X) and tensor (V₃) veli palatini.

Stage 3
Bolus pushes epiglottis down to cover laryngeal inlet.

Stage 4
Pharyngeal constrictors (X) propel bolus into esophagus.
Sensory Innervation to Pharynx

Glossopharyngeal

“Gag Reflex”

Vagus
Larynx

Vocalization
Objectives

By the end of lecture, the student should be able to...

Name and locate the laryngeal cartilages.
Differentiate true vocal cords from false cords.
Define parts of the larynx: supraglottic, infraglottic, ventricle & glottis.
Summarize the sensory & ANS innervation to laryngeal mucosa.
Discuss action & innervation of muscles tensing & abducting cords.
Distinguish the gag reflex from the cough reflex.
Larynx functions in phonation & respiration.

- Epiglottis
- Thyroid cartilage
- Arytenoid cartilages
- Cricoid cartilage
- Trachea
- Hyoid
Ventricle is a small cleflike pocket between and lateral to vestibular and vocal folds. It houses mucous glands that moisten the vocal cords.
Larynx
Laryngoscopy

Glottis:
Vocal cords plus space between
Internal branch superior laryngeal nerve

Taste
Parasympathetic pre-ganglionic
Viscerosensory pain
Laryngeal Muscles

8 pairs of muscles move vocal cords

Cricothyroid

Abduction

Adduction

Tensors

Tenses cords

Synovial joint
One Muscle Abducts Vocal Cords

Posterior cricoarytenoid muscle
Larynx
Motor Innervation

Cricothyroid
External branch of superior laryngeal nerve

All others
Recurrent laryngeal nerves
Any Questions?