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Third Ventricle: Pathology—Tumors

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1. Third ventricle tumor epidemiology, the FALSE answer is:

A. Third ventricle tumors account for less than 1% of all brain tumors.
B. A colloid cyst is the most common lesion in children.
C. A colloid cyst occurs most commonly in the third ventricle of adults.
D. A colloid cyst is most commonly located in the anterior part of the third ventricle.
E. Ependymomas are the third most common primary third ventricular tumor found in children.

Answer B

– The most common intraventricular tumors in children are choroid plexus papillomas.

2. Third ventricle tumor epidemiology, the FALSE answer is:

A. The most common true mass of the foramen of Monro in adults is a colloid cyst.
B. The most common pediatric lesion of the foramen of Monro is the subependymal giant cell tumor.
C. The subependymal giant cell tumor (WHO grade I) appears as a heterogeneously enhancing mass.
D. The subependymal giant cell tumor is associated with Sturge Weber syndrome.
E. The most frequent third ventricle floor lesion is the tuber cinereum hamartoma.

Answer D

– Subependymal giant cell tumor (WHO grade I) is associated with tuberous sclerosis.

3. Third ventricle meningioma, the FALSE answer is:

A. Embryological origin can be from arachnoid cap cells.
B. Embryological origin can be from ependymal lining cells.
C. It typically has homogenous contrast enhancement on MRI.
D. The most common location is the anterior third ventricle.
E. Peak incidence is in the second decade.

Answer D

– The majority of third ventricular meningiomas are located posteriorly in the pineal region.

4. Third ventricle meningioma, the FALSE answer:

A. Commonly misdiagnosed as colloid cyst.
B. The majority are psammomatous meningioma.
C. Third ventricular meningiomas are more common in males.
D. In von Recklinghausen's disease, the incidence of intraventricular meningiomas is 16.6%.
E. Blood supply is from the medial posterior choroidal arteries.

Answer B

- The majority of third ventricle meningiomas are fibroblastic, syncytial, or of mixed type.

5. Third ventricle colloid cyst, the FALSE answer is:

A. Appear hyperdense on CT.
B. Are most commonly found near the foramen of Monro.
C. The cysts are lined with stratified squamous epithelial cells.
D. Can cause sudden death due to hypothalamic compression.
E. The most common presenting symptom is headache.

Answer C

- Colloid cyst is lined with an inner layer of cuboidal or cylindrical cells and an outer layer of connective tissue including vessels.

6. Third ventricle colloid cyst, the FALSE answer is:

A. It originates from the folding of the primitive neuroepithelium.
B. Shows homogenous enhancement on T1MRI with gadolinium.
C. Contents of the cysts include old blood, foamy cells, fat, cholesterol crystals, and CSF.
D. Colloid cysts have varied appearances on MR images.
E. CT evidence of calcification in a colloid cyst is uncommon.

Answer B

- Colloid cyst shows peripheral enhancement on T1MRI with gadolinium.

7. Third ventricle arachnoid cyst, the FALSE answer is:

A. Suprasellar arachnoid cysts arise from an imperforate membrane of Liliequist.
B. The wall of an arachnoid cyst is typically pale, translucent, and avascular.
C. Adult ventricular arachnoid cysts are very rare.

D. Endoscopic cyst fenestration or excision are not treatment options.
E. Third ventricular arachnoid cysts cause hydrocephalus.

Answer D

- Endoscopic approaches might be considered owing to their being less invasive and giving a further chance of ETV.

8. Third ventricle chordoid glioma, the FALSE answer is:

A. WHO grade II.
B. Typical location is in the suprasellar region and the anterior part of the third ventricle.
C. Homogenously enhancing on MRI.
D. Vimentin is negative in chordoid glioma.
E. GFAP is positive marker of chordoid glioma.

Answer D

- GFAP and Vimentin are strongly positive immunohistochemical markers of Chordoid glioma in all reported cases.

9. Third ventricle choroid plexus papilloma, the FALSE answer is:

A. Most commonly affect young children under the age of five.
B. Tumor is neuroectodermal in origin.
C. CPP commonly progresses to become malignant.
D. High vascularity of the tumor makes GTR challenging.
E. MRI appears as homogeneous or heterogeneous tumors with a cauliflower appearance.

Answer C

- Choroid plexus papilloma is treated with surgery and rarely progresses to become malignant.

10. Hamartomas of the tuber cinereum, the FALSE answer is:

A. Congenital, nonneoplastic heterotopias.
B. Grossly may be pedunculated or sessile.
C. Hypointense relative to gray matter on T1- and T2-weighted images.
D. Associated with precocious puberty.
E. Associated with gelastic epilepsy, resulting in spasmodic laughter.

Answer C

- Hamartoma is isointense with gray matter on T1-weighted images (T1WI) and hyperintense relative to gray matter on the second echo of the T2-weighted images (T2WI) with no enhancing on MRI.

11. Pediatric third ventricle tumor, the FALSE answer is:

A. Langerhans cell histiocytosis most commonly occurs in patients under the age of 2 years.
B. Germinoma peaks at around 10–12 years.
C. Germinoma arises at the anterior third ventricle more commonly than posterior aspect.
D. Hypothalamic-chiasmatic pilocytic astrocytoma has mild enhancement.
E. Craniopharyngioma peaks between the ages of 5 and 15 years.

Answer C

- Germinoma arises at the anterior third ventricle less commonly than at the posterior aspect of the ventricle.

12. Adult third ventricle tumor, the FALSE answer is:

A. Pituitary macroadenoma is the most common tumor affecting the anterior third ventricle.
B. Papillary craniopharyngioma rarely has calcifications.
C. Craniopharyngioma rarely manifests with hypopituitarism or diabetes insipidus.
D. Craniopharyngioma is more often a homogeneous solid mass.
E. Sellar meningiomas extending superiorly are distinguished by a dural base and sclerosis of skull base.

Answer C

- Craniopharyngioma commonly manifests with hypopituitarism.

13. The posterior wall of the third ventricle tumors, the FALSE answer:

A. Germinoma is the most common neoplasm.
B. Pediatric pineal tumors rarely cause hydrocephalus when the tumor is still small.
C. In children or adults, it can manifest as Parinaud syndrome.
D. Pineocytoma (WHO grade I) comprises mature cells mostly in teens and young adults.
E. Pineoblastoma (WHO grade IV) are highly malignant primitive tumors.

Answer B

- Most pediatric pineal tumors manifest as third ventricle obstruction and hydrocephalus when the tumor is still small.

14. Masses of the third ventricular floor, the FALSE answer is:

A. Hamartoma of the tuber cinereum.
B. The most frequently seen lesion is lipoma of the third ventricle.
C. Basilar artery aneurysm.
D. Dermoid cyst.
E. Epidermoid.

Answer B

- The most frequently seen lesion is a hamartoma of the tuber cinereum.

15. The radiological appearance of third ventricle cyst, the FALSE answer is:

A. Epidermoid cyst hypointense on T1WI, hyperintense T2WI with diffusion restriction.
B. Dermoid cyst hypointense on T1WI, hyperintense T2WI with diffusion restriction.
C. Colloid cyst hypointense on T1WI, hyperintense T2WI with homogenous enhancing.
D. Arachnoid cyst hypointense on T1WI, hyperintense T2WI without diffusion restriction.
E. Ependymoma hypointense (Solid part) on T1WI with restricted diffusion.

Answer C

- Colloid cyst hyperintense on T1WI, hypointense T2WI with rim enhancing.

16. Third ventricle ependymomas, the FALSE answer is:

A. The majority has slow growth and remain asymptomatic till it is large enough at diagnosis.
B. Postoperative radiotherapy is the standard of care regardless of the extent of resection.
C. Anaplastic ependymoma has a high recurrence rate.
D. Ependymomas in the pediatric population are mostly supratentorial.
E. Ependymomas in the adult population are mostly supratentorial.

Answer D

- At least half of ependymomas occur in the first two decades of life; they localize in the posterior fossa, particularly in small children. Ependymomas in the adult population are mostly supratentorial.

17. Third ventricle ependymomas, the FALSE answer is:

A. Common in neurofibromatosis type II.
B. Ependymomas account for 2% of intracranial tumors in adults.
C. Ependymomas account for 12% of intracranial tumors in children.
D. Myxopapillary ependymoma is the most common histology.
E. Subependymoma are extremely rare outside the ventricular system.

Answer D

- Myxopapillary ependymoma is the most common histology in filum terminale.

18. Third ventricle central neurocytoma, the FALSE answer is:

A. Can be extra ventricular neurocytoma.
B. WHO grade III.
C. Synaptophysin is positive.
D. Neuron-specific enolase is negative.
E. MIB-1 LI is the most accurate to determine prognosis and tumor grade.

Answer B

- Central neurocytoma is WHO II.

19. Third ventricle central neurocytoma, the FALSE answer is:

A. Attached to the septum pellucidum near the foramen of Monro.
B. CT scans calcifications up to 50% of all cases.
C. Neuronal nuclei are positive.
D. Neurocytoma can occur extraventricularly.
E. More common in females than males.

Answer E

- Central neurocytomas are most prevalent among young adults. There is no specific correlation with genders.

20. Third ventricle SEGA, the FALSE answer is:

A. Most commonly in the region of the foramen of Monro.
B. The most common symptom is new onset or worsened seizures.
C. SEGAs occur in 50% of tuberous sclerosis patients.
D. The mean age of presentation is 13 years.
E. Everolimus is used in the treatment of SEGA.

Answer C

- SEGAs occur in 5–15% of TSC patients. These tumors are important to recognize because of their strong association with TSC.

21. Third ventricle subependymoma, the FALSE answer is:

A. WHO I.
B. Its incidence in the third ventricle is higher than in the fourth ventricle.
C. Most commonly occur in the fourth and fifth decades of life.
D. Circumscribed non-enhancing mass lesions attached to the ventricular wall.
E. Typically, patients are asymptomatic.

Answer B

- Subependymoma is most commonly seen in the fourth ventricle as follows: fourth ventricle: 50–60%, lateral ventricles (usually frontal horns): 30–40%, and third ventricle: rare.

22. Third ventricle surgical approaches, the FALSE answer is:

A. Transcallosal is preferable in the absence of hydrocephalus.
B. Transcortical approach has a risk of seizure of 5%.
C. The supracerebellar infratentorial approach is best for colloid cysts.
D. Occipital transtentorial approach used for posterior third ventricle tumors.
E. The transcortical approach is favorable when hydrocephalus is present.

Answer C

- Parapineal lesions can be approached via a supracerebellar infratentorial approach or an occipital transtentorial approach.

23. Approaches to the third ventricle, the FALSE answer is:

A. Transient mutism occurs as a result of bilateral cingulate gyrus retraction.
B. Interforniceal approach can result in memory loss.
C. In transcallosal approach, the opening is 2/3 anterior and 1/3 posterior to the coronal suture to avoid motor strip.
D. Disconnection syndrome is more common with anterior callosotomy.
E. Possible pitfall entering a cavum septum pellucidum in transcallosal approach.

Answer D

- Disconnection syndrome is more common with posterior callosotomy (near the splenium) where more visual information crosses. The risk is reduced by creating a callosotomy <2.5 cm in length.

24. Colloid cyst management, the FALSE answer is:

A. Bilateral VP shunt.
B. Unilateral shunt with fenestration of the septum pellucidum.
C. Surgical removal is recommended in patients <50 years at any cyst size with ventriculomegaly.
D. A good result from stereotactic drainage is demonstrated by a hyperdense appearance on CT.
E. Surgical removal is recommended when the cyst is >10 mm of size at any age.

Answer D

- Unsuccessful stereotactic aspiration is demonstrated by hyperdensity on CT due to high viscosity. Low viscosity demonstrates a hypo- or isodense CT appearance.