

## STRUCTURAL BASIS OF MEDICAL PRACTICE

EXAM 8 and 9

OCTOBER 29, 2004

**PART 1.** Select the BEST response. (Place answer in the space provided.)  
(2 points each)

1. \_\_\_\_\_ When a patient attempts protrusion of the tongue, the tongue deviates to the right. This would indicate damage to which of the following nerves?
- A. right glossopharyngeal
  - B. left accessory
  - C. right hypoglossal
  - D. left hypoglossal
  - E. right lingual
2. \_\_\_\_\_ When the mandible is elevated from a wide-position, the articular disk moves:
- A. medially.
  - B. posteriorly.
  - C. anteriorly.
  - D. laterally.
  - E. inferiorly.
3. \_\_\_\_\_ A patient with a tumor in the posterior cranial fossa is deaf in the right ear and shows weakness of the right orbicularis oculi muscle in addition to the lesion in the right cochlear nerve. Which other nerve is involved?
- A. maxillary division of the trigeminal nerve
  - B. abducent nerve
  - C. facial nerve
  - D. vagus nerve
  - E. ophthalmic division of the trigeminal nerve
4. \_\_\_\_\_ A patient has lost cutaneous sensation over the tip of the nose. Which nerve is most likely to have been damaged?
- A. facial nerve
  - B. ophthalmic division of the trigeminal
  - C. great auricular nerve
  - D. mandibular division of the trigeminal
  - E. maxillary division of the trigeminal

5. \_\_\_\_\_ As a medical student you are confident you can create an artificial airway without damaging the thyroid gland because you know that the isthmus of the thyroid gland is located at which of the following levels?
- A. cricothyroid membrane
  - B. laminae of the thyroid cartilage
  - C. second and third tracheal cartilage
  - D. cricoid cartilage
  - E. jugular notch
6. \_\_\_\_\_ The mandibular nerve innervates all the following EXCEPT which of the following muscles?
- A. tensor veli palatini
  - B. anterior belly of the digastric
  - C. buccinator
  - D. lateral pterygoid
  - E. omohyoid
7. \_\_\_\_\_ The occipital artery, as it arises from the external carotid artery, normally has which nerve associated with it laterally?
- A. auriculotemporal branch of the trigeminal (V<sub>3</sub>)
  - B. vagus nerve
  - C. carotid nerve
  - D. glossopharyngeal nerve
  - E. hypoglossal nerve
8. \_\_\_\_\_ The submandibular duct is crossed twice by which of the following nerves?
- A. hypoglossal
  - B. facial
  - C. lingual
  - D. vagus
  - E. glossopharyngeal
9. \_\_\_\_\_ The auditory (Eustachian) tube communicates the:
- A. nasopharynx with the mastoid air cells
  - B. oropharynx with the external auditory meatus
  - C. oropharynx with the middle ear
  - D. nasopharynx with the inner ear
  - E. nasopharynx with the middle ear

10. \_\_\_\_\_ A ligature occluding the external carotid artery just distal to the lingual artery would probably stop the flow of blood to each of the following EXCEPT the:
- A. inferior alveolar artery.
  - B. superficial temporal artery.
  - C. infraorbital artery.
  - D. middle meningeal artery.
  - E. superior laryngeal artery.
11. \_\_\_\_\_ If a patient presented with a permanently dilated pupil, which of the following nerves could be assumed to be involved?
- A. optic
  - B. sympathetic trunk
  - C. ophthalmic
  - D. oculomotor
  - E. facial
12. \_\_\_\_\_ Of the following, which is the most common site for lodging of a small, sharp object such as a fish bone?
- A. vallecula
  - B. lateral glossoepiglottic fold
  - C. piriform fossa (recess)
  - D. lingual tonsil
  - E. stylopharyngeus
- 13-15. A patient presents with hoarseness, right shoulder drop, and difficulty in turning the head to the left against resistance. The patient complains of numbness of the "back" of the tongue. On further examination, a mass is palpable anterior and deep to the upper aspect of the sternocleidomastoid muscle.
13. \_\_\_\_\_ Based on the symptoms presented by the patient, which of the following cranial foramina would MOST LIKELY be involved?
- A. spinosum
  - B. ovale
  - C. jugular
  - D. carotid canal
  - E. rotundum
14. \_\_\_\_\_ Which cranial nerves are involved?
- A. facial (VII), accessory (XI), vagus (X)
  - B. hypoglossal (XII), vagus (X), facial (VII)
  - C. facial (VII), hypoglossal (XII), glossopharyngeal (IX)
  - D. accessory (XI), glossopharyngeal (IX), vagus (X)
  - E. hypoglossal (XII), glossopharyngeal (IX), facial (VII)

15. \_\_\_\_\_ What vascular structure would MOST likely be involved?
- A. middle meningeal artery
  - B. common carotid artery
  - C. vertebral artery
  - D. internal jugular vein
  - E. external jugular vein
16. \_\_\_\_\_ Which of the following muscles is associated with the medial pterygoid plate?
- A. stapedius
  - B. tensor tympani
  - C. palatopharyngeus
  - D. tensor veli palatini
  - E. palatoglossus
17. \_\_\_\_\_ Which of the following ganglia is commonly located at the level of the cricoid cartilage?
- A. superior ganglion of the vagus
  - B. inferior ganglion of the glossopharyngeal
  - C. otic
  - D. middle cervical sympathetic
  - E. submandibular
18. \_\_\_\_\_ The bony roof of the infratemporal fossa is formed by the:
- A. tympanic plate of the temporal bone.
  - B. zygomatic arch.
  - C. lateral pterygoid plate.
  - D. greater wing of the sphenoid.
  - E. tuberosity of the maxilla.
19. \_\_\_\_\_ The nasal cavity is closed off from the oropharynx during swallowing by the:
- A. elevation of the tongue to the roof of the mouth.
  - B. contraction of the aryepiglottic muscles.
  - C. contraction of the tensor and levator palatine muscles.
  - D. relaxation of the pharyngeal constrictor muscles.
  - E. bending of the epiglottia.
20. \_\_\_\_\_ Which of the following muscles enter the pharyngeal wall in a gap between the origins of the middle and superior pharyngeal constrictor muscles?
- A. stylopharyngeus
  - B. palatopharyngeus
  - C. salpingopharyngeus
  - D. thyrohyoid
  - E. sternohyoid

21. \_\_\_\_\_ Impaired function of which of the following muscles would result in difficulty in protruding the jaw?
- A. anterior belly of the digastric
  - B. lateral pterygoid
  - C. median pterygoid
  - D. masseter
  - E. temporalis
22. \_\_\_\_\_ The infratemporal fossa communicates with the pterygopalatine fossa through which of the following?
- A. supraorbital fissure
  - B. inferior orbital fissure
  - C. foramen spinosum
  - D. pterygomaxillary fissure
  - E. sphenopalatine foramen
23. \_\_\_\_\_ The thyrohyoid membrane is pierced by the:
- A. vagus nerve and superior thyroid artery.
  - B. recurrent laryngeal nerve and inferior thyroid artery.
  - C. external branch of the inferior laryngeal nerve and superior laryngeal artery.
  - D. internal branch of the superior laryngeal nerve and the superior laryngeal artery.
  - E. hypoglossal nerve.
24. \_\_\_\_\_ The space between apposed vocal folds and arytenoid cartilages is known as the:
- A. glottis.
  - B. rima glottidis.
  - C. vestibuli.
  - D. piriform recess.
  - E. pterygoid plate
25. \_\_\_\_\_ The carina is part of the \_\_\_\_\_?
- A. hyoid bone
  - B. epiglottis
  - C. trachea
  - D. larynx
  - E. pharynx

26. \_\_\_\_\_ The palatine tonsils are located between the anterior and posterior facial folds. The muscles that form these folds are respectively called the:

- A. levator veli palatini and tensor veli palatini.
- B. palatoglossus and palatopharyngeus.
- C. palatopharyngeus and salpingopharyngeus.
- D. styloglossus and stylopharyngeus.
- E. superior constrictor and middle constrictor.

27. \_\_\_\_\_ Sensory innervation to the soft palate is derived from which of the following?

- A. ophthalmic division of V
- B. vagus nerve
- C. maxillary division of V
- D. mandibular division of V
- E. cranial part of the accessory nerve

1. A person receives a blow to the lateral side of the head in the temporal region that is superior to the zygomatic arch. With this information correctly answer the following questions. (4 Points)

- A. What is the name of the potential area of bony weakness at the site of the injury, and what four bones articulate at this area?
  
- B. What artery could potentially be lacerated and through what foramen does this artery enter the skull?
  
- C. In what space would you find blood accumulating if there was an arterial laceration?

2. Correctly match the following (4 Points)

- |                                |   |
|--------------------------------|---|
| _____ Crista Galli             | A. Opening for the facial nerve (CN VII) and vestibulocochlear nerve (CN VIII) along with the labyrinthine artery |
| _____ Foramen Rotundum         | B. Ridge of bone that provides attachment for the falx cerebri  |
| _____ Sella Turcica            | C. Contains foramina that allows for passage of the olfactory nerves to reach the olfactory epithelium            |
| _____ Internal Acoustic Meatus | D. Exit point of the mandibular division of the trigeminal nerve (CN V V3) onto the face                          |
| _____ Foramen Ovale            | E. Formed by the union of the transverse and superior petrosal sinuses  |
| _____ Mental Foramen           | F. Bony area in the middle cranial fossa that houses the pituitary gland  |
| _____ Cribriform Plate         | G. Passage for the maxillary division of the trigeminal nerve (CN V V2)   |
| _____ Sigmoid Sinus            | H. Allows for passage of the mandibular division of the trigeminal nerve (CN V V3)                                |

3. Correctly match the following facial muscles with their actions (3 points)

- |                           |  |
|---------------------------|--|
| _____ Levator Anguli Oris | A. Keeps the cheeks taut                       |
| _____ Zygomaticus major   | B. Elevates eyebrow and skin of forehead       |
| _____ Orbicularis oculi   | C. Draws medial part of the eyebrow inferiorly |
| _____ Procerus            | D. Elevates the corner of the mouth            |
| _____ Buccinator          | E. Draws angle of mouth superolaterally        |
| _____ Frontalis           | F. Closes the eyelid                           |

4. From superficial to deep, what are the correct layers of the scalp (2.5 points)?

5. What layers make up the meninges (1.5 points)?

6. As the external carotid artery proceeds superiorly up the neck, name three direct branches that will feed structures of the head and neck region. (1.5 points)

7. Name three facial bones that do not contribute to the bony structure of the orbit. (1.5 points)

8. What cranial nerves traverse the superior orbital fissure? (2 points)



**PART 3.** 26 points

1. A patient has paralysis of the muscles of facial expression. There are salivary deficits on the same side as the paralysis. Tearing of the eyes is normal. What is the location of neural damage that could cause this condition? What additional tests (observations) would further define the location? Support your answer. (6 pts)

2. Discuss the bony communications and nerve distributions (target areas) of the pterygopalatine fossa. Include mention of the native and non-native (hitchhikers) functional components for each distribution. Further, discuss the functional deficits resulting from loss of each functional component that distributes from within the pterygopalatine fossa. (10 pts)

3. Discuss the internal and external relations of the cavernous sinus. Discuss the deficits that occur from damage to each content of the cavernous sinus. (10 pts)