IndSPN Case of the Month

August 2023

Clinical Presentation

A 11-year-old boy brought by his parents with chief complaints of-

- Holo cranial headache associated with vomiting for 10 months

Clinical Examination

- Conscious, oriented to time, place and person
- Nutrition- Adequate without obvious deficits
- Pupils- Bilateral 2.5 mm reactive to light
- V/A- Bilateral 6/6 with no field cut
- Fundus- Bilateral grade II papilledema
- Rest of the cranial nerves- Within normal limits

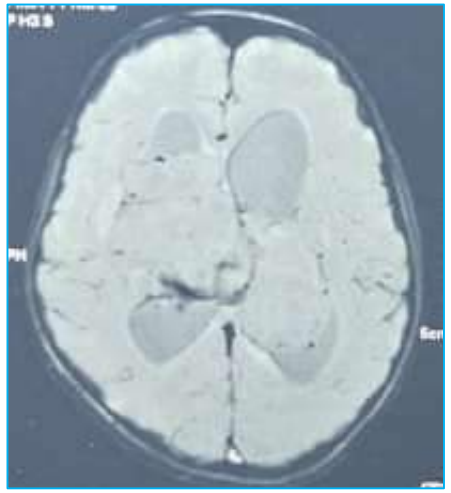
Clinical Examination

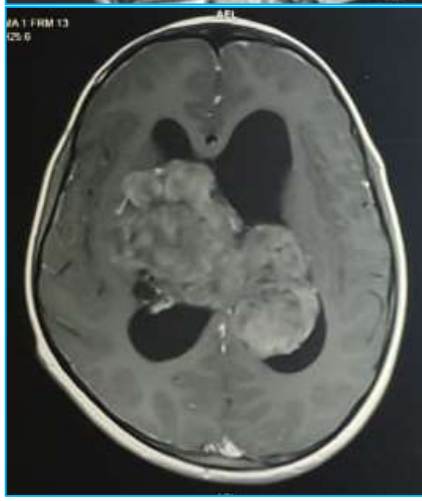
- Deep tendon reflexes- 2+ at all joints
- Plantars- B/L flexor
- Cerebellar/ Lobar signs- Absent
- Meningeal/Neurocutaneous signs- Absent

Provisional Diagnosis with Clinical Localization

?

Radiology





Radiological Impression

- **Differential Diagnosis**

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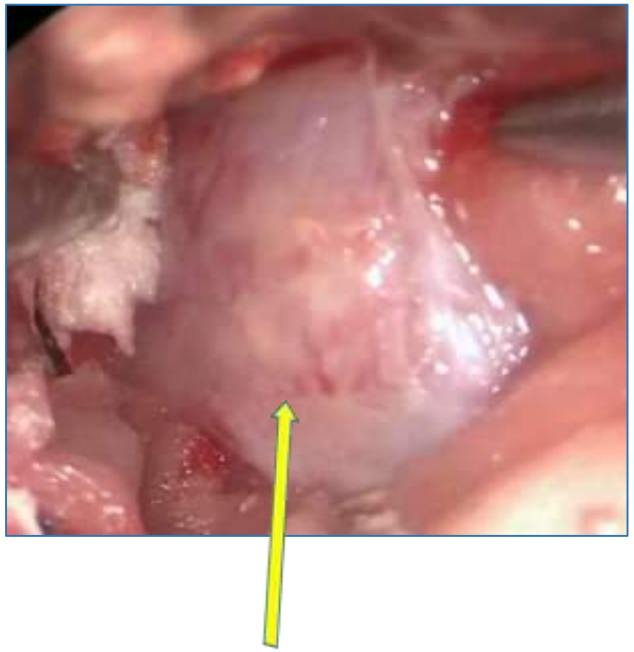
➢ *MRI Brain (Plain + Contrast)*

- There is evidence of a single well-defined lesion (4 x 5 x 4 cm) epicentered in right lateral ventricle extending up to foramen of Monroe. It is causing dilatation of the third ventricle and bilateral lateral ventricles with significant periventricular ooze. The lesion is T1 isointense, T2 heterogeneously hypointense with intense contrast enhancement with few non-enhancing cystic areas. It is showing blooming on SWI and isointense on FLAIR sequence.
- Radiological impression: Central Neurocytoma

Surgery

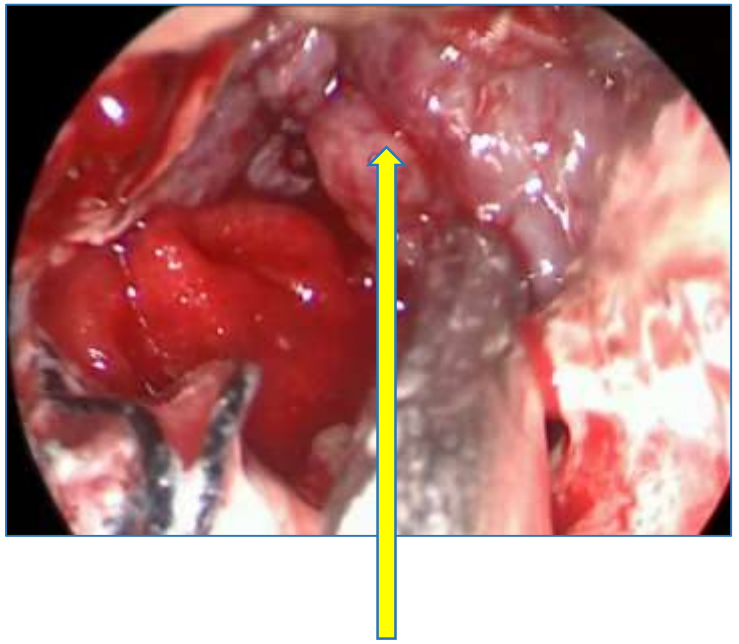
- **Position-** Supine position
- **Incision-** Curvilinear incision of 4 cm size given in mid-pupillary line just in front of coronal suture on the right side
- **Procedure-** Right frontal pre coronal key-hole craniotomy and endoscope assisted tumor decompression

Intra operative Images

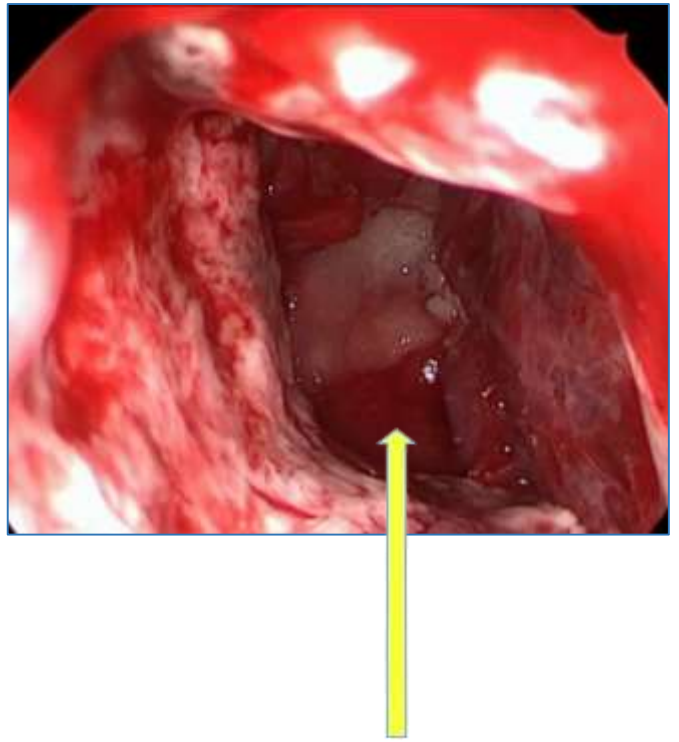


Tumor capsule in right lateral ventricle

Tumor identified



Tumor debulking done



Right lateral ventricle seen after tumor decompression

Post-operative status

- Post-operative course was uneventful
- No fresh neurological deficits noticed after surgery
- Operative wound healthy
- Histopathology report- Transitional Meningioma (WHO grade 1)

Post-op CECT

Case Summary

- A 11-years-old boy born out of non-consanguineous marriage presented with chief complaints of headache associated with vomiting for 10 months. Examination revealed bilateral modified Friesen grade II papilledema. Radiology was suggestive of lateral ventricle central neurocytoma. Intra-operative impression was Teratoma.
- Histopathology report turned out to be Transitional meningioma (WHO grade 1).

Relevant Literature

- Intraventricular meningiomas are notably rare tumors
- Constitute 0.5%- 5% of all intracranial meningiomas
- Mostly arise within the lateral ventricle (lateral ventricle- 77.8%; third ventricle- 15.6% and fourth ventricle- 6.6%)
- Within the ventricular system, they are mostly found in the trigone of the lateral ventricle
- Origin of intraventricular meningiomas can be traced back to the embryological invagination of arachnoid cells into the choroid plexus

- Since the choroid plexus is bulkier in the lateral ventricles, incidence of lateral ventricle meningiomas is higher compared with those in the third or fourth ventricles. Intraventricular meningiomas are rare in pediatric population. Mean age of occurrence is 20-50 years for lateral ventricular meningioma. Clinically, patients present with pressure symptoms with ipsilateral headache and contralateral macula splitting homonymous hemianopia. Contralateral sensorimotor paresis, more marked sensory involvement and numbness over trigeminal distribution. Cerebellar involvement in more than half of patients.

- Radiologically; on CT scan, it is globular well defined, enhances on contrast with calcification as a common feature. MRI suggests isointense to hypointense on T1WI and isointense to hyperintense on T2WI with homogenous contrast enhancement. MR spectroscopy reveals high alanine creatine ratio with high levels of alanine and low levels of creatine. Angiogram may display a prominent anterior or posterior choroidal artery with a diffuse tumor blush especially in large tumors.
- Surgical resection is the treatment of choice.

Suggested Readings

- Menon G, Nair S, Sudhir J, Rao R, Easwer HV, Krishnakumar K. Meningiomas of the lateral ventricle - a report of 15 cases. Br J Neurosurg. 2009 Jun;23(3):297-303. doi: 10.1080/02688690902721862. PMID: 19533463.

- Kim CY, Hwang K, Jung HW. Intraventricular meningiomas. Handb Clin Neurol. 2020;170:175-184. doi: 10.1016/B978-0-12-822198-3.00039-2. PMID: 32586489.

- Zhang WH, Xie M, Liu H, Wang X, Lin MH. Surgical challenges for lateral ventricle meningiomas: A consecutive series of 21 patients. J Huazhong Univ Sci Technolog Med Sci. 2015 Oct;35(5):742-746. doi: 10.1007/s11596-015-1500-8. Epub 2015 Oct 22. PMID: 26489632.