CNS & Eye

Q) meningioma (Sc) ✓

Q) Retinoblastoma. (S.N) ✓

Q) vero cay body (2)

Q) Two types of (2) ✓ meningioma

Q) Name glial tumours. ↑ decipher limit

Q) Rhinosporidiosis

Q) CSF findings in TB, pyogenic & viral meningitis

Q) Glioma – Astrocytoma, Glioblastoma multiforme.

Q) Brain abscess

Q) Medulloblastoma.

Q) Schwannoma, neurilemoma.

Q) Oligodendroglioma.

Q) von Recklinghausen ds.

Q) classify Intracranial Tx.

Q. MENINGIOMA

meningiomas are benign intracranial tumours that arises from – meningothelial cell of arachnoid mater.

Incidence – 20% of all 1° intracranial neoplasms.

Age – 4–5th decade.

Sex – F:M → 3:2.

Molecular Genetics

most common cytogenic abnormality → loss of chromosome 22, especially 22q (long arm) (synonym)

• NF2 gene (located at 22q12) is frequently deleted.

• NF2 gene product → merlin → Tumor suppressor protein

Syndromic → as in NF2

Sporadic meningiomas

50–60% have NF2 mutations.

→ loss of functional merlin.

NF2 associated meningiomas → Common in Neurofibromatosis Type 2

Non NF2 meningiomas → have TRAF7 mutations

higher-grade meningiomas – have NF2 mutations, Chr. 22 loss, & chromosomal instability.

MORPHOLOGY

Site
- arises from meningothelial cells of arachnoid layer & located along dural surfaces.

GROSS
- Rounded, well circumscribed, mass with a dural base, lobulated/polypoid masses. firmly attached to dura.
- CS → firm & fibrous
- En plaque meningiomas
  - → sheet like growth along dura.
- Consistency → firm, fibrous, finely gritty.
  - due to psammoma bodies.
- Encapsulated

MICROSCOPY
- characteristic feature of meningiomas
  - → whorled pattern of arrangement of meningothelial cell.
  - → psammoma bodies.

Histological subtypes.
WHO GRADE - I Benign.

1. Syncitial {meningothelial} → polygonal whorled cluster of cells with indistinct cell membrane. {syncytial}.
2. Fibroblastic - spindle shaped cells - interlacing pattern, collagen deposits abundant in between cells
3. Transitional - feature of above both
4. psammomatous - prominent psammoma bodies.
5. secretory - PAS (+) cytoplasmic droplets
6. microcystic - loose, spongy texture.

IHC
- EMA - (+)
- Keratin - (+) in secretory only.
- CEA - (+) in secretory.

EMA - epithelial membrane Antigen
CEA - Carcinoembryonic antigen.

WHO grade II - (Atypical)
- locally aggressive toc.
- ≥ 4 mitoses / 10 hpf or ≥ 3 atypical feature).
  - ie, ↑ cellularity
  - high N:C ratio.
  - prominent nucleoli
  - patternless architecture.
  - Necrosis.

WHO grade III - Anaplastic (malignant)
- highly aggressive
- resembles - high grade sarcoma.
- 2 subtype - papillary & Rhabdoid.

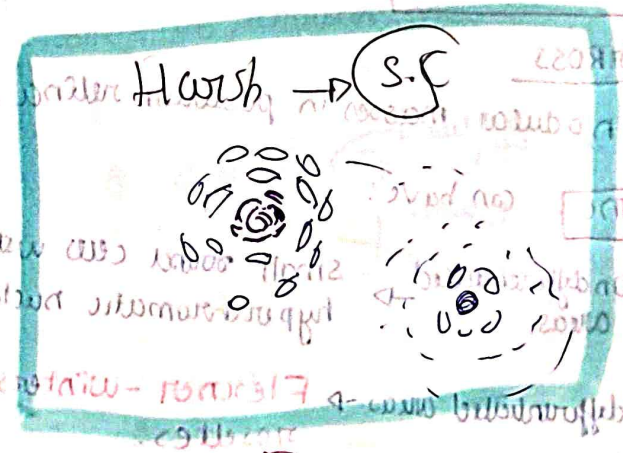


FIGURE !

RETINOBLASTOMA

- most common primary intraocular malignant Tx. occurring in children.

- cell of origin : Neuronal progenitor. {not from primitive retinal cells}.

GENETICS

- RB gene inactivation → central to pathogenesis.

- Heritable cases (~40%)
  - Inherit one germline RB mutation.
  - Second somatic hit leads to Tx

Sporadic (60%).
- Both RB alleles lost by somatic mutations.

MORPHOLOGY

GROSS

- nodular masses in posterior retina.

MC can have:

- undifferentiated areas → small round cells with hyperchromatic nuclei

- differentiated areas → Flexner-Wintersteiner rosettes. → clusters of cuboidal/columnar cells arranged around central lumen
  - Fleurettes

FIGURE.

VEROCAY BODIES

→ Schwannoma — Antoni A areas.

→ benign, slow-growing nerve sheath tx arising from Schwann cells.

cell of origin : Schwann cells.

GROSS.

. well circumscribed, encapsulated — attached to nerve but no invasion.

. commonly affects CN VIII — called acoustic neuromas

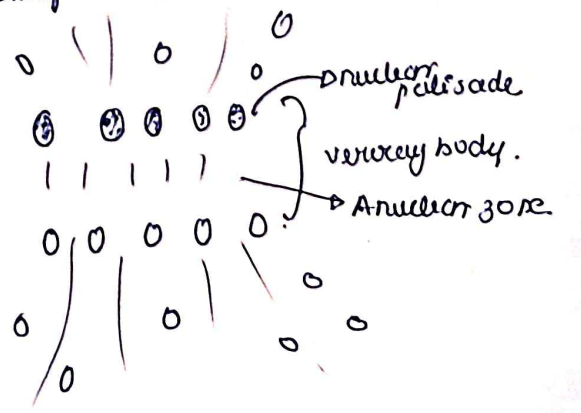
M/C

Biphasic patter with two distinct areas:

Antoni A — Dense cellular regions. with spindle cells arranged in palisades

↓

Verocay bodies. → formed by palisading of elongated schwann cell nuclei around a central eosinophilic, anucleor zone.



Antoni B — loose, hypocellular, myxoid areas with less organization.

IHC — S-100 protein (+)

Glial tx

→ astrocytoma, glioblastoma.
→ oligodendroglioma.
→ ependymoma.
→ choroid plexus papilloma.