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A rare case of petroclival meningioma: the role of neuroimaging in the diagnosis and prognosis

Sajjad Ali

Department of Medicine, Ziauddin Medical University, Karachi, Pakistan

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Petroclival meningioma (PCM) comes from the petroclival junction in the upper two-thirds of the clivus, which is located medial to the fifth cranial nerve (trigeminal) [1]. PCMs were once thought to be incurable due to their location, multi-compartmental extent, and delicate connection with important neuro-vascular structures [2]. However, nowadays, the treatment approach has evolved from radical tumour excision to near-total and sub-total tumour excision, particularly for large and expanding tumours (> 3 cm and > 4 cm, respectively) to reduce complications and to improve the quality of life [3].

A 55-year-old man with a history of hypertension and diabetes for the past 20 years presented to the emergency room (ER) with a complaint of afebrile convulsions of one episode. He was well-oriented in time, place, and person upon admission to the ER. On physical assessment, his vital signs were within a normal range, along with normal motor assessment of the upper and lower limbs. A computed tomography (CT) scan and a post-contrast magnetic resonance imaging (MRI) were scheduled for further assessment of neurological complaints.

The first CT scan indicates a calcified (hyperintense) space-occupying lesion of approximately 5.4 × 3.6 × 3.7 cm in anterior-posterior, craniocaudal and transverse dimensions, respectively. The lesion has spread through the petrous ridge and left greater wing of the sphenoid, including the pre- and peri- pontine regions, and the left parasellar region, with irregular borders (Fig. 1). The mass is seen compressing the left temporal lobe, pons, and left cerebellar hemisphere. Moreover, the third ventricle is seen to be pushed to the right, resulting in moderate supratentorial hydrocephalus (Fig. 2) with a 3 mm rightward midline displacement.

According to the MRI scan (Fig. 3), the calcified lesion is shown to spread into the cerebellopon-

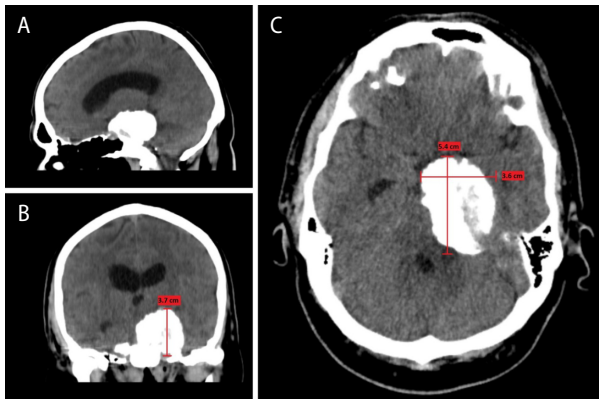


Figure 1. Computed tomography (CT) scan of the brain showing PCM of 5.4 x 3.6 x 3.7 cm. **A.** Sagittal view; **B.** Coronal view; **C.** Axial view

Address for correspondence: Sajjad Ali, Department of Medicine, Ziauddin Medical University, Karachi, Pakistan; e-mail: sajjad110@live.com

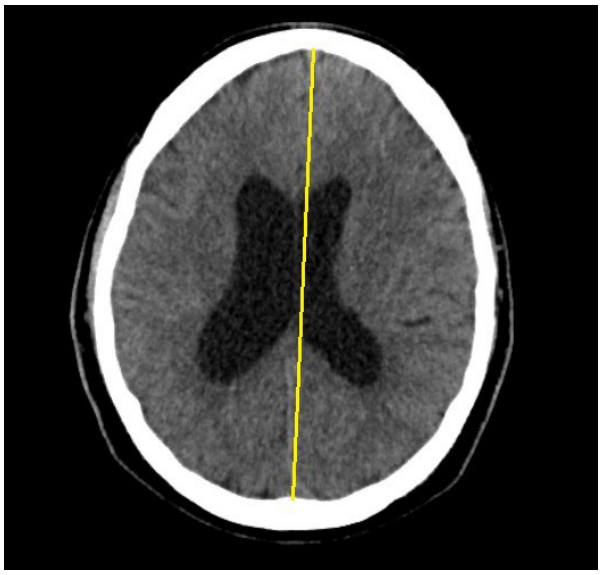
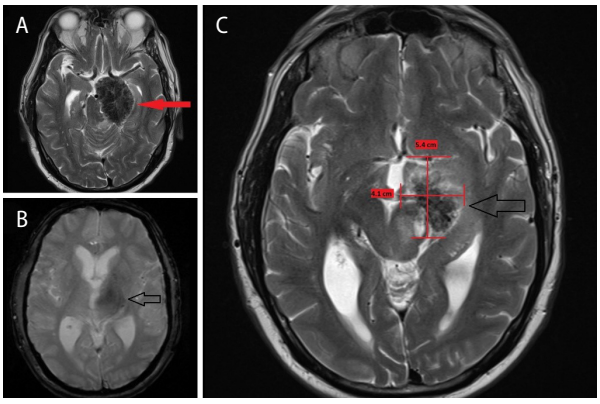


Figure 2. Axial view of head computed tomography (CT) scan showing mild hydrocephalus with 3 mm midline shift on the right side



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tine angle cistern, Meckel's cave, ambient and suprasellar cisterns, as well as the cavernous sinus, encasing the left trigeminal and vestibulocochlear nerve complex. The lesion extends anteriorly up to the left orbital apex, contacting the left optic nerve's intracanalicular section.

Based on the clinical history and radiological findings, the on-call neurosurgeon diagnosed the patient with PCM.

The patient was advised for petrosal craniotomy and tumour resection considering the enlarging tumour size. The patient's condition improved after surgery, with no signs of convulsions. The patient's first post-surgery follow-up was uneventful and is now scheduled for a second follow-up with a repeat MRI at 6 months.

Conclusion

Given the essential neurovascular structures that are in close proximity with the tumour, surgical management of PCM is a challenging task for neurosurgeons. However, advances in neuroimaging and the use of advanced skull base techniques have considerably improved the clinical outcomes of PCM resection. Assessing clinical history, choosing an appropriate surgical method, and being aware of the radiological findings are all important factors in determining the best treatment options for PCMs.

Conflict of interest

None declared.

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Authors' contributions

S.A. conceived the idea of manuscript, wrote and revised the manuscript.

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