Patho

CNS

(Past years Q)

All Lectures

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Pathology CNS

(Anomalies & Hydrocephalus)

Past Y Exams

1. The least severe type of neural tube defect is:-

a) Meningocele
b) Anencephaly
c) Myelo-meningocele
d) Spina bifida aperta
e) Spina bifida occulta

2. The key feature of Arnold Chiari type 2 malformation is:-

a) Arterio-venous cerebral malformation (AVM)
b) Low-lying cerebellar tonsils in the vertebral canal
c) A central fluid filled cleft like cavity in the spinal cord
d) Enlarged posterior cranial fossa with a large midline cyst
e) Extension of cerebellar vermis through foramen magnum with hydrocephalus

3. The key feature of dandy walker malformation:-

a) Arterio-venous cerebral malformation
b) Enlarged posterior cranial fossa with a large midline cyst
c) Extension of cerebellar vermis through foramen magnum
d) Low-lying cerebellar tonsils into vertebral canal
e) A central fluid filled cleft-like cavity in the spinal cord

4. The followings are causes of acquired hydrocephalus except:-

a) Expanding lesions in the posterior fossa
b) Superior sagittal sinus thrombosis
c) Arnold chiari malformation
d) Subarachnoid hemorrhage
e) Choroid plexus papilloma

1	2	3	4
E	E	B	C

5. An autopsy performed on a stillborn male fetus reveals the presence of a single central eye and arrhinencephaly. Examination of the brain finds fusion of the frontal lobes with a single ventricle. What is the correct diagnosis for this abnormality of the CNS:- زیاده تعرفها احتیاطی

a) Hydrocephalus
b) Microencephaly
c) Hydranencephaly
d) Holoprosencephaly
e) Meningo-myelocele

6. The main site for drainage of CSF is:-

a) Small veins in subarachnoid space
b) Cells of the pia matter
c) Arachnoid villi and granulations
d) Gap junctions between ependymal cells
e) Perineural lymph vessels

7. A new born manifested with a sac-like protrusion of malformed brain tissue and membranes through a defect in the cranium of the occipital region. What is the most probable diagnosis:- یاده تعرفها احتیاطی

a) Anencephaly
b) Encephalocele
c) Holoprosencephaly
d) Megalencephaly
e) Microencephaly

8. All of the followings can cause hydrocephalus except:-

a) Congenital obstruction of aqueduct
b) Meningitis
c) Medulloblastoma of cerebellum
d) Cranial nerves neuropathy
e) Large brain tumor

5	6	7	8
D	C	B	D

Exercise MCQ

1. Which of the following are causes of congenital anomalies of the CNS mentioned in the lecture?

A. Unknown factors only.

B. Genetic factors only.

C. Environmental factors only.

D. All of the above.

2. What is the classification of neural tube defects mentioned in the lecture?

A. Only spinal neural tube defects.

B. Only cranial neural tube defects.

C. Both spinal and cranial neural tube defects.

D. None of the above.

3. Which neural tube defect is characterized by a protrusion of meninges through a bone opening, forming a CSF-filled sac?

A. Spina bifida occulta.

B. Meningocele.

C. Myelomeningocele.

D. Anencephaly.

4. What is the most severe type of spinal neural tube defect?

A. Spina bifida occulta.

B. Meningocele.

C. Myelomeningocele.

D. Encephalocele.

1	2	3	4
D	C	B	C

5. Which of the following characterizes forebrain malformation?

A. Reduction in the number of gyri.

B. Increased number of abnormal gyri.

C. Collection of neurons in inappropriate locations.

D. All of the above.

6. What is the type of hydrocephalus where the ventricles communicate with the subarachnoid space?

A. Communicating hydrocephalus.

B. Non-communicating hydrocephalus.

C. Compensatory hydrocephalus.

D. None of the above.

7. Which mechanism is not mentioned as a cause of hydrocephalus?

A. Increased CSF production.

B. Decreased CSF resorption.

C. CSF flow obstruction.

D. Increased CSF circulation.

8. What is the main pathological effect of hydrocephalus?

A. Permanent contraction of the ventricular systems.

B. Decreased ventricular C.S.F pressure.

C. Pressure hypertrophy of brain tissue.

D. Permanent dilation of the ventricular systems.

5	6	7	8
D	A	D	D

Past Years Written Q

1. Definitions or Write Scientific Name:

1) Anencephaly: Absence of most of the brain and calvarium, Usually incompatible with postnatal life

2) Arnold chiari type 1: Low-lying cerebellar tonsils into the vertebral canal →Medullary compression. Associated with syringomyelia

3) Arnold chiari type 2: Extension of cerebellar vermis through the foramen magnum→ Hydrocephalus. Associated with Myelo-meningocele

4) Dandy-Walker malformation: Enlarged posterior fossa - Absent cerebellar vermis - A large midline cyst (Expanded fourth ventricle lined by ependymal cells)

5) Hydrocephalus: Accumulation of excess Cerebro-Spinal Fluid (CSF) within the brain ventricles

2. Enumerate:

1) Spinal neural tube defects:-

a) Spina bifida occulta
b) Meningocele
c) Myelo-meningocele

2) Posterior fossa malformations:-

a) Arnold chiari type 1
b) Arnold chiari type 2
c) Dandy walker malformation
d) Aqueductal stenosis

3) Causes of hydrocephalus:-

a) Increased CSF production

b) Decreased CSF absorption

c) Obstruction of CSF flow

3. Discuss:

1) Hydrocephalus (Types - Pathogenesis):

Types	☒ **Communicating:** The ventricles communicate with the subarachnoid space (Mainly increased production) ☒ **Non-communicating:** The ventricles are not communicating with the subarachnoid space (Mainly obstruction to CSF flow) ☒ **Compensatory hydrocephalus:** Increased amount of CSF to compensate loss of brain tissue (Atrophy-Infarcts - Surgery)
Pathogenesis	1. Increased CSF production 2. Decreased CSF absorption 3. Obstruction of CSF flow

Pathology CNS

(CNS Infection)

Past Y Exams

1. Which of the following CNS infective organisms is characterized by the presence of Cowdry type A bodies in the neurons and glial cells of the brain:-

a) Mucor-mycosis
b) Aspergillus flavus
c) Toxoplasma gondii
d) Histo plasma capsulatum
e) Herpes simplex virus (HSV) type 1

2. A Histopathological section of brain tissue showed perivascular mononuclear infiltrates, microglial nodules, Neuronophagia and intracellular inclusion bodies. The most likely diagnosis would be:-

a) Brain abscess
b) Viral encephalitis
c) Acute pyogenic meningitis
d) Syphilitic meningo-encephalitis
e) Tuberculous meningo-encephalitis

3. In bacterial meningitis, the CSF shows:-

a) High protein levels
b) High sugar levels
c) Normal sugar levels
d) Low protein levels
e) No inflammatory cells

1	2	3
E	B	A

4. CSF in TB meningitis has the following characters except:-

a) Increased number of lymphocytes

b) Acid fast bacilli on ZN stain

c) Low levels of protein

d) Low levels of sugar

e) None of the above

5. In meningococcal meningitis, the CSF is characterized by all except:-

a) Increased tension

b) Turbidity

c) Increased neutrophils

d) Increased glucose

e) Increased protein

6. Negri bodies are inclusion bodies appear in only one of the followings:-

a) In cells of CNS in case of poliomyelitis

b) In cells of hippocampus and cerebellum in cases of rabies

c) In cells of liver in viral hepatitis

d) In cells of liver in alcoholic hepatitis

e) Infection with Ebstein Barr virus

7. A 45-year-old male patient is suspected to suffer acute pyogenic meningitis. If a lumbar puncture was done to confirm diagnosis, which of the following cerebrospinal fluid (CSF) findings would be compatible:-

a) High white cell count, increased protein, high glucose

b) High neutrophils, markedly increased protein, markedly low glucose

c) Lymphocytosis, mild to moderate increase in protein, normal glucose

d) Mixed mononuclear cells and neutrophils, markedly increased protein, normal glucose

e) Initial neutrophilic pleocytosis, followed by lymphocytosis, increased protein, normal glucose

4	5	6	7
C	D	B	B

8. Complications of bacterial meningitis include:-

a) Cerebral infarction
b) Hydrocephalus
c) Septicemia.
d) Brain abscess
e) All of the above

9. Rabies is a:-

a) Bacterial infection
b) Viral infection
c) Fungal infection
d) Parasitic infection
e) Prion protein

10. The organism is transmitted from the bite of a rabid animal to the CNS via:-

a) Arteries
b) Veins
c) Peripheral nerves
d) Direct implantation
e) Lymphatics

11. Negri bodies are:-

a) Inflamed granulation tissue
b) Aggregates of organized fibrin
c) Epitheloid granulomas
d) FB granulomas
e) Intracytoplasmic inclusions

8	9	10	11
E	B	C	E

12. Negri bodies are characteristic finding in the cytoplasm of nerve cells in:-

a) All CNS viral infections
b) Acute anterior poliomyelitis
c) Herpes simplex virus type II
d) Rabies
e) Brain abscess

13. Negri bodies are inclusion bodies appear in only one of the followings:-

a) In cells of CNS in case of poliomyelitis
b) In cells of hippocampus and cerebellum in cases of rabies
c) In cells of liver in viral hepatitis
d) In cells of liver in alcoholic hepatitis
e) Infection with Ebstein Barr virus

14. Poliomyelitis is a:-

a) Bacterial infection
b) Viral infection
c) Fungal infection
d) Parasitic infection
e) None of the above

15. Poliomyelitis is usually an infection of:-

a) Cerebral tissue
b) Cerebellar tissue
c) Anterior horn cells of the spinal cord
d) Posterior horn cells of the spinal cord
e) Peripheral nerves

16. Mode of infection in poliomyelitis is:-

a) Ingestion of contaminated food or drink
b) Droplet infection
c) Blood spread from a septic focus
d) Direct spread from air sinuses

12	13	14	15	16
D	B	B	C	A

Past Years Written Q

1. Enumerate

1) Causative organisms of bacterial meningitis according to age:-

a) Group B streptococci-Escherichia coli >> In Neonates

b) Hemophilus influenza >> In Young children

c) Neisseria meningitis >> In Adolescents-Young adults

d) Streptococcus pneumonia-Listeria monocytogenes >> In Older adults

2) CSF changes in bacterial meningitis:-

a) Turbid

b) Increased pressure

c) Increased neutrophils

d) Markedly increased protein

e) Markedly low glucose

f) Bacteria detected in smear or by culture

	Appearance	Opening Pressure (mmHg)	WBC (cell/μL)	Protein (mg/dl)	Glucose (mg/dL)
Normal	Clear	90-180	< 8	15-45	50-80
Bacterial Meningitis	Turbid	Elevated	>1000-2000	>200	<40

3) Complications of bacterial meningitis:-

a) Increased intracranial pressure (ICP)

b) Pressure on cranial nerves and Nerve paresis (3-4-6)

c) Cerebritis - Ventriculitis-Thrombophlebitis with venous occlusion and hemorrhagic infarction

d) Subdural or Brain abscess

e) Meningococcal septicemia: Suprarenal gland hemorrhage & failure

(Waterhouse Frederickson syndrome)

f) Post-meningitis adhesions + Hydrocephalus

g) Death (Untreated cases).

4) Complications of brain abscess:-

a) **Spread:** Encephalitis - Subdural abscess - Extradural abscess

b) **Rupture:** Ventriculitis - Meningitis

c) Brain herniation **(High ICP)**

d) **Venous sinus thrombosis**

2. Discuss:

I. Acute Bacterial Meningitis (N/E-M/E)

N/E	M/E
☒ Edema - Exudate (Pus) within subarachnoid space & brain at the base ☒ Congested Leptomeningeal vessels ☒ Turbid CSF	☒ Neutrophils + Pus cells fill the subarachnoid space & leptomeninges ☒ Edema + Congested blood vessels

II. M/E of Rabies infection:

☒ Diffuse neuronal degeneration
☒ Inflammation is most severe in the brainstem
☒ Basal ganglia - Spinal cord - Dorsal root ganglia may also be involved
☒ Negri bodies (Pathognomonic microscopic finding): Cytoplasmic eosinophilic inclusions found in Pyramidal neurons of hippocampus, Purkinje cells of cerebellum, Brainstem

Pathology CNS

(Cerebrovascular Diseases)

Past Y Exams

1. In focal cerebral ischemia (Infarction), which of the following structures is less likely to be affected:- a) Basal ganglia b) Thalamic nuclei c) The deep white matter d) Cortex underlying the leptomeninges e) Both thalamic nuclei and basal ganglia	**D**
2. A 67-year old alcoholic man presented with personality changes, periodic memory loss and confusion. He had no history of CNS trauma. Physical examination revealed unremarkable findings with normal blood pressure for his age. Which of the following cerebrovascular lesions is most likely to be responsible for his symptoms:- a) Slit hemorrhages b) Epidural hematoma c) Chronic subdural hemorrhage d) Acute subarachnoid hemorrhage e) Massive spontaneous cerebral hemorrhage	**C**
3. Which of the following cerebrovascular lesion is grossly described as a tangled network of worm-like vascular channels:- a) Arterio-venous malformation b) Berry aneurysm c) Cavernous malformation d) Capillary telangiectasia e) Venous angioma	**A**

4.A subdural hematoma is caused by damage to:- a) Middle cerebral artery b) Middle meningeal artery c) Congenital berry aneurysm d) Dural bridging veins e) Cavernous sinus	D
5.An epidural hematoma is caused by damage to:- a) Middle cerebral artery b) Middle meningeal artery c) Congenital berry aneurysm d) Dural bridging veins e) Cavernous sinus	B
6.A subarachnoid hemorrhage is caused by damage to:- a) Middle cerebral artery b) Middle meningeal artery c) Congenital berry aneurysm d) Dural bridging veins e) Cavernous sinus	C
7. An embolic cerebral infarction usually affects:- a) Middle cerebral artery b) Middle meningeal artery c) Congenital berry aneurysm d) Dural bridging veins e) Cavernous sinus	A
8. Hypertensive patients are at high risk of:- a) Epidural hemorrhage b) Subdural hemorrhage c) Subarachnoid hemorrhage d) Petechial intracerebral hemorrhage e) Massive cerebral hemorrhage	E

9. Which of the followings is not a glial tumor:- a) Pilocytic astrocytoma b) Glioblastoma multiforme c) Neurofibroma. d) Oligodendroglioma e) Ependymoma	C
10.Accumulation of blood between the skull and dura matter is called:- a) Extradural hemorrhage b) Subdural hemorrhage c) Subarachnoid hemorrhage d) Intracerebral hemorrhage e) None of the above	A
11.CSF in TB meningitis has the following characters except:- a) Increased number of lymphocytes b) Acid fast bacilli on ZN stain c) Low levels of protein d) Low levels of sugar e) None of the above	C
12. Complications of bacterial meningitis include:- a) Cerebral infarction b) Hydrocephalus c) Septicemia d) Brain abscess e) All of the above	E
13. The followings are types of cerebral aneurysms except:- a) Congenital b) Mycotic c) Arteriosclerotic d) Syphilitic e) Traumatic	D

14.Berry aneurysm is a type of:- a) Atherosclerotic aneurysm b) Congenital aneurysm c) Hypertensive aneurysm d) Traumatic aneurysm e) Mycotic aneurysm	**B**
15. Mycotic cerebral aneurysm is due to:- a) Congenital weakness of the wall of cerebral vessels b) Emboli from subacute bacterial endocarditis c) Atherosclerosis of cerebral vessels d) Increased intracranial tension e) AV malformation	**B**
16. Not a complication of cerebral aneurysm:- a) Cerebral infarction b) Brain compression c) Thrombosis d) Neoplastic transformation e) Hemorrhage	**D**
17. The most common site of intra-cerebral hemorrhage due to hypertensive microaneurysms is:- a) Basal ganglia b) Leptomeningeal surface c) Cerebellum d) Subarachnoid space e) Epidural space	**A**

Past Years Written Q

1. Enumerate

1) Causes of intra-parenchymal cerebral hemorrhage:-

a) Most common in **H**TN
b) **A**therosclerosis
c) **T**umors
d) **C**erebral contusions (Trauma)
e) **C**lotting disorders
f) **C**erebral Amyloid Angiopathy
g) **V**ascular malformations

2) Hypertensive cerebro-vascular lesions: - SLCHA

a) **H**yaline arterio-sclerosis of cerebral arterioles
b) **C**harcot-Bouchard microaneurysms
c) **L**acunar infarcts: Few millimeters in size
d) **S**lit hemorrhages: Rupture of the small penetrating vessels
e) **M**assive intra-parenchymal hemorrhage: Arterial rupture
f) **C**erebral edema
g) **A**cute Hypertensive Encephalopathy

3) Types of cerebral aneurysms:- CMAT

a) **C**ongenital Berry aneurysms
b) **M**icroaneurysms of Essential HTN (Charcot-Bouchard)
c) **A**theromatous aneurysms
d) **T**raumatic aneurysms
e) **M**ycotic aneurysms: Emboli of Subacute Bacterial Endocarditis

2. Discuss:

I. 1) N/E & M/E of Global Cerebral ischemia:-

N/E	M/E
☒ Brain swelling ☒ Wide gyri-Narrow sulci ☒ Poor grey/white matter demarcation	☒ **Early changes:-** • Red neurons (Cytoplasmic eosinophilia - Nuclear dissolution) • Similar changes occur later in Astrocytes & Oligodendroglia ☒ **Subacute changes:** Necrosis-Influx of phagocytic cells to remove necrotic tissue. ☒ **Repair:** Loss of organized CNS structure + Gliosis.

II. 2) Subdural hemorrhage (Causes - Clinical picture):-

Causes	Rupture of venous sinuses or bridging cerebral veins crossing the subdural space
C/P	☒ **Acute:** Rapid increase in intracranial pressure (ICP) ☒ **Chronic:** Personality changes - Memory loss-Confusion

Pathology CNS

(CNS Tumors)

Past Y Exams

1. A cerebral mass is surgically removed from a 50-year old male. On pathological examination it was formed of pleomorphic less mature tumor cells in fibrillary background with excess mitosis without necrosis. Which of the followings is the most likely diagnosis:- a) Oligodendroglioma b) Medulloblastoma c) Ependymoma d) Anaplastic astrocytoma e) Schwannoma.	D
2. Pilocytic astrocytoma is graded as:- a) Grade 1 b) Grade 2 c) Grade 3 d) Grade 4 e) Non-neoplastic lesion	A
3.Glioblastoma Multiforme is graded as:- a) Grade 1 b) Grade 2 c) Grade 3 d) Grade 41 e) Non-neoplastic lesion	D
4.Benign tumor of peripheral nerve component:- a) Astrocytoma b) Ependymoma c) Medulloblastoma d) Schwannoma e) Meningioma	D

5.An embryonal tumor of the 4th ventricle:- a) Astrocytoma b) Ependymoma c) Medulloblastoma d) Schwannoma e) Meningioma	C
6. Which of the following is characteristic of Grade 2 diffuse astrocytoma:- a) Perivascular rosette b) Hypercellularity & Pleomorphism only c) Pleomorphism & mitosis d) Vascularity & necrosis e) Psammoma bodies	B
7. Which of the following is characteristic of Grade 3 anaplastic astrocytoma:- a) Perivascular rosette b) Hypercellularity & Pleomorphism only c) Pleomorphism & mitosis d) Vascularity & necrosis e) Psammoma bodies	C
8. Which of the following is characteristic of Grade 4 glioblastoma multiforme:- a) Perivascular rosette b) Hypercellularity & Pleomorphism only c) Pleomorphism & mitosis d) Vascularity & necrosis e) Psammoma bodies	D

9. Which of the following is characteristic of meningioma:- a) Perivascular rosette b) Hypercellularity & Pleomorphism only c) Pleomorphism & mitosis d) Vascularity & necrosis e) Psammoma bodies	**E**
10. Which of the following is characteristic of medulloblastoma:- a) Rosette formation b) Hypercellularity & Pleomorphism only c) Pleomorphism & mitosis d) Vascularity & necrosis e) Psammoma bodies	**A**
11. Which of the following is a feature of meningioma:- a) Calcification b) Localized malignant tumor c) Arise in the 4th ventricle d) Nerve tumor e) Psammoma bodies	**E**
12. Which of the following is a feature of medulloblastoma:- a) Calcification b) Localized malignant tumor c) Arise in the 4th ventricle d) Nerve tumor e) Psammoma bodies	**C**
13. Which of the following is a feature of oligodendroglioma:- a) Calcification b) Localized malignant tumor c) Arise in the 4th ventricle d) Nerve tumor e) Psammoma bodies	**A**

14. Which of the followings is not a glial tumor:- a) Pilocytic astrocytoma b) Glioblastoma multiforme c) Neurofibroma. d) Oligodendroglioma e) Ependymoma	**C**
15. Which of the following is a feature of Pilocytic astrocytoma:- a) Calcification b) Localized malignant tumor c) Arise in the 4th ventricle d) Nerve tumor e) Psammoma bodies	**B**
16. Which of the following is a feature of schwannoma:- a) Calcification b) Localized malignant tumor c) Arise in the 4th ventricle d) Nerve tumor e) Psammoma bodies	**D**
17.Embryonal tumor of the 4th ventricle of children is most likely:- a) Diffuse astrocytoma b) Medulloblastoma c) Hemangioblastoma d) Meningioma e) Pilocytic astrocytoma	**B**
18. The followings are causes of acquired hydrocephalus except:- a) Expanding lesions in the posterior fossa b) Superior sagittal sinus thrombosis c) Arnold chiari malformation d) Subarachnoid hemorrhage e) Choroid plexus papilloma	**C**

19.In bacterial meningitis, the CSF shows:- a) High protein levels b) High sugar levels c) Normal sugar levels d) Low protein levels e) No inflammatory cells	**A**
20. All are true about glioblastoma multiforme except:- a) More common in adults b) High grade astrocytoma c) Has a good prognosis d) Necrosis and vascular proliferation are common features e) Primitive astrocytes	**C**
21.Psammoma bodies on microscopic examination are most likely seen in:- a) Oligodendroglioma b) Ependymoma c) Medulloblastoma d) Meningioma e) Schwannoma	**D**
22. Which of the followings is not a glial tumor:- a) Pilocytic astrocytoma b) Glioblastoma multiforme c) Neurofibroma d) Oligodendroglioma e) Ependymoma	**C**
23.Microscopic rosette formation is a characteristic feature of:- a) Astrocytoma b) Oligodendroglioma c) Medulloblastoma d) Meningioma e) Ependymoma	**C**

24. A brain mass is surgically removed & on pathological examination it shows elongated cells with pale oblong nuclei & pink cytoplasm with occasional psammoma bodies. Which of the following is the most likely diagnosis:- a) Meningioma b) Tuberculoma c) Medulloblastoma d) Schwannoma e) Ependymoma	**A**
25. The following is not a feature of meningioma:- a) Usually occurs in adults b) Usually a benign tumor c) Has a whorly cut surface d) Characterized by psammoma bodies e) Complicated by meningocele	**E**
26. The tumor of the cerebellum of young age most likely is:- a) Diffuse astrocytoma b) Ependymoma c) Hemangioblastoma d) Meningioma e) Pilocytic astrocytoma	**E**
27. The main site for drainage of CSF is:- a) Small veins in subarachnoid space b) Cells of the pia matter c) Arachnoid villi and granulations d) Gap junctions between ependymal cells e) Perineural lymph vessels	**C**

28.A brain tumor common in female and expresses estrogen receptors is:- a) Medulloblastoma b) Glioblastoma multiforme c) Meningioma d) Ependymoma	C

Past Years Written Q

1. Enumerate

1) Grades of astrocytoma:-

a) Pilocytic astrocytoma (Grade 1)

b) Diffuse fibrillary astrocytoma (Grade 2)

c) Anaplastic astrocytoma (Grade 3)

d) Glioblastoma multiforme (Grade 4)

2) Manifestations of Von-Reckling-Hausen disease:-

a) Multiple neurofibromas of cutaneous nerves

b) Cafe au lait skin patches of skin hyperpigmentation

c) Overgrowth of fibrous tissue of overlying skin (Elephantiasis Neuromatosa)

3) Effects of intracranial tumors:-

a) Local effects: Manifestation of compression of the affected site followed by others due to destruction and loss of function such as hemiplegia

b) Hydrocephalous.

c) Increased intracranial tension (ICT) caused by Tumor mass

2. Discuss:

I. M/E of Pilocytic astrocytoma:-

M/E	☒ Mildly cellular - Formed of mature astrocytes within excess fibrillary back ground ☒ Cells are bipolar with stroma of eosinophilic elongated & coma shaped fibers (Rosenthal fibers)

II. M/E of Diffuse fibrillary astrocytoma:-

M/E	☒ Hypercellular formed of pleomorphic astrocytes within excess fibrillary background ☒ A subtype of Grade II Diffuse astrocytoma shows large astrocytes with excess eosinophilic cytoplasm and eccentric nuclei; called Gemistocytic astrocytoma

III. M/E of Glioblastoma multiforme:-

M/E	☒ Formed of primitive astrocytes with marked Pleomorphism - Giant cells - Mitosis - Necrosis- Vascular endothelial proliferation in Glomeruloid manner

IV. N/E & M/E of Medulloblastoma:-

N/E	☒ Fleshy soft grey mass projections in the 4th ventricle may penetrate the brain to reach the subarachnoid space (Trans-coelomic spread)
M/E	☒ Small dark stained cells arranged in rosettes **"Homer-wright rosette"**

V. Meningioma (Origin -N/E-M/E):-

Origin	☒ From endothelial cells of the arachnoid villi commonly in relation to superior sagittal sinus
N/E	☒ Rounded firm capsulated tumor attached externally to the dura and imbedded in the brain tissue internally ☒ Cut surface: Greyish white and often show **whorly appearance**
M/E	☒ Formed of spindle shaped cells arranged in concentric layers with calcifications in the center **(Psammoma bodies)**

VI. N/E & M/E of Schwannoma "Neurilemmoma":-

N/E	☒ The commonest **is acoustic neuroma of 8th cranial nerve** at the base of the brain (**Cerebello-pontine angle)** ☒ Solitary mass - Capsulated-Firm-Round or fusiform with the related nerve at one side ☒ Cut surface is Grey white - May show cysts
M/E	☒ **Spindles shaped cells** arranged in bundles, with rod-shaped nuclei side by side in **palisade manner** with reticular and collagen fibers in between

Pathology CNS

(Ear & Eye)

Exercise Q

1. **Which of the following is a cause of blepharitis?** A. Viral infection B. Seborrheic dermatitis C. Cataract D. Retinal tear	**B**
2. Which gland is affected in Meibomian gland dysfunction? A. Sebaceous gland B. Lacrimal gland C. Meibomian gland D. Pineal gland	**C**
3. What is a stye? A. Viral eye infection B. Chalazion C. Acute suppurative inflammation of sebaceous glands D. Allergy-related swelling	**C**
4. What is the main cause of chalazion? A. Viral infection B. Obstruction of meibomian gland C. Trauma D. Bacterial infection	**B**
5. A key microscopic feature of chalazion includes: A. Lipogranuloma B. Caseous necrosis C. Lymphocytic infiltration D. Amyloid deposits	**A**

6. Which of the following causes viral conjunctivitis? A. Herpes simplex B. Staphylococcus aureus C. Streptococcus pneumoniae D. Pseudomonas	**A**
7. Photophobia is most associated with: A. Cataract B. Blepharitis C. Conjunctivitis D. Glaucoma	**C**
8. Keratitis can be caused by all except: A. Fungal infections B. UV light exposure C. Glaucoma D. Dry eye syndrome	**C**
9. Which type of keratitis is associated with Acanthamoeba? A. Bacterial B. Viral C. Fungal D. Parasitic	**D**
10. Common feature of keratitis is: A. Hair loss B. Corneal ulceration C. Lens dislocation D. Retinal hemorrhage	**B**

11. What is the most common malignant ocular tumor in children? A. Melanoma B. Retinoblastoma C. Schwannoma D. Glioma	**B**
12. Retinoblastoma typically presents at what age? A. After 10 years B. <4 years C. Between 5-10 years D. In adulthood	**B**
13. Retinoblastoma histology shows: A. Psammoma bodies B. Reed-Sternberg cells C. Rosette formations D. Signet ring cells	**C**
14. What gene mutation is linked to retinoblastoma? A. Rb1 B. p53 C. BRCA1 D. APC	**A**
15. Risk factors for otitis media include all EXCEPT: A. Exposure to cigarette smoke B. Daycare attendance C. Cleft palate D. Bottle feeding in upright position	**D**

16. Most common route of otitis media infection: A. Blood-borne B. Via tympanic perforation C. Via eustachian tube D. Direct trauma	C
17. Most common cause of acute otitis media: A. Staph aureus B. S. pneumoniae C. Klebsiella D. E. coli	B
18. Chronic suppurative otitis media shows: A. Transparent tympanic membrane B. Purulent discharge C. Retinal detachment D. Bone erosion	B
19. Cholesteatoma is characterized by: A. Accumulation of squamous epithelium B. Lymphocyte-rich fluid C. Serous fluid D. Absence of keratin	A
20. Malignant otitis externa is also known as: A. Chronic otitis B. Vestibular neuritis C. Cholesteatoma D. Necrotizing otitis externa	D

21. Otitis interna is commonly caused by: A. Bacteria B. Viruses C. Fungi D. Parasites	**B**
22. Schwannoma typically affects which cranial nerve? A. 7th B. 8th C. 9th D. 5th	**B**
23. A classic histological pattern of Jugular paraganglioma is: A. Pallisading B. Rosettes C. Zellballen D. Verocay bodies	**C**
24. Main symptoms of otitis interna include: A. Hearing loss only B. Blurred vision C. Tinnitus and photophobia D. Vertigo and dizziness	**D**
25. Tympanic membrane in acute otitis media is: A. Bulging and opaque B. Transparent and mobile C. Dry and crusted D. Retracted and atrophic	**A**

Written Q

1. Enumerate 4 causes of blepharitis.

- Allergies
- Seborrheic dermatitis (dandruff)
- Parasitic infestation (lice or mites in eyelashes)
- Meibomian gland dysfunction (MGD)

2. List the types of keratitis.

- A. Infectious keratitis:
  - Bacterial
  - Viral
  - Fungal
  - Parasitic (e.g., Acanthamoeba)
- B. Non-infectious keratitis
  - Injury
  - Eyelid disorders
  - Dry eye syndrome
  - Exposure to intense UV light (photokeratitis)

3. Name 5 risk factors for otitis media in children.

- Age (first 2–4 years of life)
- Immature immune system
- Eustachian tube anatomy (shorter, horizontal)
- Adenoid infection or hyperplasia
- Bottle feeding in supine position
- Daycare attendance
- Craniofacial anomalies (e.g., cleft palate)
- Exposure to cigarette smoke

4. Enumerate complications of otitis media.

- Immature immune system
- Eustachian tube anatomy (shorter, horizontal)
- Adenoid infection or hyperplasia
- Bottle feeding in supine position
- Daycare attendance
- Craniofacial anomalies (e.g., cleft palate)
- Exposure to cigarette smoke

5. List the histological features of retinoblastoma.

- Small round blue cells with hyperchromatic nuclei and scant cytoplasm
- Cells arranged in sheets
- Rosettes formation (tumor cells arranged around a lumen or neurofibrillary structure)
- Presence of necrosis and calcification