Case Report

A Case of Trigeminal Schwannoma Presenting as a Parasellar Mass

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Abstract Schwannoma's of considerable size arising from the trigeminal nerve are very rare. Here, a case of a large right-sided parasellar mass diagnosed as a trigeminal schwannoma is reported. Complete resection of the tumor was successfully achieved. The patient had an excellent postoperative course.

Keywords: Parasellar, schwannoma, trigeminal

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INTRODUCTION

Trigeminal schwannomas (TSs) are very rare tumors, accounting for 0.07–0.36% of all intracranial tumors. TSs often arise from the gasserian ganglion, trigeminal root or one of the three peripheral branches, and the growing patterns of the tumors are dependent on its origin. TS is usually confined in the middle and posterior cranial fossae, but can sometimes be found in the infratemporal fossa, orbit and parapharyngeal space. The symptoms of TSs are absent until the mass begins to enlarge and compresses the adjacent structures, leading to pain, dysarthia, dysphagia and/or trismus.[1,2] Neuroimaging plays a quintessential role in the diagnosis and planning of the surgical approach, while magnetic resonance imaging is the criterion standard for evaluating TS patients. On T1-weighted images, the tumor appears isotense or slightly hypertense, whereas on T2-weighted images, the tumor appears with a high signal intensity that is significant enhanced after contrast injection.[3] Here, a case of a large right-sided parasellar mass diagnosed as a trigeminal schwannoma is reported.

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CASE REPORT

A 17-year-old male with no history of medical illness and a previously usual state of health presented to King Fahd Hospital of the University with acute facial numbness along the distribution of the right V1 (ophthalmic division of the right trigeminal nerve), followed by weakness in the right eye abduction (i.e., right abducent nerve palsy). Magnetic resonance imaging (MRI) of the brain was performed and it showed a right parasellar mass (iso- to hypointense in T1 and hyperintense in T2) [Figure 1]. Surgery was offered to the patient and his family, but it was not performed owing to the family's socioeconomic concerns. Subsequently, the patient was lost to follow-up until he revisited the hospital a year later complaining of acute right-sided ptosis associated with dilated nonreactive right pupil (i.e., right oculomotor nerve palsy). MRI of the brain was performed and it showed expansion of the right parasellar mass [Figure 2]. The patient was admitted for workup and was prepared for surgery. After 5 days, he had complete right ophthalmoplegia. MRI of the brain was repeated and it showed an expanding right

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parasellar mass with interval development of T1 high-signal intensity and multiple fluid-fluid level on T2, suggestive of internal hemorrhage. It also showed multiple internal locules and septations with peripheral enhancement [Figure 3]. Radiology report suggested differential diagnosis of aneurysmal bone cyst versus cystic meningioma. Magnetic resonance angiogram was negative.

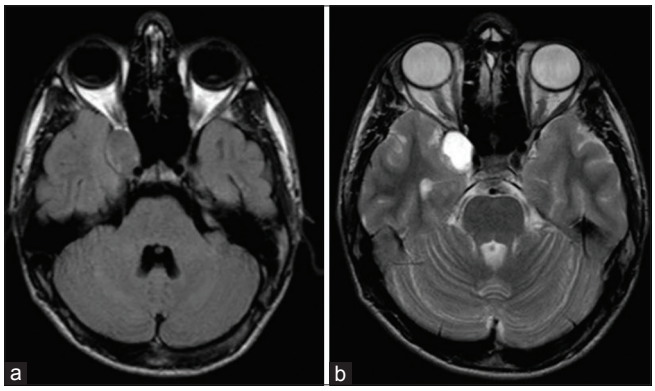

Figure 1: Initial T1- (a) and T2-weighted (b) axial magnetic resonance images showing small right parasellar cystic lesion causing some pressure effect on the lateral wall of the cavernous sinus

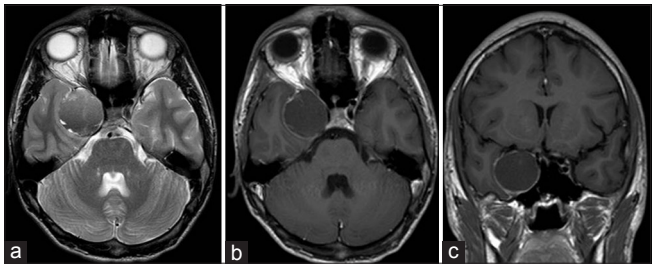

Figure 2: T2 axial (a), T1 axial (b) and coronal magnetic resonance imaging (c) images showing an enlarged right parasellar cystic lesion

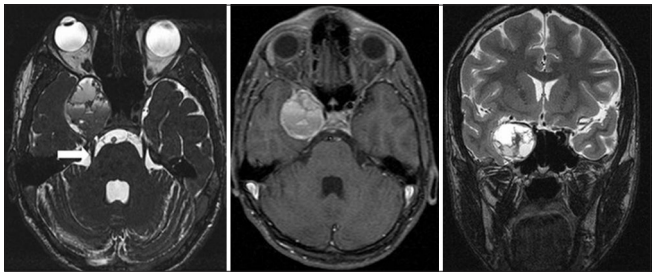

Figure 3: Magnetic resonance imaging showing the expanding right parasellar mass with interval development of T1 and multiple fluid level on T2 (the white arrow indicates the origin of the schwannoma from the right trigeminal nerve)

The right temporal craniotomy with gross total excision of the right parasellar mass was done, and the intraoperative frozen section showed spindle cell proliferation. The final histopathology showed a typical benign schwannoma appearance showing random nuclear pleomorphism along with short spindled cells. Most of the tissue was of the Antoni A type (dense and organized), with very few Antoni B type tissue. No Verocay bodies were seen. S-100 protein immunochemistry showed strong, dispersed cytoplasmic and nuclear reactivity in the schwannoma [Figure 4].

Postoperative MRI of the brain was done after about 4 months and it showed complete mass excision with no residuals and no recurrence [Figure 5]. The patient showed gradual improvement in the pupillary size and reaction as well as in extraocular movements. During his last visit, the patient was found to have been completely cured with full extraocular movements and normal pupil size and reaction.

DISCUSSION

TSs are the second most common type of intracranial schwannoma, accounting for 0.07–0.36% of all intracranial schwannoma.[4-8] TSs have a complicated developmental pattern because of variation in its origin (i.e., from trigeminal root, gasserian root or the three peripheral branches). To achieve total tumor resection, comprehensive knowledge of the anatomical features of TS is essential.[9]

Tumors originating from the trigeminal nerve often present with facial pain, as was also illustrated in the case reported here. This pain is usually described as "burning" and is often accompanied with paresthesia and a diminished corneal reflex. As the tumor enlarges, motor dysfunction of mastication occurs because of the involvement of the third branch of the trigeminal nerve. If the growth occurs in the cavernous sinus, it may lead to dysfunction of cranial nerves III, IV and VI, while growth in the prepontine cistern could lead to compressive effects on cranial nerves VII, VIII and IX.[10]

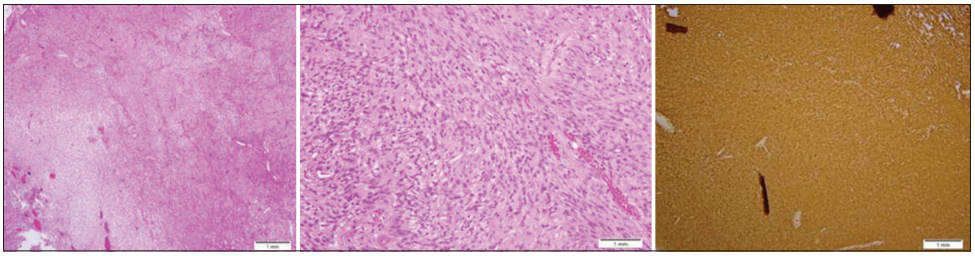

Figure 4: Microscopic results showing the typical appearance of a benign schwannoma with short-spindled cells and random nuclear pleomorphism

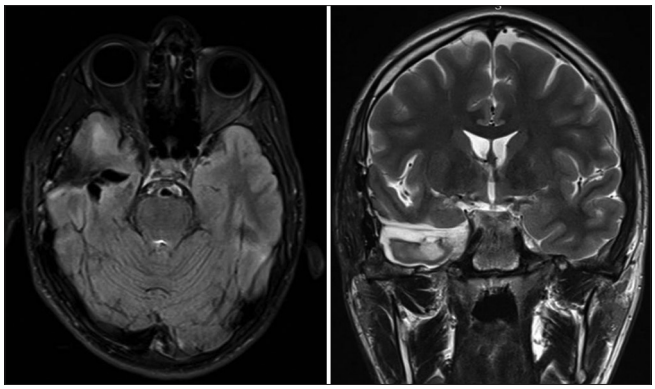

Figure 5: Postoperative magnetic resonance imaging showing total mass excision

CONCLUSION

TSs are very rare tumors. Their symptoms are usually inconspicuous until the mass becomes large enough to compress the adjacent structures. In these patients, gross total resection can be curative.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the Journal. The patient understands that his names and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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