

Sphenoid meningioma en plaque with proptosis: Surgical excision, reconstruction and outcome

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ABSTRACT

Objective: To evaluate surgical outcome and reconstruction of bone defects after excision of sphenoid meningioma en plaque.

Patient and methods: Between June 2012 and May 2016, a series of 15 patients presented by proptosis attended to neurosurgery departments, Assiut university hospital, Qena university hospital, South Valley University and, These patients were diagnosed with sphenoid meningioma en plaque by fulfilling its criteria by neuroimaging (sheet-like meningioma and hyperostosis). All patients received preoperative imaging investigations including Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) to evaluate the extension of both tumor components – soft tissue and bone involvement. Fifteen patients were operated by pterional approach under general anesthesia.

Results: Fifteen patients with meningioma en plaque were treated surgically. The mean age of patients at the time of admission was 46.5 years, age ranged between 35–56 years. 80% of patients were females (female to male ratio was 4:1). Ten (66.7%) patients have left sided lesion representing. Proptosis was the main presented manifestation in all patients. Complete tumor excision was done in 10 patients while incomplete excision was done in the rest of patients. Proptosis was improved post-operatively in patients presented by it: Ten (66.7%) patients had complete improvement while the other five (33.3%) patients improved significantly. No mortality occurred in our study. A mean follow-up period of 2.1 years (range: 4 months to 4 years), three (20%) patients have tumor recurrence.

Conclusions: Total excision of Sphenoid meningioma en plaque carries difficulties and high rate of post-operative morbidity. Early detection with experienced neurosurgeons, microsurgical techniques and availability of high speed drill decrease the risk of post-operative morbidity. Reconstruction of dural and bone defect is very important regarding functional and cosmetic aspects.

1. Introduction

Meningioma en plaque is defined as meningioma with sheet like pattern and whorls of neoplastic tissue associated with hyperostosis. This term was given by Cushing and Eisenhardt [1]. In meningioma, hyperostosis is a specific character of, and is presented in 4.5% of all meningiomas, but is presented more in meningioma en plaque with percentage of 13%–49% [1]. Meningiomas en plaque account about 2–9% of all meningiomas [2–4]. Mainly in the sphenoid wing, although other skull areas may be sites for en plaque [5]. Proptosis in meningioma en plaque is due to hyperostosis and that affect patients prognosis. The precise mechanisms of hyperostosis and intralésional morphological criteria of the infiltrated bone associated with

meningioma still not clear. Females are more susceptible to have Meningioma en plaque three to six times [6].

The histopathology of sphenoid meningiomas en plaque are the same as any meningiomas with predominance of meningeothelial and transitional variants. The vascular supply of the sphenoid meningiomas en plaque usually arises from meningeal vessels but may be avascular [7,6].

Meningiomas en plaque have high rate of recurrence due to difficulties during total resection due to extensive bone component of these tumors and complexity of anatomy at site of origin [7].

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2. Patients and methods

Between June 2012 and May 2016, a series of 15 patients presented by proptosis attended to neurosurgery departments, Assiut university hospital, Qena university hospital, South Valley University and, These patients were diagnosed with sphenoid meningioma en plaque by

fulfilling its criteria by neuroimaging (sheet-like meningioma) and hyperostosis which larger than soft tissue.

Non hyperostotic sphenoid wing meningioma, clinoidal meningioma, cavernous sinus meningioma with orbital extension and optic sheath meningioma were excluded as they do not met the criteria.

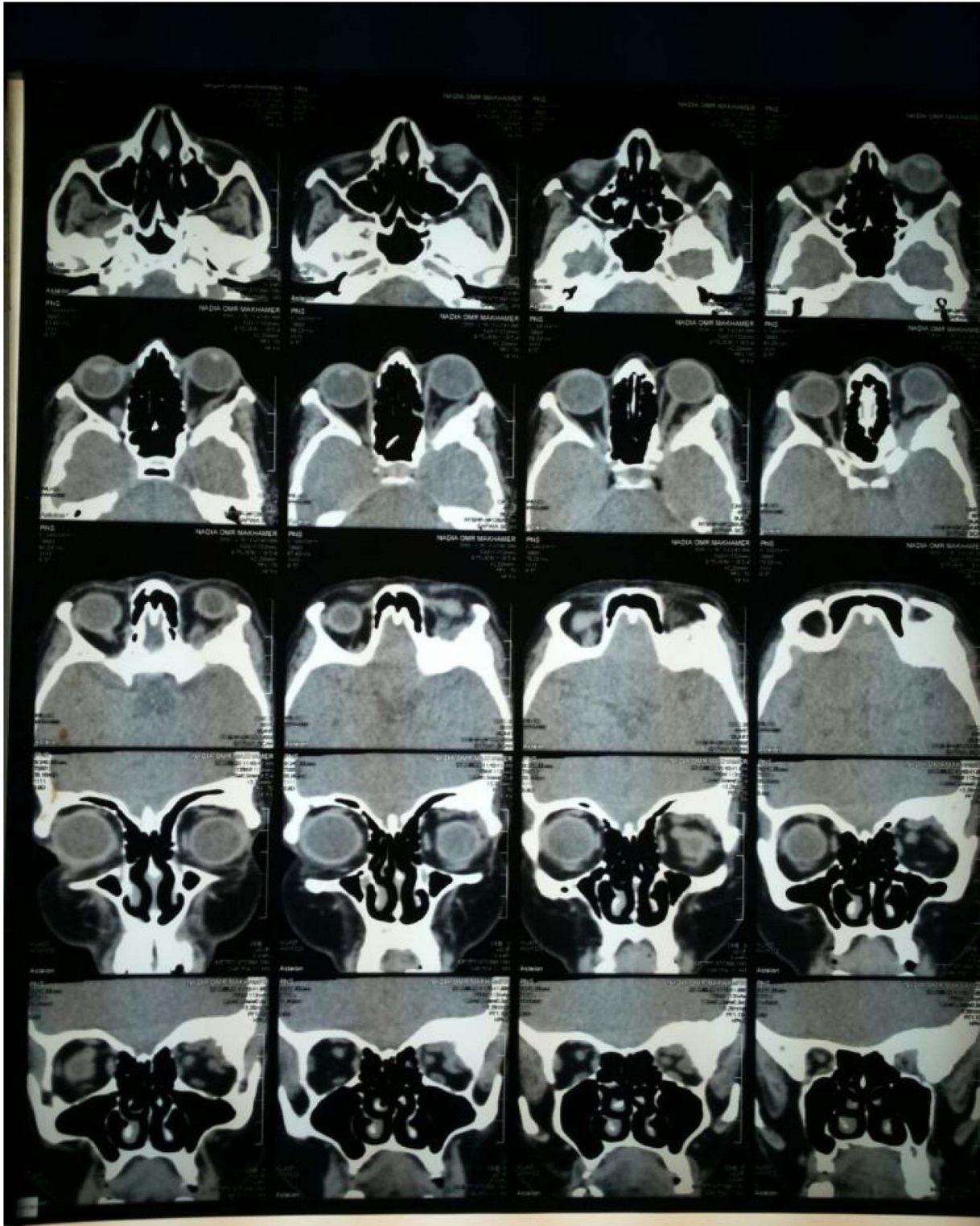


Fig. 1. (a): CT axial and coronal cuts of skull with left sphenoid and orbital hyper oestosis. (b): Preoperative axial cuts of skull with left sphenoid and orbital hyperostosis of meningioma en plaque.

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