

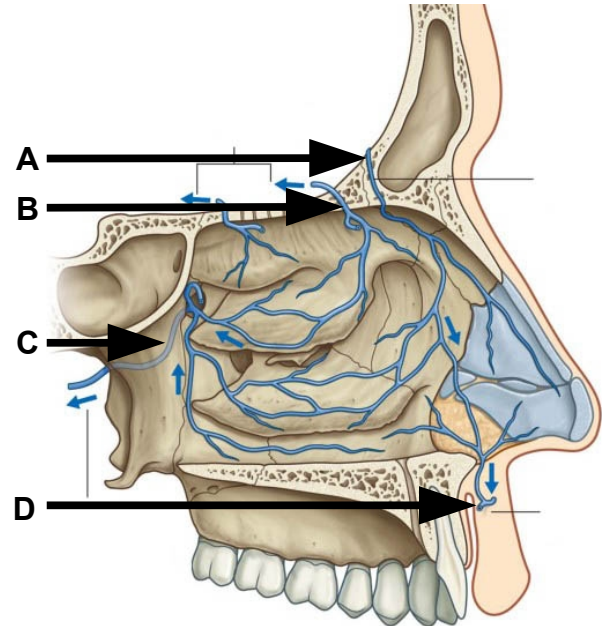
GRADUATE HUMAN GROSS ANATOMY – ANAT 503
EXAMINATION 7

December 7, 2018

PART I. Answer in the space provided. (14 pts)

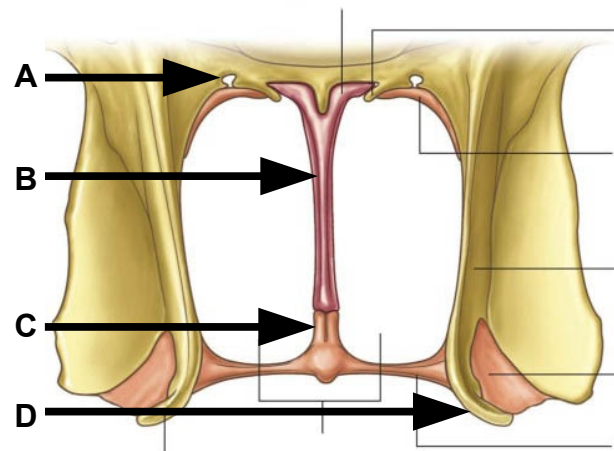
1. Identify the structures. (2 pts)

- A) _____
- B) _____
- C) _____
- D) _____



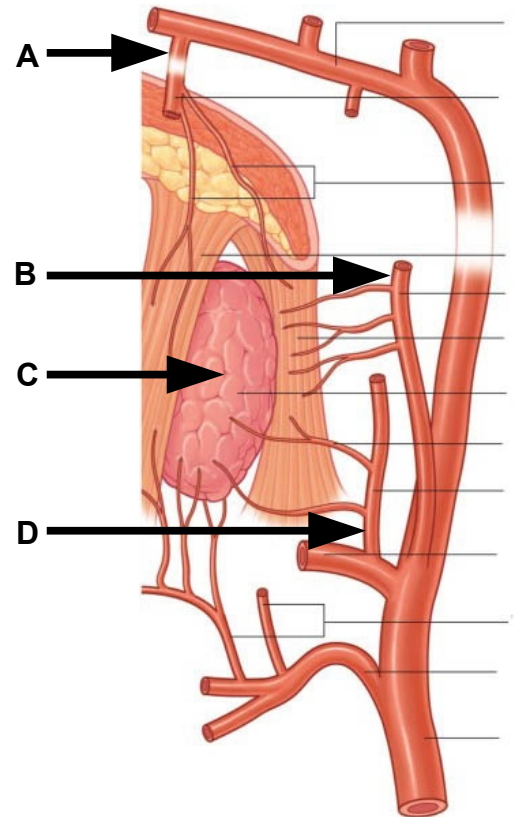
2. Identify the structures. (2 pts)

- A) _____
- B) _____
- C) _____
- D) _____



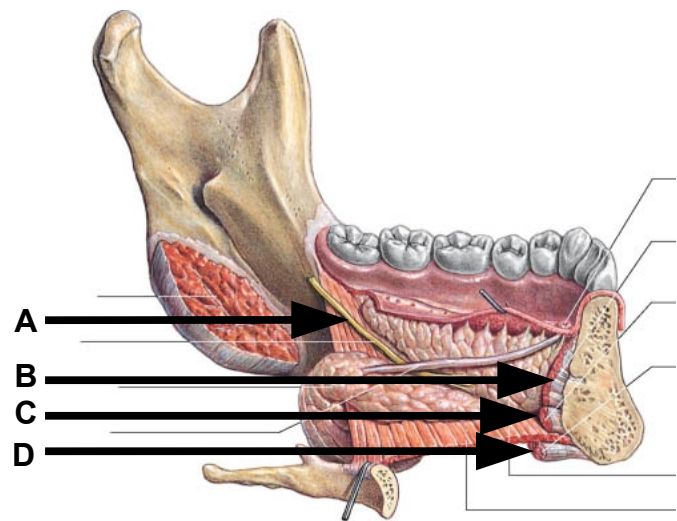
3. Identify the structures. (2 pts)

- A) _____
 B) _____
 C) _____
 D) _____



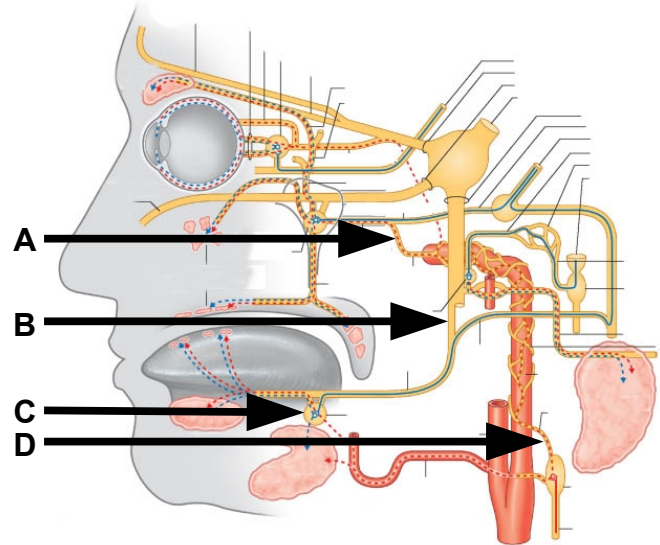
4. Identify the structures. (2 pts)

- A) _____
 B) _____
 C) _____
 D) _____



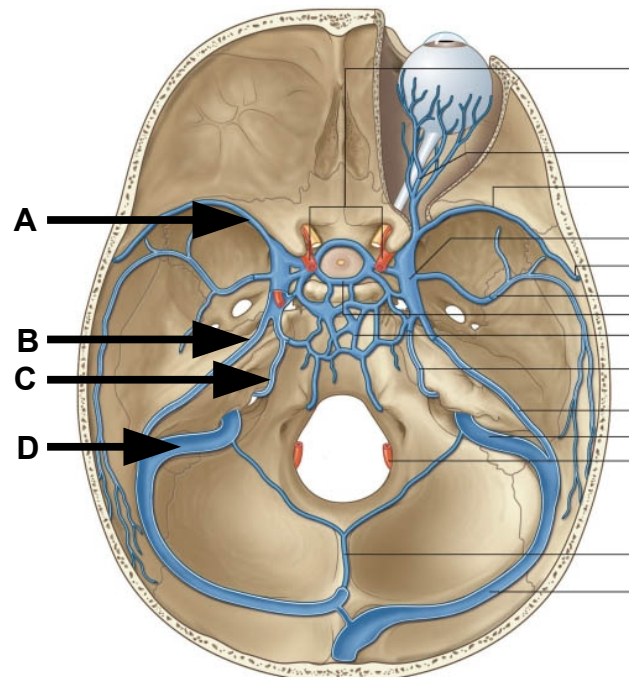
5. Identify the structures. (2 pts)

- A) _____
 B) _____
 C) _____
 D) _____



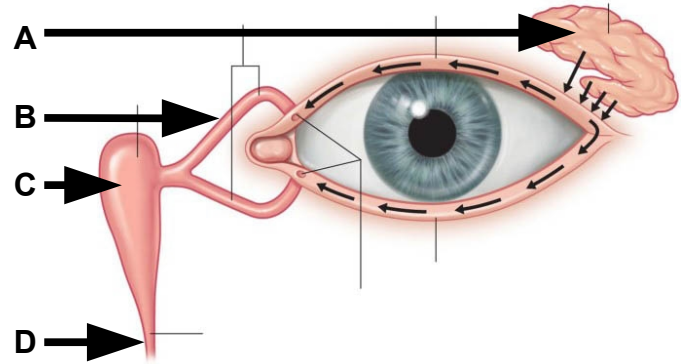
6. Identify the structures. (2 pts)

- A) _____
 B) _____
 C) _____
 D) _____



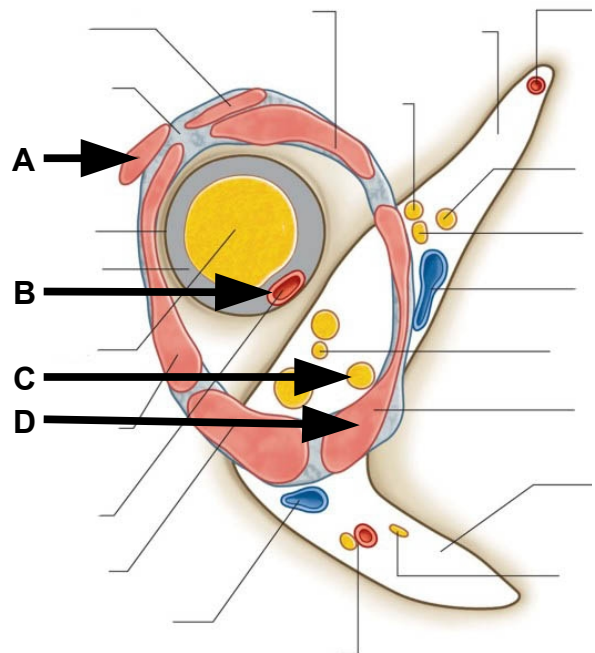
7. Identify the structures. (2 pts)

- A) _____
 B) _____
 C) _____
 D) _____



8. Identify the structures. (2 pts)

- A) _____
 B) _____
 C) _____
 D) _____



Part II. Circle the correct answer. All, none, or some may apply. (18 pts)

1. With regard to the cranial nerves:

- a) The anterior ethmoidal artery passes through the cribriform plate to enter the nasal cavity.
- b) Damage to the spinal accessory nerve at the jugular foramen weakens flexion at the atlanto-occipital joint.
- c) Efferent fibers (Special Visceral Efferent) of the vagus nerve contribute to raising the pitch of the voice and to equalization of air pressure within the middle ear.
- d) A deviated protrusion of the tongue to the left side indicates a lesion of the right hypoglossal nerve.
- e) A lesion of the facial nerve proximal to the branching of the greater superficial petrosal nerve disrupts reflex lacrimation, sound dampening, taste to the tongue and palate, and blinking of the eye.
- f) Damage to the inferior division of the oculomotor nerve, distal to the motor root of the ciliary ganglion, eliminates the pupillary light reflex on the side of the lesion.

2. With regard to the triangles of the neck:

- a) The greater occipital nerve ascends along the posterior edge of the sternocleidomastoid muscle and provides motor innervation to the pinna.
- b) Fibers from the cervical plexus travel with the hypoglossal nerve and then leave the hypoglossal nerve to form the nerve to thyrohyoid.
- c) Prevertebral fascia lies anterior to the phrenic nerve and posterior to the transverse cervical artery.
- d) The anterior and posterior bellies of the omohyoid muscle are innervated by the cervical plexus.
- e) The external laryngeal nerve passes through the thyrohyoid membrane with the superior laryngeal artery.
- f) The ansa subclavia ascends across the anterior surface of the subclavian artery.

3. With regard to the skull, face, and scalp:

- a) Tears of lacrimation enter the upper lateral conjunctival fornix and ultimately drain into the middle nasal meatus.
- b) Parietal emissary veins may spread infections from the "loose areolar space" of the scalp to the superior sagittal sinus.
- c) The temporal branch of the facial nerve provides SVE fibers to the frontalis and orbicularis oculi muscles.
- d) The greater wing of the sphenoid bone contributes to the clivus.
- e) The facial vein, if thrombosed, may drain into the cavernous sinus by way of the orbit and the pterygoid venous plexus.

- f) A “blowout” fracture of the orbital floor may entrap the inferior rectus muscle and sever the supraorbital nerve.

4. With regard to the parotid region, temporomandibular joint, temporal fossa, and infratemporal fossa:

- a) The mylohyoid line is a site of origin for the mylohyoid muscle.
- b) Injury to the auriculotemporal nerve within the infratemporal fossa disrupts salivation from the sublingual gland.
- c) The greater superficial petrosal nerve passes from the middle cranial fossa to the infratemporal fossa by way of either the foramen spinosum or the foramen ovale.
- d) Laryngeal tumors may cause referred pain to the ear.
- e) Damage to the buccal nerve causes paralysis of the buccinator muscle.
- f) Damage to the lingual nerve at the floor of the mouth disrupts taste to the anterior two-thirds of the tongue.

5. With regard to the cranial fossae, dural sinuses, and orbit:

- a) The sigmoid sinus communicates directly with the basilar venous plexus.
- b) The foramen cecum of the skull, when patent, provides a venous communication between the superior sagittal sinus and the nasal cavity.
- c) The straight sinus, inferior sagittal sinus, and the great vein of Galen meet at the tentorial notch.
- d) The marginal sinus communicates with the basilar venous plexus, occipital sinus, and internal vertebral venous plexus.
- e) The internal carotid artery enters the posterior cranial fossa at the apex of the petrous portion of the temporal bone.
- f) The jugular foramen conveys the glossopharyngeal, vagus, spinal accessory, and hypoglossal nerves from the middle cranial fossa to the base of skull.

6. With regard to the larynx, pharynx, and oral cavity:

- a) The buccinator muscle and the superior constrictor muscle have a common site of attachment at the stylohyoid ligament.
- b) The palatoglossus, palatopharyngeus, salpingopharyngeus, and levator veli palatini muscles are innervated by the vagus nerve.
- c) The afferent limb of the gag reflex is mediated by the glossopharyngeal nerve.
- d) The pharyngeal tonsils are posterior to the palatoglossal arch and anterior to the palatopharyngeal arch.
- e) The median and lateral glossoepiglottic folds border the vallecula.
- f) The lateral cricoarytenoid muscle is the only muscle that adducts the true vocal cord.

Part III. Indicate your understanding of the following. (30 pts)

1. Pathology involving the floor of the mouth may overwhelm the hyoglossus muscle and lead to stridor. **Discuss the anatomy and relationships of the hyoglossus muscle. (6 pts)**

EXAM NUMBER _____

2. The larynx provides an airway for respiration and vocalization. The nerves of the larynx are at risk during thyroid surgery. **Review the anatomy, innervation, and function of the posterior cricoarytenoid muscle. (6 pts)**

EXAM NUMBER _____

3. A treatment for trigeminal neuralgia is to inject nerve blocking agents into the pterygopalatine fossa. This procedure blocks neural transmission for all nerves within the pterygopalatine fossa. Thereafter, the patient may suffer from a disruption of palatal taste. **Discuss the anatomy of taste sensation to the hard and soft palate. (6 pts)**

EXAM NUMBER _____

4. A weekend warrior, not wearing a batter's helmet, is hit on the side of the head by a wild pitch. Initially, she is "knocked out." She regains consciousness. Then, thirty minutes later she, once again, loses consciousness. **Discuss the anatomy of the pterion and epidural hematoma. (6 pts)**

EXAM NUMBER _____

5. Patients having oral, pharyngeal, or laryngeal cancers may present to the physician's office with the chief complaint of ear pain. **Discuss the sensory innervation to the ear that may mediate referred pain from the oral cavity, pharynx, and larynx. (6 pts)**

EXAM NUMBER _____

Part IV. Essay. (36 pts)

1. A 38 year-old male presents to the Emergency Department with a swollen left eye. He denies trauma to the eye. He initially reports having a headache "on the top of my head." He now has a generalized headache, fever, pain behind his eye, and double vision. On exam, there is ptosis, proptosis, conjunctival injection, and inability to track with his left eye. He has hyperesthesia of his left face, from the lateral forehead to the upper lip. His fundoscopic exam displays papilledema. **Discuss the anatomy of the cavernous sinus. Include boundaries, contents, and relationships. Account for symptoms caused by damage to structures within the cavernous sinus? (12 pts)**

EXAM NUMBER _____

EXAM NUMBER _____

2. An apical abscess of the lower molars may erupt into the floor of the mouth and then enter the submandibular space by way of the posterior free edge of the mylohyoid muscle. This infection may then erode into deeper cervical regions. **Discuss the spaces defined by the cervical fasciae. Include boundaries, contents, relationships, lymphatic drainage, and clinical significance. (12 pts)**

EXAM NUMBER _____

EXAM NUMBER _____

3. A seventy two year-old male comes to your office with complaints of hoarseness and postnasal drip. You note the distinct smell of tobacco. He has ptosis of the left eye and the left pupil is smaller than the right. There is fullness over the left supraclavicular region. A Pancoast tumor is highly suspected. **Discuss the anatomy of the left vertebral triangle. Include boundaries, contents, relationships, fascial specializations, vasculature, innervation, lymphatic drainage, and the clinical significance of damage to structures in the area. (12 pts)**

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