جامعة الملك سعود
King Saud University

MED437
KING SAUD UNIVERSITY

PATHOLOGY
TEAM 437

Pathology

437's team work

Q-bank

Direct questions :

Q(1)-:all of the following are related to (red neurons) except?

a) shrinkage of the cell body

b) pyknosis of the nucleus

c) intense eosinophilia of the cytoplasm

d) increase in Nissl substance

Q(2)-:all of the following are features of axonal injury except?

a) swelling of the injured axons

b) disappearance of the nucleolus

c) central chromatolysis

d) peripheral displacement of the nucleus

Q(3)-:which one of the following isn't related to the response of astrocytes to injury?

a) hypertrophy and hyperplasia

b) the nucleus becomes vesicular and the nucleolus is prominent

c) cytoplasm becomes bright

d) ALL of these are true

Q(4)-:sporadic schwannoma is associated with which gene mutation ?

a) EGFR
b) P53
c) NF2
d) ALL

Q(5)-:which type of neurofibroma mostly arise in individuals with NF1 ?

a) plexiform
b) cutaneous
c) diffuse
d) non

Q(6)-:metastatic tumors primary site of origin from most to least:

a) Lung > GIT > kidney
b) Lung > breast > skin
c) breast > lung > skin
d) skin> breast > lung

Q(7)-:which one of the following is characterized by abnormal myelin formation?

a) demyelinating diseases

b) dysmyelinating diseases (leukodystrophy)

c) ALL

d) non of these

Q(8)-:multiple sclerosis like to effect which cranial nerve?

a) 2

b) 3

c) 5

d) 8

Q(9)-:in multiple sclerosis electrophoresis which one of the following can indicate an increase disease activity ?

a) increase in gamma globulins

b) decrease in gamma globulins

c) increase in monoclonal antibodies

d) B&C

Q(10)-:multifocal encephalopathy is (__)disease characterized by inclusions within(__)?

a) viral infectious – oligodendrocytes
b) viral infectious – ependymal cells
c) Both
d) non of these

Q(11)-:microglial cell are derived from(__)

a) bone marrow
b) yolk sac
c) thymus gland
d) ALL

Q(12)-:Wallerian degeneration is characterized by (__) followed by (__)?

a) axonal degeneration – myelin loss
b) myelin loss – axonal degeneration
c) myelin loss – necrosis
d) necrosis – cancer

Q(13)-:which one of the following gene mutations is involved in pilocytic astrocytoma?

a) IDH1 and IDH2

b) P53

c) EGFR

d) none of the above

Q(14)-:which one of the following syndromes is associated with neurofibroma ?

a) tuberous sclerosis

b) neurofibromatosis type1

c) neurofibromatosis type 2

d) von hipple-lindau disease

Q(15)-:which one of the mutations is found in primary glioblastoma?

a) IDH1 and IDH2

b) P53

c) EGFR

d) none of the above

Q(16)-:name a feature that differentiate astrocytoma grade IV from III ?

a) increase in the number of blood vessels

b) microvascular endothelial proliferation

c) mitosis

d) increase in cellularity

Q(17)-:which of the following is also called butterfly glioma?

a) astrocytoma grade I

b) astrocytoma grade II

c) astrocytoma grade III

d) astrocytoma grade IV

Q(18)-:ependymoma typically affect(__) and often found in(__)?

a) children – third ventricle

b) infants – third ventricle

c) children – forth ventricle

d) adults – forth ventricle

Q(19)-:meningiomas histologic appearance will show?

a) perinuclear halos and chicken wire appearance
b) whorled pattern cell growth
c) Psammoma bodies
d) B&C

Q(20)-:medulloblastoma usually affect (__) and its sensitive to (__)

a) children - radiotherapy
b) adults - radiotherapy
c) children– gene therapy
d) adults – gene therapy

Q(21)-:schwannoma typically affect CN(__) and causes (__)

a) I – visual disturbance
b) II - smell disturbance
c) VIII – hearing disturbance
d) ALL

Q(22)-:the clinical manifestations of brain tumors usually includes (__)

a) seizures
b) headache
c) vague symptoms
d) ALL

Q(23)-:gliomas are widely classified into?

a) astrocytoma – oligodendrogliomas - microglioma
b) astrocytoma – oligodendrogliomas - ependymoma
c) lymphoma - astrocytoma – oligodendrogliomas
d) astrocytoma – oligodendrogliomas – small cell carcinoma

Q(24)-:astrocytoma grade II is named(__) and its usually(__)

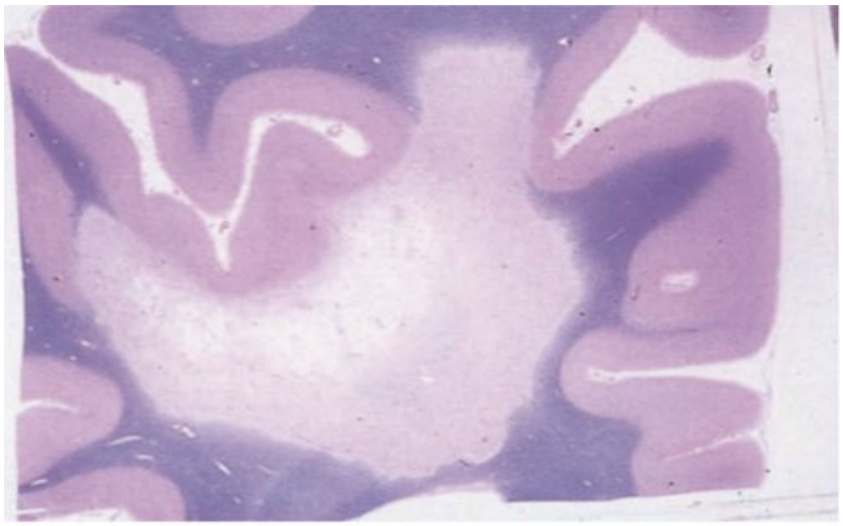
a) anaplastic astrocytoma – poorly demarcated
b) diffuse astrocytoma – poorly demarcated
c) anaplastic astrocytoma – well demarcated
d) diffuse astrocytoma – well demarcated

Answers

1.	D	13.	D
2.	B	14.	B
3.	D	15.	C
4.	C	16.	B
5.	A	17.	D
6.	B	18.	C
7.	B	19.	D
8.	A	20.	A
9.	A	21.	C
10.	A	22.	D
11.	B	23.	B
12.	A	24.	B

Cases:

Q(1)-: A 30-year-old woman presents with an 8-day history of mild tremor in her arms and impaired balance when walking. Vital signs are normal. Her symptoms disappear the following week. About 18 months later, the patient experiences another episode of weakness and requires assistance when walking. Neurologic examination reveals ataxia, dysarthria, decreased vibratory sensation in her legs, absent abdominal reflexes, increased deep tendon reflexes, and a Babinski sign on the left. Fifteen years after the onset of symptoms, the patient becomes bedridden and dies. A coronal section of the patient's brain at autopsy is stained for myelin with luxol fast blue (shown in the image). Which of the following histopathologic findings would be expected in these plaques?



(A) Astrogliosis
(B) Lewy bodies
(C) Negri bodies
(D) Neurofibrillary tangles
(E) Myelin figures

Q(2)-:A 79-year-old man presents to the emergency room with severe right-sided weakness. He has noticed increasing difficulty using his right hand over the past several months and now walks with great difficulty. His past medical history is significant for colon cancer that was resected 5 years ago. He has poorly controlled hypertension and admits to smoking two packs of cigarettes a day for the past 50 years. A CT scan of the brain reveals a discrete globoid lesion in the frontal lobe with a prominent halo of edema. A CT-guided biopsy reveals neoplastic cells. Which of the following is the most likely diagnosis?

(A) Craniopharyngioma

(B) Glioblastoma multiforme

(C) Medulloblastoma

(D) Meningioma

(E) Metastatic cancer

Q(3)-:A 52-year-old man is brought to the emergency room 2 hours after being involved in an automobile accident. The patient denies striking his head, although his head was thrust forward and backward. His vital signs are normal, and he returns home. The following day, the patient's wife notices that he is lethargic. By the time the ambulance arrives at the emergency room, the patient is comatose. Which of the following is the most likely cause of the decline in mental status in this patient?

(A) Diffuse axonal injury

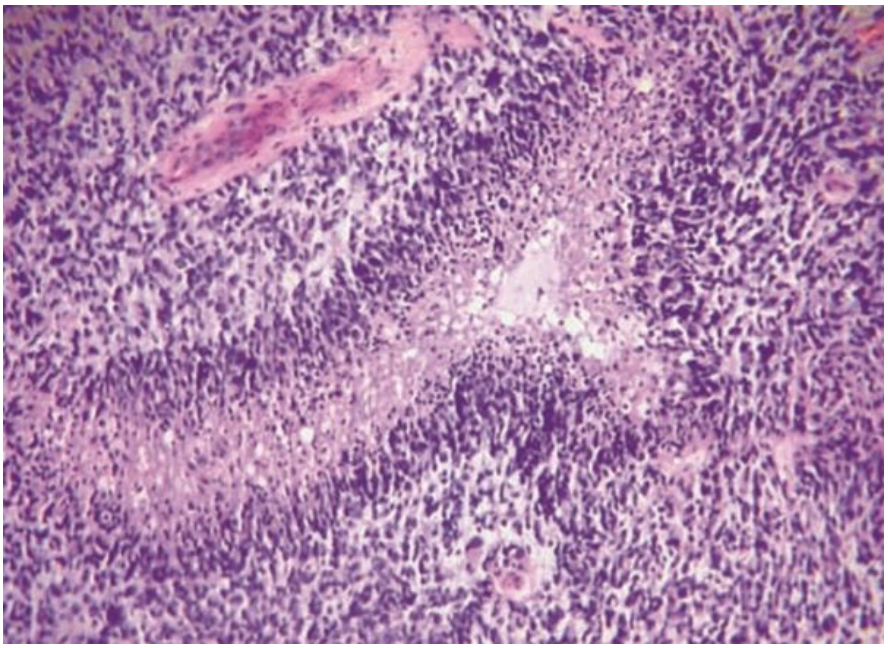
(B) Duret hemorrhages

(C) Ruptured saccular aneurysm

(D) Spinal cord contusions

(E) Watershed infarcts

Q(4)-: 67 A 68-year-old man presents with a 2-week history of tonic-clonic seizures that initially involve his left arm but have more recently progressed to involve his left leg. The seizures are accompanied by muscle weakness but no other neurologic signs. The cranial nerves are intact, and the Babinski sign is present. A CT scan reveals a mass in the left cerebral hemisphere. A left frontoparietal craniotomy is performed. Histologic examination of the brain biopsy is shown in the image. Which of the following is the appropriate diagnosis?



(A) Craniopharyngioma

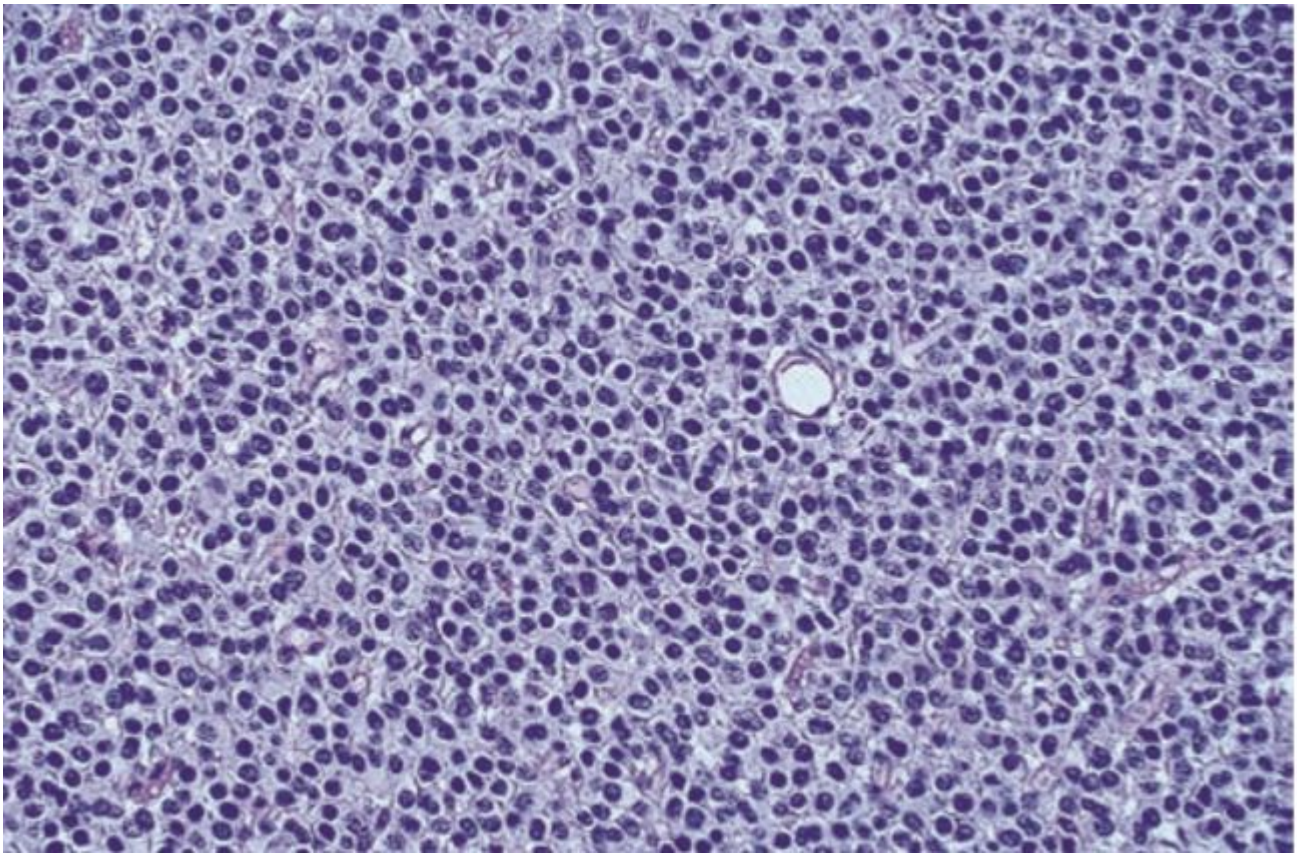
(B) Ependymoma

(C) Ganglioglioma

(D) Glioblastoma multiforme

(E) Meningioma

Q(5)-:A 50-year-old man presents to the emergency room after suffering an epileptic seizure. Vital signs are normal. An X-ray of the patient's head shows a mass in the left cerebral hemisphere with scattered foci of calcification. Histologic examination of a brain biopsy is shown in the image. Which of the following is the appropriate diagnosis?



(A) Ependymoma (B) Glioblastoma (C) Hemangioblastoma (D) Meningioma (E) Oligodendroglioma

Q(6)-:A 20-year-old man complains of increasing difficulty in hearing over the past several years. Physical examination confirms bilateral sensorineural hearing deficits. MRI discloses bilateral cerebellopontine angle tumors, consistent with schwannomas. This patient has a strong family history for benign tumors, including low-grade gliomas and meningiomas on his mother's side of the family. Which of the following is the probable diagnosis?

(A) Neurofibromatosis type 1

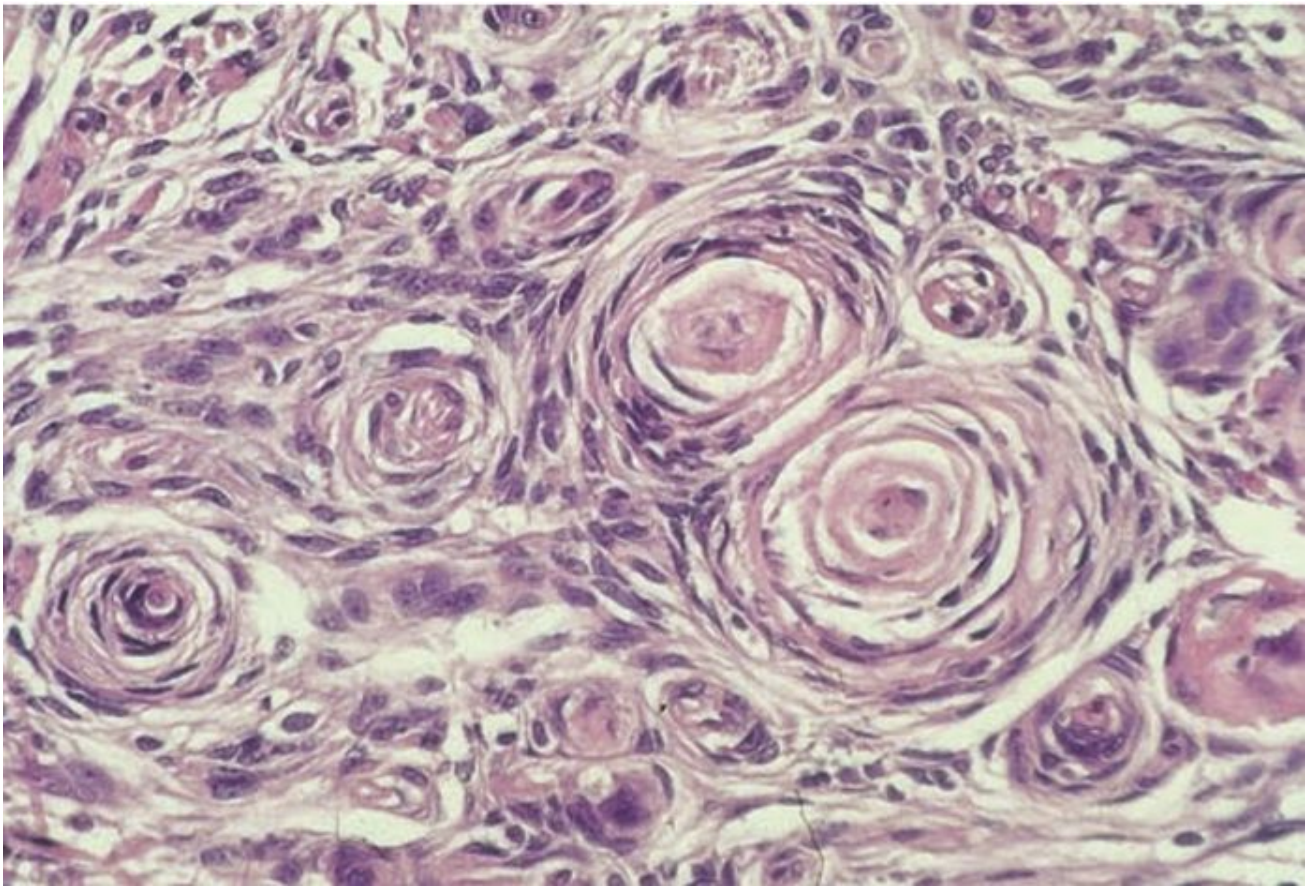
(B) Neurofibromatosis type 2

(C) Sturge-Weber syndrome

(D) Tuberous sclerosis

(E) Von Hippel-Lindau syndrome

Q(7)-: A 45-year-old woman is brought to the emergency room after experiencing a generalized seizure. An X-ray film of the skull reveals a lytic bone mass. A CBC is normal. A portion of the skull and the adherent mass are removed. Microscopic examination of the surgical specimen is shown in the image. What is the appropriate diagnosis?



(A) Glioblastoma multiforme (B) Hemangioblastoma

(C) Medulloblastoma (D) Meningioma (E) Oligodendroglioma

Case Answers:

1. A
2. E
3. A
4. D
5. E
6. B
7. D

(1:explanation)
Astrogliosis. Multiple sclerosis is punctuated by abrupt and brief episodes of clinical progression, interspersed with periods of relative stability. Each exacerbation reflects the formation of additional demyelinated plaques. Plaques of demyelinated white matter are typically found around the lateral ventricles of the cerebrum, in the cerebellum, and in the spinal cord. End-stage lesions feature astrogliosis, thick-walled blood vessels, moderate perivascular inflammation, and a secondary loss of axons.

(2:explanation)
Metastatic cancer. Metastatic tumors reach the intracranial compartment through the bloodstream, generally in patients with advanced cancer. Tumors of different organs vary in their incidence of intracranial metastases (e.g., melanoma-high, liver-low). Most metastatic lesions seed to the gray-white junction, reflecting the rich capillary bed in this area. A metastasis contrasts with a primary glioma (choice B) or medulloblastoma (choice C) in its discrete appearance, globoid shape, and prominent halo of edema. Diagnosis: Metastatic cancer

USMLE:

Q(1)-:A 52-year-old woman has experienced personality change and headaches over the past 3 months and is now developing a right hemiparesis. CT scan shows a mass in the left temporal lobe. Her condition deteriorates rapidly and she dies 7 months later. At autopsy, a large, hemorrhagic, necrotic tumor is identified in the left temporal lobe with extension to the right hemisphere. Microscopically there are highly pleomorphic cells with frequent mitoses. Serpentine areas of necrosis can be seen surrounded by masses of tumor cells. Which of the following is the most likely diagnosis?

A. Ependymoma

B. glioblastoma multiforme

C. medulloblastoma

D. meningioma

E. oligodendroglioma

Q(2)-:a 37-year-old presents to her physician complaining of difficulty reading and fatigue she reports having had a “pins and needles” feeling in her left arm several months ago that resolved without treatment. On examination, visual field deficits and mild hyperreflexia are noted, MRI confirmed the suspected diagnosis which of the following is the underlying mechanism of patient's disease ?

A. Antibodies to acetylcholine receptors
B. Axonal degeneration
C. Demyelination of peripheral nerves
D. Loss of oligodendrocytes
E. Loss of Schwann cells

Q(3)-:a 25-year-old men presents with bilateral hearing loss. MRI reveals bilateral tumors within the cerebellopontine angel. Surgery in performed, and the tumors are removed. Both are found to be (“schwannoma”). Which of the following is the most likely diagnosis ?

a. Metastatic tumor
b. Multiple sclerosis
c. Neurofibromatosis type 1
d. Neurofibromatosis type 2
e. Tuberous sclerosis

USMLE answers:

1. The correct answer is **B** Explanation: Glioblastoma multiforme is the most malignant astrocytoma and is also the most common intracranial primary neoplasm. It is typically a large tumor with areas of necrosis and hemorrhage and extends to the contralateral side of the brain (butterfly tumor). Microscopically the tumor is very pleomorphic with giant cells, palisading necrosis, and endothelial proliferation. The prognosis is universally poor. Ependymoma (choice A) is somewhat more common in children and originates from the ependymal cells lining the ventricles and central canal of the spinal cord. It is a slow growing tumor but has the ability to seed via the cerebrospinal fluid. Medulloblastoma (choice C) is principally a highly malignant tumor of childhood that originates in the cerebellum and has the well-known ability to metastasize via the cerebrospinal fluid. Meningioma (choice D) is a benign tumor arising from the arachnoid cap cells. However, it may involve the dura and calvaria making complete removal difficult. The tumor is only considered malignant if it grows into the underlying brain. Oligodendroglioma (choice E) occurs in adults and typically arises from the white matter of the cerebrum. Most of these tumors have areas of calcification which may be seen on x-ray. Many of these tumors are mixed tumors showing areas of astrocytoma.

2. The correct answer is **D**. woman presents with classic signs of Multiple sclerosis, a key is different neurologic signs that are separated by space and time.(another classic clue might been oligoclonal bands on electrophoresis of the CSF

3. The correct answer is **D** Neurofibromatosis type 2 is autosomal dominant condition caused by mutation in gene 22 coding for cytoskeleton related protein called merlin, much loss common than neurofibromatosis type 1. it manifest with multiple CNS tumors, the most frequent of which are schwannomas of the 8th cranial nerves and meningiomas