Case report
Severe Headache AsThe Sole Presenting Feature In A Rare Papillary Meningioma: A Case Report

ABSTRACT

Meningiomas make up around 13-26% of all brain tumours. However, papillary meningioma accounts for only 1 – 2.5% of all meningiomas. Papillary meningiomas are rare and very aggressive in nature. We present a case of a 30 years old man with complaints of headache. MRI brain showed right parietal extra axial mass suggestive of malignant meningioma. Excision of the lesion was done via right parietal craniectomy followed by lax duraplasty. Immediate post operative neurological status was same as the pre operative neurological status. Pathological investigation suggested that the tumour was papillary type of meningioma.

Keywords: [craniectomy, meningioma, papillary]

1. INTRODUCTION

Although rare, primary intracranial tumours account for 1.4% of newly diagnosed cancer cases and 2.4% of all cancer fatalities.[1].Pilocytic astrocytoma, embryonal tumours, and malignant gliomas are the most prevalent intracranial cancers in children, while meningiomas, pituitary tumours, and malignant gliomas are the most common adult brain tumour types[2].

Menigiomas account for around 13-26% of cerebral tumours. They are typically non-neuroepithelial progenitor arachnoid cap cells-derived benign tumors [3].

According to the Central Brain Tumour Registry Statistical Report 2009-2013, 81.1% of meningiomas were grade I (typical), 16.9% were grade II (atypical), and 1.7% were grade III (anaplastic) [4]. Papillary meningiomas are more aggressive than other forms of meningiomas, but according to WHO grading 2021 the phenotype is insufficient to classify it as a grade III tumour.[5,6]

2. PRESENTATION OF CASE

A 30 year old male presented with a history of headache since one month. He had no other complaints other than headache. Headache was severe and intermittent in nature and there was no association with visual disturbance or vomiting. On examination, patient's GCS was 15/15, cranial nerves examination showed no abnormality and there was no sensory or motor weakness. Blood investigations including CBC, LFT and RFT were all within normal range. MRI showed a large ill-defined, T1 isointense, T2 hypointense lesion (Fig. 1) measuring 7x5x4cm in size with board base towards the dura is noted along the convexity of the right parietal region. On post contrast (Fig. 2), the lesion shows moderate heterogenous enhancement with few non enhancing areas. It is causing buckling of the underlying parietal lobe. T2/FLAIR hyperintense areas are noted in the adjacent cortex suggestive of edema. These features are suggestive of neoplastic etiology likely malignant meningioma.

Patient was planned for excision of the tumor after anesthesia fitness was given. Under general anaesthesia, patient was positioned supine with head slightly tilted towards the opposite side. Right parietal craniectomy was done, and after dura was open, a grayish white mass of irregular surface with focal necrosis was seen. Meticulous resection under neurosurgery microscope was done and Simpson Grade II tumor resection was achieved. Immediate post operative neurological status was same as the pre operative status. The patient discharged after one week and was advised to take radiotherapy.

The histological examination showed a tumor tissue composed of sheets of cells arranged in a predominantly papillary pattern with perivascular pseudo-rosettes (Fig. 3). A pathological diagnosis of Papillary meningioma, was given.

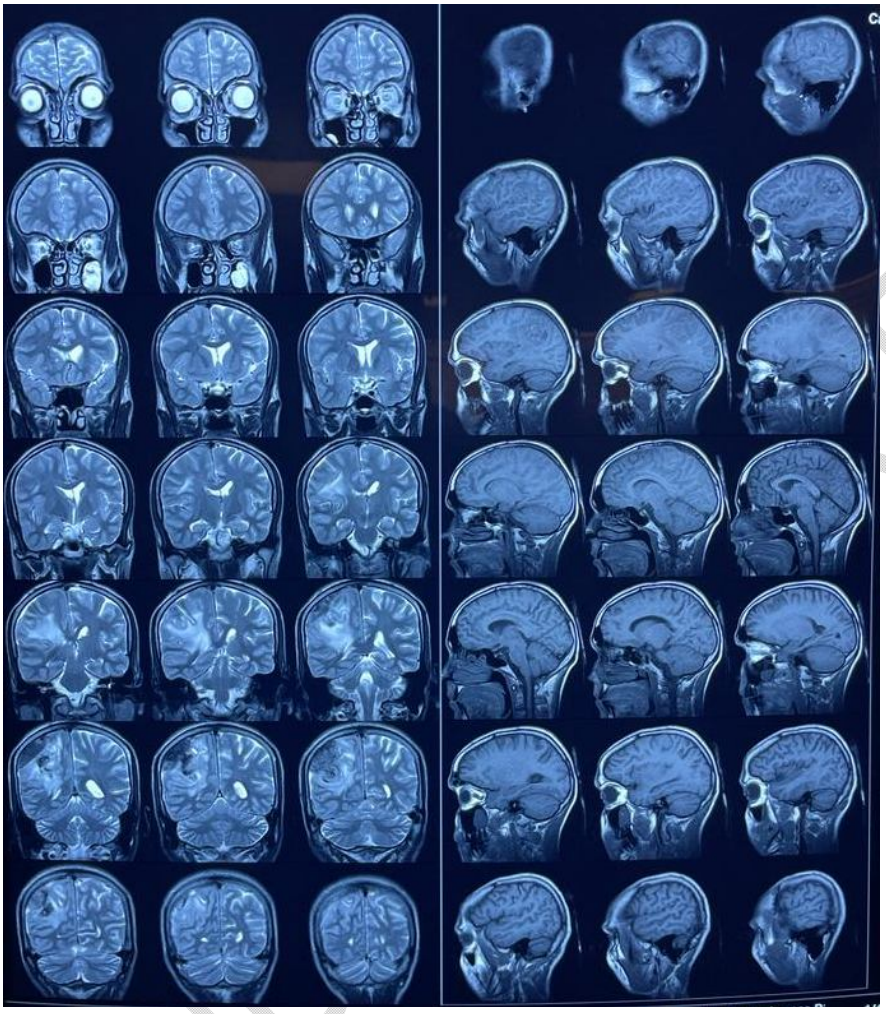

Figure 1. Plain MRI showed approximately 7x5x4cm, ill defined, T1 isointense with T2 hypointense with board base toward the dura along the convexity of the right parietal region.

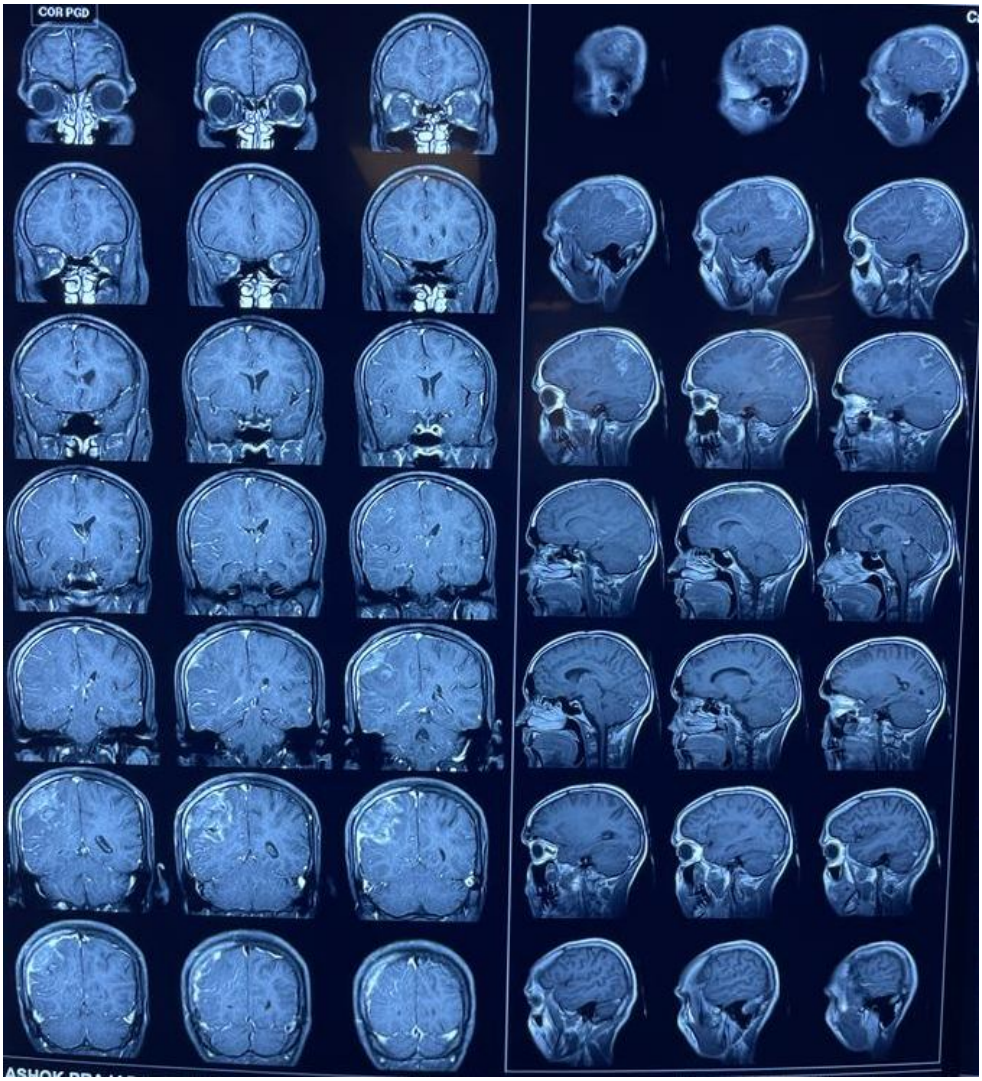

Figure 2: On T1 post contrast, there was moderate enhancement with few non enhancing areas (heterogenous enhancement) which is causing buckling of the underlying parietal lobe.

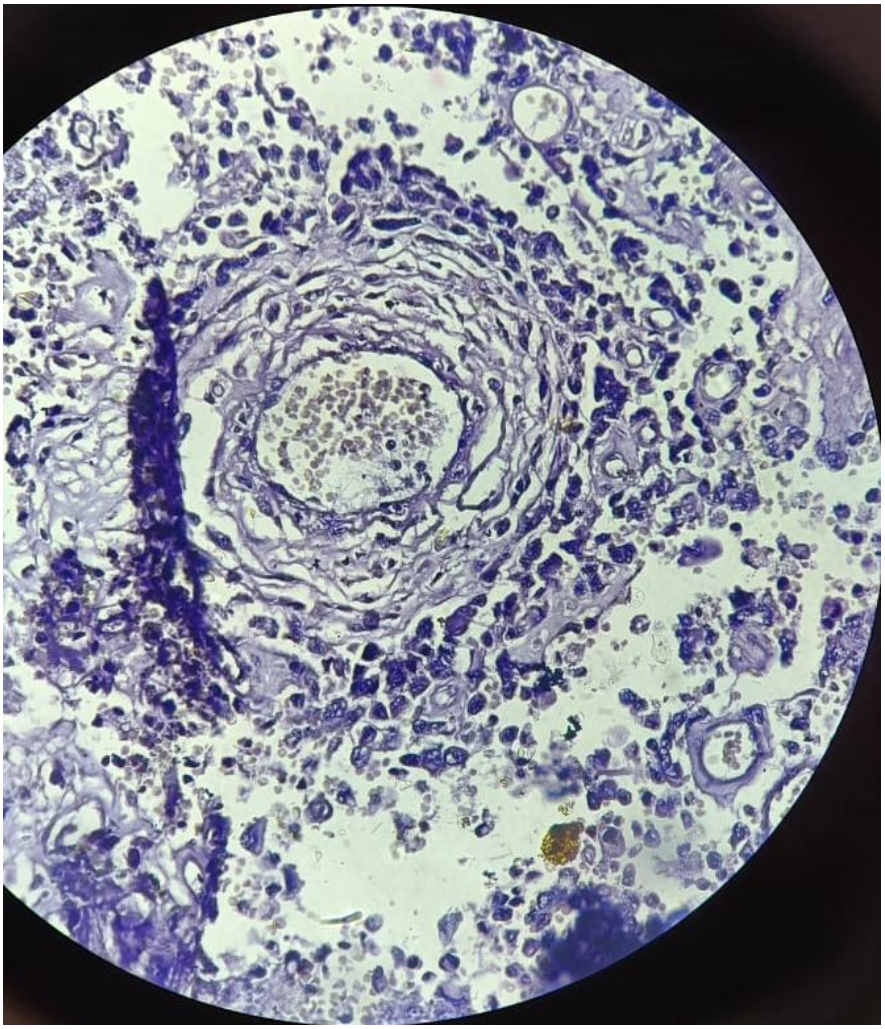

Figure 3 :On histological examination, the tumor showed a tissue composed of sheets of cells arranged in a predominantly papillary pattern with perivascular pseudo-rosettes.

3. DISCUSSION

The single most important risk factor for the development of meningiomas is ionising radiation to the skull. Other familial conditions, such as neurofibromatosis type 2 (NF 2), predispose to the development of meningioma. Other links have been proposed, including a history of head trauma, cigarette smoking, and cell phone use[7].The clinical features of meningiomas depend on their location-intracranial or spinal dural surface, intraventricular. Clinical symptoms may include headaches due to increased intracranial pressure, focal neurological deficit, cranial nerve involvement, generalized and partial seizures caused by focal mass effect.[8]

However papillary meningioma is a type of aggressive meningioma that accounts for 1-2.5% of all meningiomas. When compared to benign meningiomas, they typically exhibit aggressive clinical behaviour, as evidenced by a high rate of brain parenchymal invasion, local recurrence, and extracranial metastases[9]Papillary meningiomas are frequently misdiagnosed as metastatic carcinoma, chemodectoma, ependyoma, choroid plexus papilloma, astroblastoma, and amelontic melanoma.[10]

Papillary meningiomas can be confirmed by histology. They have pseudo-papillary architecture, pseudo-rosettes, and necrosis on occasion. They are strongly EMA and Vimentin positive.Histopathological grading is a powerful predictive indicator that can be used to alter therapy regimens to the individual patient. [11,12]

Meningiomas typically show hyperostosis, psammomatouscalicifications, and enhanced vascular markings on plain radiographs. CT and MRI images show sessile or pedunculated isodense masses linked with the dura with distinctive 'mottling.'[13]. Papillary meningiomas have variable imaging findings but Lirng and collegues have suggested that MRI for papillary meningiomas shows a dura-based intracranial tumor with cystic component and enhancing solid tumor part[13]

To avoid recurrence or advancement of papillary meningiomas, aggressive excision is required. The role of adjuvant radiation is currently being debated.Because aggressive tumourbehaviour is associated with a poor clinical prognosis, early detection and treatments are critical.[14]

4. CONCLUSION

Papillary meningioma belongs to a very rare subtype of malignant meningioma. It has a very aggressive clinical course and is very prone to reoccurrence. Therefore, early diagnosis and timely appropriate management of the disease can significantly help improving the outcome of the disease positively.

CONSENT (WHEREEVER APPLICABLE)

All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editorial office/Chief Editor/Editorial Board members of this journal.

ETHICAL APPROVAL (WHEREEVER APPLICABLE)

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

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