The patient presented with episodes of vomiting followed by drowsiness in the emergency OPD. Examination shows bilateral papilledema and signs of increased intracranial tension.

**Imaging Findings:**

- T1WI showed relatively iso-hypointense lesion in posterior fossa involving the vermis (Fig. 1).
- T2WI shows that lesion is iso-hypointense with effaced 4th ventricle leading to obstructive hydrocephalus (Fig. 1b).
- DWI/ADC showed restriction diffusion (Fig 2).
- Post contrast image shows homogenous enhancement of the mass lesion (Fig. 3).
- On MRS(TE(ECHO TIME)-135) the mass lesion has a Cho peak with minimal NAA (Fig. 4).

**Discussion:**

Medulloblastoma typically occurs in children between 5 to 10 years of age, and an incidence in males approximately 1.5 times higher than in females. The typical imaging findings are low or isointensity on T1WI, and high intensity on T2WI with restriction diffusion and relatively homogenous enhancements [1]. The disseminated through the CSF is noted in ~30% of firstly diagnosed Medulloblastoma patients. MR spectroscopy spectra of medulloblastoma is characterised by high choline peak, which can be explained by the hypercellular nature of medulloblastoma. Absent or low lipid peak has also been described in these tumours. This is probably due to the relatively homogeneous nature with little necrosis and is said to be useful in the differentiating from metastasis or astrocytomas. Taurine peak has been described and is thought to be relatively specific for medulloblastoma. Moreno Torres et al. reported the usefulness of taurine peak in differentiating medulloblastoma from astrocytoma. They reported the taurine peak in all medulloblastoma patients while it was seen in none with astrocytomas [2]. Taurine peak has been reported in gliomas in vitro analysis of biopsy material and is said to correlate with the presence of apoptotic cells. Similarly, although taurine peak has been reported in vitro analysis in meningioma, it is not usually demonstrable on in vivo MR spectroscopy [3]. NAA is usually undetectable or shows very minimal peak in meningioma because of their non-glial origin. Recent reports also demonstrated taurine peak to be useful in differentiating medulloblastoma from meningioma [2, 3].

Similar MR spectroscopy findings were seen in our index case. We observed a high choline peak without any significant lipid/lactate peak. Taurine peak was identified at 3.4 ppm. No alanine peak was seen. Based on these findings, the diagnosis of medulloblastoma was considered, which was subsequently proven by surgical pathology. In conclusion, marked elevated Cho peak and minimal NAA peak and presence of taurine peak at 3.4ppm is
relatively specific spectra of medulloblastoma on MR spectroscopy.

**Differential Diagnosis List:** Medulloblastoma, Ependymoma, Choroid Plexus Tumour, Astrocytoma

**Final Diagnosis:** Medulloblastoma

**References:**


Description: T1WI - iso-hypointense mass lesion in posterior fossa Origin: JNMCH
Description: T2WI- Iso-hypointense mass lesion in posterior fossa with hydrocephalus Origin: JNMCH
Description: DWI/ADC - restriction diffusion is noted
Origin: JNMCH
Figure 3

**Description:** Homogeneous enhancement of mass lesion on post contrast

**Origin:** JNMCH
Description: MRS showed prominent Cho peak at 3.2 ppm, reduced NAA peak and no lipid/lactate peak is noted and small taurine peak is noted after Cho peak. (Note: taurine peak is better noted at low TE) Origin: JNMCH