

FUNCTIONAL NEUROANATOMY
INTEGRATIVE BIOLOGY 245
EXAMINATION II, MARCH 22, 2007

Part I. This one case study includes questions 1-6.

A 65 year-old hypertensive man suddenly experiences occipital headache, vertigo, nausea, vomiting and burning pain in his left face and forehead.

1. These symptoms indicate the problem is mostly in his:
 - a. forebrain
 - b. midbrain
 - c. hindbrain
 - d. spinal cord

2. His voice is hoarse. This symptom indicates a problem in the
 - a. nucleus ambiguus
 - b. nucleus solitarius
 - c. spinal trigeminal tract
 - d. lateral vestibular nucleus

3. Pinprick and temperature sensation are markedly decreased over his left face. These symptoms indicate the problem includes the
 - a. lateral spinothalamic tract
 - b. spinal trigeminal nucleus and tract
 - c. posterior spinocerebellar tract
 - d. abducens nucleus

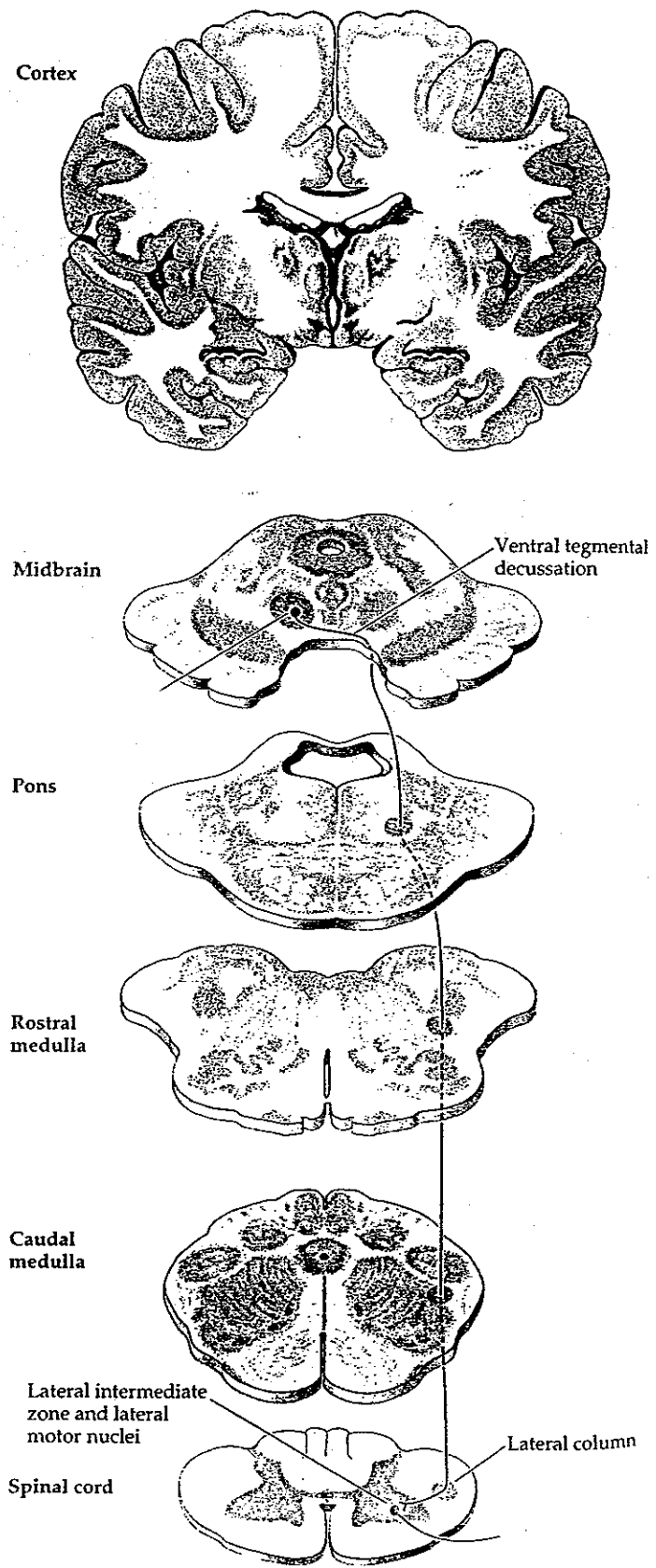
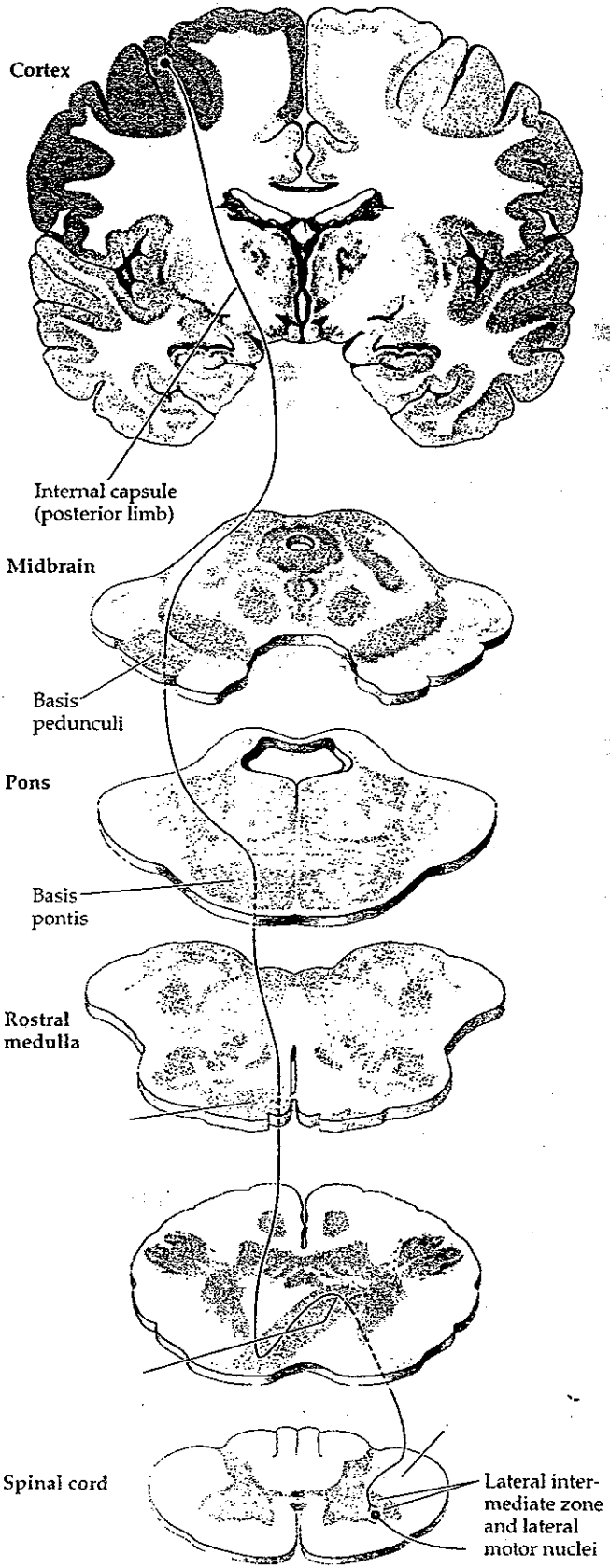
4. Touch sensation on his face is normal. This symptom indicates the problem does not include
 - a. main sensory V nucleus
 - b. spinal trigeminal nucleus
 - c. facial nucleus
 - d. superior olivary nucleus

5. Pain and temperature sensation are decreased over his right posterior scalp, neck, arm, trunk and leg. These symptoms indicate the problem includes
 - a. lateral (left) spinothalamic tract
 - b. trigeminal lemniscus
 - c. lateral lemniscus
 - d. medial lemniscus

Part III. Assorted questions: Choose the best answer.

13. The medial longitudinal fasciculus
- a. mediates vestibular/ocular reflexes
 - b. mediates auditory reflexes
 - c. connects with the hypoglossal nucleus
 - d. is found only in the diencephalon
14. The periaqueductal grey can be involved with
- a. pain modulation
 - b. thirst
 - c. proprioception
 - d. hearing
15. Where in the brain stem can a lesion cause a coma?
- a. trochlear nucleus
 - b. reticular formation
 - c. superior olivary nucleus
 - d. nucleus ambiguus
16. The reticular formation in the thalamus primarily includes the
- a. medial geniculate body
 - b. lateral geniculate body
 - c. intralaminar nuclei
 - d. anterior thalamic nucleus
17. A dermatome is an area of the skin supplied by
- a. the vagus nerve
 - b. a single dorsal root ganglion associated with a single cord segment
 - c. neuron axons entering two cord segments
 - d. an anterior horn cell axon
18. Which fibers do not pass through the internal capsule?
- a. corticospinal tract
 - b. corticobulbar tract
 - c. trochlear nerve fibers
 - d. dorsomedial nuclear fibers from the thalamus to the prefrontal cortex
19. Where are the nerve cell bodies for the internal arcuate fibers?
- a. inferior colliculus
 - b. superior colliculus
 - c. gracile and cuneate nuclei
 - d. red nucleus

27. Which structure is not functionally related to the trapezoid body?
- a. superior olivary nucleus
 - b. inferior olivary nucleus
 - c. lateral lemniscus
 - d. inferior colliculus
28. In examining a Weigert of the upper pons which is the most characteristic feature? The
- a. brachium pontis
 - b. brachium conjunctivum
 - c. restiform body
 - d. cerebral peduncle
29. What makes the mesencephalic nucleus of the V different from any other nucleus in the brain stem?
- a. its fibers circle around the VII nerve nucleus
 - b. it contains the largest nerve cells
 - c. it contains pseudounipolar cells inside the CNS
 - d. it receives temperature fibers
30. The main sensory ganglion of the Vth nerve, the semilunar or Gasserian ganglion, is found
- a. adjacent to the pons
 - b. lateral to the sella turcica
 - c. in the interpeduncular fossa
 - d. in the cerebello-pontine angle
31. Which is not correct regarding the locus ceruleus?
- a. it supplies epinephrine to the whole brain
 - b. it is found ventral medial to mesencephalic V
 - c. it plays a role in sleep and wakefulness
 - d. it supplies serotonin to the whole brain and spinal cord
32. Without the _____ life is impossible.
- a. nucleus gracilis
 - b. brain stem reticular core
 - c. oculomotor nucleus
 - d. mesencephalic V nucleus
33. Lesions in the _____ destroy the functional integrity of the whole reticular system.
- a. midbrain tegmental reticular complex
 - b. inferior cerebellar peduncle
 - c. cerebral peduncle
 - d. inferior olivary nucleus



41. What tract is this?
- a. corticobulbar
 - b. lateral corticospinal
 - c. tectospinal
 - d. rubrospinal

42. What tract is this?
- a. corticobulbar
 - b. lateral corticospinal
 - c. tectospinal
 - d. rubrospinal