



Lecture (2+3): Tracts of the Spinal cord

1. Dorsal column-medial lemniscus pathway, which of the following statements best describe it?

- a. mediates light touch and pressure
- b. mediates unconscious proprioception.
- c. receives input from Merkel tactile disks
- d. First-order neurons are located in dorsal root ganglia at all levels.
- e. Third-order neurons are located in the Posterior nucleus of the thalamus.

Ans:(d) slide 8

2. What is the second order neuron for the dorsal column- medial lemniscus?

- a. Gracile and cuneate nuclei
- b. the ventral posterolateral (VPL) nucleus of the thalamus
- c. dorsal root ganglia at all levels.

Ans:(a) slide 9

3. About tracts first order neuron, which of the following is incorrect?

- a. Ventral spinocerebellar tract → DRG of T1-S2 ✓

Slide 8

4. ___ motor neuron starts in the spinal and innervate muscles and glands throughout the body?

- a. Lower motor neuron
- b. upper motor neuron

Ans:(a) slide 6

5. About lateral corticospinal tract, which of the following is incorrect?

- a. crossed

- b. Contralateral dorsal quadrant of the lateral funiculus of the spinal cord
- c. Smaller than ventral corticospinal tract
- d. Arises from lamina V of the cerebral cortex

Ans:(c) slide 8 or 15

6. What tract carries efferent, motor, information from the primary motor cortex to the muscles of face, neck and head?

- a. Corticobulbar
- b. Descending autonomic tracts
- c. Rubrospinal tract
- d. Ascending autonomic tracts
- e. Vestibulospinal tract

Ans:(a) slide 15

7. Rubrospinal tract originates from?

- a. ipsilateral lateral vestibular nucleus
- b. project to sympathetic (T1–L3) and parasympathetic (S2–S4) centers in the spinal cord.
- c. Primary motor cortex Premotor cortex Supplementary motor area
- d. Contralateral red nucleus of the midbrain

Ans:(d) slide 16

انت نفسك تريخ اليوم و تبدأ من بكره جاالمد , انا فاهمك

8. Lissauer tract ----- ?

- a. Part of pain and temperature
- b. Relay in main sensory nucleus
- c. Continue as ventral spinothalamic tract
- d. Part of proprioceptive sensation
- e. Continue in the brain stem as lateral Lemniscus

Ans:(a) slide 13 +14

9. All of the following tracts are ASCENDING except?

- a. Dorsal column–medial lemniscus
- b. Ventral spinothalamic tract
- c. Lateral spinothalamic tract
- d. dorsal spinothalamic tract
- e. Cuneocerebellar tract

Ans:(d) slide 6

10. The following statements describe Ascending Spinal Tracts, which one is wrong?

- a. Represent functional pathways
- b. They convey sensory information from soma or viscera to higher levels of the neuraxis.
- c. Always consist of a chain of three neurons: first-, second-, and third-order neurons.
- d. May decussate before reaching their final destination.
- e. Give rise to collateral branches that serve in local spinal reflex arcs.

Ans:(c) slide 21 مش كلهم عندهم third يا أهبل

first & second بس كلهم عندهم

Lecture (4): TRACTS OF THE SPINAL CORD
DESCENDING TRACT

1. Cortico-spinal tract is characterized by the following, except?

- a. It originate from area 4, 6 and sensory areas.
- b. In the internal capsule it occupies the posterior half of posterior limb.
- c. In the mid brain it occupies the middle 3/5 of basis peduncle
- d. In the lower medulla motor decussation occurs.
- e. Mainly control same side movements

Ans:(e)

1. Cortico-spinal tract is characterized by the following, except?

- a. It originate from area 4, 6 and sensory areas.
- b. In the internal capsule it occupies the posterior half of posterior limb.
- c. In the mid brain it occupies the middle 3/5 of basis peduncle
- d. In the lower medulla motor decussation occurs.
- e. Mainly control same side movements

Ans:(e)

3. Are multipolar and conduct impulses out of the brain or spinal cord ?

- a. Motor neurons
- b. Sensory neurons
- c. Interneurons
- d. Microglia
- e. Neuroglia cells

5. All of the following start from the cortex except?

- a. Lateral CorticoSpinal Tract
- b. Ventral CorticoSpinal tract
- c. CORTICOBULBAR tract
- d. Rubrospinal tract

7. Controls axial muscles?

- a.lateral corticospinal tract
- b.Ventral corticospinal tract
- c. Corticobulbar tract

Ans:(b) slide 9

1. Climbing fibers----- ? Select one:

- a. Arise from inferior olive and end in molecular layer of cerebral cortex
- b. Arise from inferior olive and end in Granular layer of cerebellar cortex
- c. Arise from clark nucleus and end in molecular layer of cerebellar cortex
- d. Arise from substantia gelatinosa and end in Polymorphic cell layer

Ans:(a) slide 7

فإنه تلك التي عازف الجواب بين مثل مركز هنا

25) Lesion in all of the following will cause Parkinson's except?

- Locus coeruleus
- Ventral regimental area

- Basal ganglia
- Substantia nigra
- Corpus striatum

2. Parasympathetic gray column is confined to spinal cord segments?

- a. Third cervical to first thoracic
- b. Second cervical to first lumbar
- c. Ninth thoracic to first lumbar
- d. Second to fourth sacral
- e. Second to fourth lumbar

Ans:(d) slide 14

4.The pyramidal tract?

- a. Most fibres cross at medulla oblongata
- b. Most fibres cross at pons
- c. Does not cross
- d. Ipsilateral cross
- e. Most fibres cross at spinal cord

Ans:(a) slide 5

6. All of the following are CROSSED except?

- a.Vestibulospinal
- b.Rubrospinal
- c.Tectospinal

Ans:(a) slide 16

8. Rubrospinal tract originates from?

- a. Contralateral red nucleus of the midbrain
- b. ipsilateral lateral vestibular nucleus
- c. Primary motor cortex Premotor cortex Supplementary motor area

Ans:(a) Slide 16

2. What layer are cells of Martinotti found?

- a. The polymorphic layer
- b. Molecular layer
- c. External pyramidal layer
- d. Internal pyramidal layer
- e. Internal granular layer

Ans:(a) slide 15

*طبقات الجيوب مثل molecular layer لأنه عندما Axon مثل الخ

3. Basket cells are present in the... layer of cerebellar cortex?

- a. Molecular
- b. Pyramidal
- c. Granular
- d. Pleomorphic.
- e. Purkinje cell layer

Ans:(a) slide 5



4) dendrites of purkinje in which layer :

Answer :Molecular layer ✓

5) purkinje cell is : Answer :Extension dendrites arborization ✓

6) 75% of the brain neuron is :

Answer :granule cell ✓

4. Where are the dendrites of Purkinje cells primarily located?

- a) Granule cell layer
- b) Purkinje cell layer
- c) Molecular layer
- d) White matter

Answer: c) Molecular layer

5. What best describes the structure of a Purkinje cell?

- a) Single axon with extensive branching
- b) Elongated cell body with multiple nuclei
- c) Extension dendrites arborization
- d) Spherical shape with minimal branching

Answer: c) Extension dendrites arborization

6. Which type of neuron constitutes approximately 75% of the neurons in the brain?

- a) Purkinje cell
- b) Pyramidal cell
- c) Granule cell
- d) Motor neuron

Answer: c) Granule cell

8) which of the following is incorrect ?

Answer :the mossy fiber constitute the majority of efferent ✓

9) BITZ cells :

a. Internal pyramidal layer ✓

b. External pyramidal layer

10) which of the following that transfer by DC-ML?

a. Conscious proprioception ✓

b. Pain

c. Unconscious proprioception

34) All of the following tracts are ASCENDING except?

الخيار الذي يبدأ بـ cortico

35) All of the following start from the cortex except?

الخيار الذي يبدأ بـ cortico

36) All of the following are CROSSED except?

-Vestibulospinal ✓

-Rubrospinal

-Tectospinal

37) Originate in the cerebral cortex and travel down to the brain stem or spinal cord?

-Upper motor neurons ✓

38) Controls axial muscles?

-Ventral corticospinal tract ✓

39) Mainly pass and form the pyramids?

-Corticospinal tract ✓

Histology (3 questions)

22. What part of the synapse has the neurotransmitter receptor?

a. Postsynaptic membrane ✓

23. What layer are cells of Martinotti found?

a. Pleomorphic ✓

24. What are climbing fibers?

a. Fibers from inferior olive that end in the molecular layer of cerebellar cortex ✓

Which of the following defines ganglia ?	
a	Group of nerve fibers with same origin, end & function
b	Group of close nerve cells with same function inside CNS
c	Group of nerve fibers with different origin, end & function
d	Group of close nerve cells with same function outside CNS

Group of close nerve cells with same function inside CNS represent which of the following ?	
a	Nucleus
b	Ganglia
c	Tract
d	Fasiculus

The lateral horns of grey matter contain which of the following nuclei ?	
a	Commissural
b	Motor
c	Sensory
d	Sympathetic

Which of the following defines decussation ?	
a	Site of intersection of fibers of right & left identical tracts crossing midline from both sides
b	Band of grey or white matter connecting part of C.N.S on one side with same part on other side
c	Series of neurons transmitting certain excitation from body to CNS or from CNS to body
d	Band of grey or white matter connecting part of C.N.S on one side with different part on other side

The medial group of anterior horn nuclei are present in which of the following levels ?	
a	All levels except cervical
b	All levels except Thoracic
c	All levels except Lumbar
d	All levels

Thick parallel posterior horns are present in which of the following levels ?

a	Cervical
b	Thoracic
c	Lumbar

Which of the following tracts is absent in upper thoracic level ?

a	Ventral spinothalamic
b	Ventral vestibulospinal
c	Ventral spinocerebellar
d	Ventral reticulospinal

Which of the following tracts is absent in lower thoracic level ?

a	Fasciculi propria
b	Septomarginal
c	Lissauer's
d	Comma shaped

Which of the following is most medial in crus cerebri ?	
a	Corticospinal fibers
b	Corticobulbar fibers
c	Temporopontine fibers
d	Frontopontine fibers

Inferior olivary nucleus appear in which level:	
a	Closed medulla motor decussation
b	Closed medulla sensory decussation
c	Open medulla
d	Spinal cord cervical segment

Substantia nigra is present in which of the following sites ?	
a	Upper pons and lower midbrain
b	Medulla oblongata
c	Superior midbrain
d	Midbrain

Which of the following statements is incorrect regarding the pons ?	
a	Pontine nuclei are located at tegmentum
b	Trigeminal nerve have 3 sensory nuclei
c	Trapezoid body is present in cochlear pathway
d	Superior cerebellar peduncles are located along the lateral wall of 4 th ventricle

A lesion in posterior median plane of open medulla will affect firstly which nucleus of the following ?	
a	Hypoglossal nucleus
b	Dorsal vagus nucleus
c	Nucleus ambiguus
d	Spinal nucleus V

The Cerebellum and Cerebrum*

- 1. Molecular layer of cerebellum contains all of the followings except one :-**
 - a. Basket and molecular cells.
 - b. Dendrites of purkinje cells.
 - c. Dendrites of granular cells.
 - d. Climbing fibers.
 - e. Recurrent collateral fibers.

- 2. Choose the most appropriate answer as regard Purkinje cells :-**
 - a. They are Golgi type II cells.
 - b. They arrange in one layer parallel to the surface of folia.
 - c. Their axons end in deep cerebellar nuclei and vestibular nuclei.
 - d. Large in size.
 - e. All true except (a).

- 3. Regarding granular cells of cerebellum , choose the wrong answer:-**
 - a. They are small in size.
 - b. They are polygonal in shape.
 - c. They are located only in the granular cell layer.
 - d. Their dendrites synapse with a rosette of climbing fibers to form cerebellar glomeruli.
 - e. Their axons reach the molecular layer.

4. Choose the most appropriate answer about the Golgi II cells of cerebellum :-

- a. They are small in size.
- b. They are pyriform in shape.
- c. They are located among Purkinje cells.
- d. They have short axons.
- e. a and c are false.

5. Choose the most appropriate answer about cerebellar nuclei :-

- a. From medial to lateral side, they are fastigius, globose, embiliform and dentate.
- b. axons of Dentate and embiliform end in red nucleus.
- c. Axons of globose and fastigius nuclei end in vestibular nuclei.
- d. They are present deep inside the cerebellum.
- e. All of the above are true.

6. The following statements about the inferior cerebellar peduncle are true except one :-

- a. It is the largest of all cerebellar peduncles,
- b. Contains mainly efferent fibers.
- c. Called restiform body.
- d. Efferent fibers end in inferior olive and vestibular nuclei.
- e. Connected with medulla.

7. Regarding the middle cerebellar peduncle, choose the most appropriate answer :-

- a. It is connected with pons.
- b. Mainly contains afferent fibers.
- c. Called brachium pontis.
- d. Connects right and left sides of cerebellum.
- e. All of the above are correct.

8. Choose the right answer about the superior cerebellar peduncle :-

- a. It is connected with the midbrain.
- b. It contains mainly afferent fibers.
- c. Fibers of dentate nucleus pass through it down to olive.
- d. Fibers coming from Clark's nucleus pass through it.
- e. All of the above are false.

9. The characters of pyramidal cells of cerebral cortex include the followings except :-

- a. All of them appear pyramidal in section.
- b. May act as projection or association fibers.
- c. Present in all layers of cerebral cortex.
- d. Range in diameter from 10- 100 μm .
- e. They contain much Nissle granules.

10. Mark the right statement about Martinotti cell :-

- a. Present in cerebral and cerebellar cortex.
- b. They have short dendrites.
- c. They have short axons.
- d. Its diameter may reach up to 100 μm .
- e. Its axon ramify in the same layer.

Answer Keys

1.	c	6.	b
2.	e	7.	e
3.	d	8.	a
4.	e	9.	c
5.	e	10.	b