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CASE REPORT

Nasopharyngeal Carcinoma with Dural Metastasis Masquerading as Meningioma

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ABSTRACT

Nasopharyngeal carcinoma (NPC) is one of the commonest head and neck malignancies in South East Asia. The tumor arises from epithelial layer of the nasopharynx, found most frequently at the Fossa of Rosenmuller (FOR). NPC can spread to its adjacent structures and cause distant metastasis. However, the occurrence of dura metastasis is uncommon despite being closely located. Consequently, a lesion of the dura may be misdiagnosed as meningioma, especially when it presents with a dural tail sign in the Magnetic Resonance Image (MRI). We reported a case of a 48-year-old lady with progressive right eye diplopia and blurry of vision which later on MRI noted an extensive base of skull mass at the petroclival, suprasellar and orbital apex with a dural tail Meningioma was the primary diagnosis until tissue biopsy of the nasopharynx and posterior part of inferior turbinate later revealed as nasopharyngeal carcinoma, non-keratinizing type.

KEYWORDS: Nasopharyngeal carcinoma, meningioma, sphenoidal meningioma, dural tail sign

INTRODUCTION

Nasopharyngeal carcinoma (NPC) is one of the common head and neck malignancies in Malaysia. The initial presentation varies such as nasal symptoms (nasal blockage and epistaxis), painless neck swelling and reduce hearing. The symptoms are related to the extension of the tumor to its adjacent structures. The gold standard of diagnosis is by tissue biopsy taken from the Fossa of Rosenmuller (FOR) in the nasopharynx. In some cases, atypical presentation symptom may present with the disease which results in diagnostic dilemma. For example, the patient in our case presented with diplopia and blurry of vision without any nasal symptoms. MRI revealed an extensive base of skull lesion (Figure 1) and based on this finding, meningioma was the primary lesion which left us baffled when the tissue biopsy result revealed otherwise.

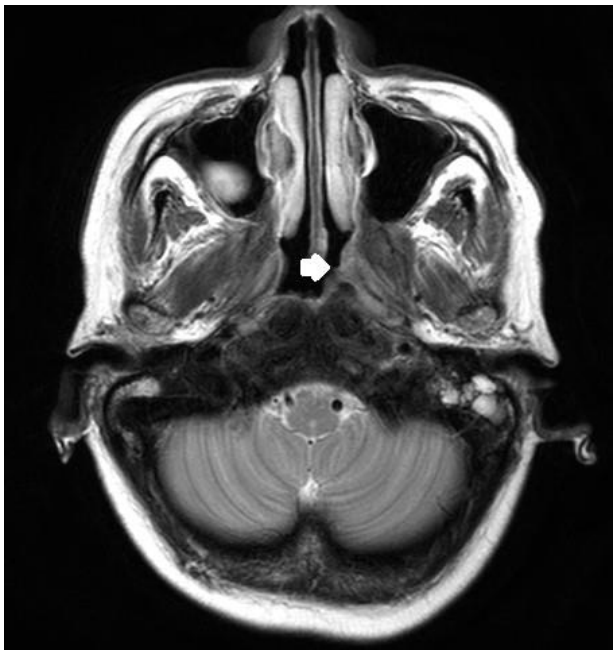

Figure 1 A T2 weighted MRI image showing an obliterated left Fossa of Rosenmuller with medialising left lateral wall of the nasopharynx (arrow).

CASE PRESENTATION

A 48-year-old lady with underlying bronchial asthma presented to Ophthalmology Clinic in our centre with a complain of progressively blurring of right vision for eight months. It was associated with diplopia and convergence squint which affected her daily activities. She claimed the eye symptoms occurred two weeks after a minor head trauma at her workplace, a furniture factory where she accidentally knocked her head on a wood panel. There was no loss of consciousness, vomiting, headache or any ear, nose and throat bleeding. She did not seek immediate medical treatment post trauma. The symptoms of double vision and reduce visual acuity occurred suddenly and progressively worsened that eventually made her seeks treatment at the hospital.

On examination, there were bilateral trochlear and abducens nerve palsy with right facial numbness. An urgent computed tomography (CT) of the orbit and brain was done and revealed an extensive base of skull lesion with the involvement of bilateral medial part of the sphenoid ridge, retroclival region, bilateral cavernous sinus and orbital apex. The case was then referred to the Neurosurgical team and an urgent Magnetic Resonance Image (MRI) was done to assess the lesion. The MRI revealed an extensive enhancing soft tissue lesion at bilateral cavernous sinus, bilateral greater wing of sphenoid, surrounding bilateral pterygoid plates, preclival and retroclival, bilateral pterygopalatine fossa with an extension to the bilateral orbital apex. Besides the base of skull lesion, there was also a broad base extra-axial left frontal lesion with a dural tail sign (Figure 2). There was a homogenous fluid collection in the bilateral sphenoid sinuses with no bony erosion. The first diagnosis at that time was base of skull meningioma with an extension to the cavernous sinus, suprasellar region with differential diagnosis of apoplexy in view of the history of head trauma eight months ago. Considering the rapid progress of the symptoms which indicative of a tissue biopsy to exclude the malignant type of meningioma was needed.

She was then referred to the otorhinolaryngology (ORL) team for a more approachable biopsy of the lesion via an endoscopic endonasal trans-sphenoidal approach as compared to the open cranial surgery due to the epicenter of the tumor mass which located at the sphenoidal area. Rigid nasoendoscopy showed a partially obliterated left Fossa of Rosenmuller as well as an ill define margin of a fleshy mass at the posterior part of the nasal septum (Figure 3). The tissue biopsy taken revealed an unexpected non-keratinizing nasopharyngeal carcinoma (WHO classification type II). The nasopharyngeal carcinoma was staged as a T4N0M1 and she is currently undergoing treatment with concurrent chemoradiotherapy (CCRT).

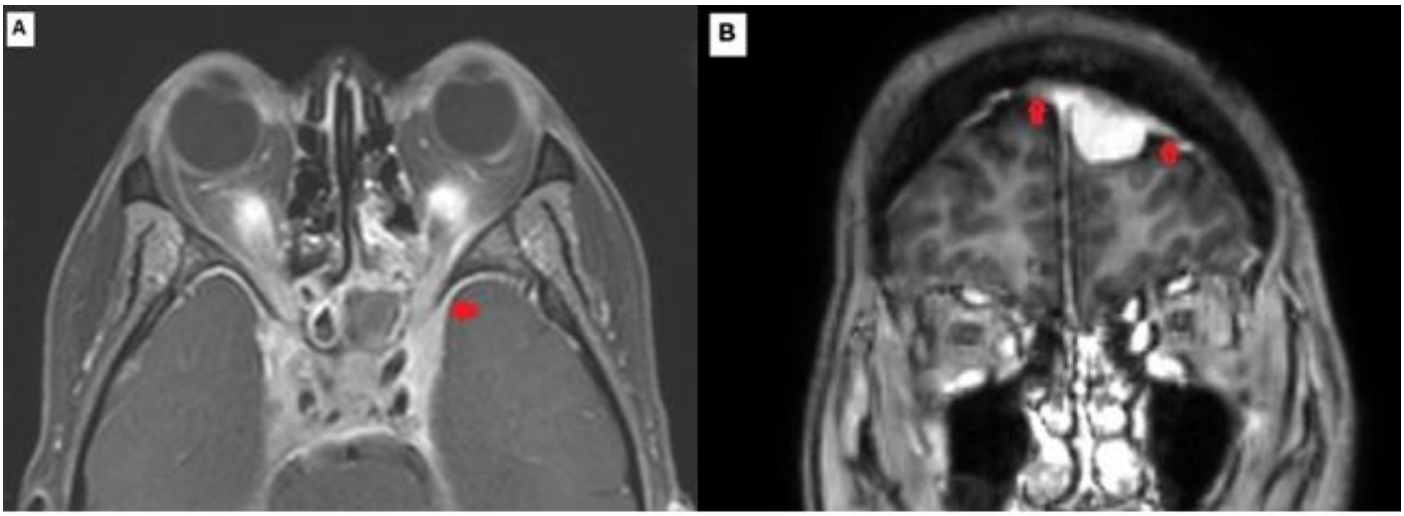

Figure 2 A: A T2 weighted MRI images with contrast showing an extensive soft tissue lesion within bilateral cavernous sinus, involving the bilateral greater wing of sphenoid and preclival area with a dural tail sign at the left cavernous sinus (arrow). B: A broad based extra axial lesion at the left frontal region with a dural tail sign (arrow).

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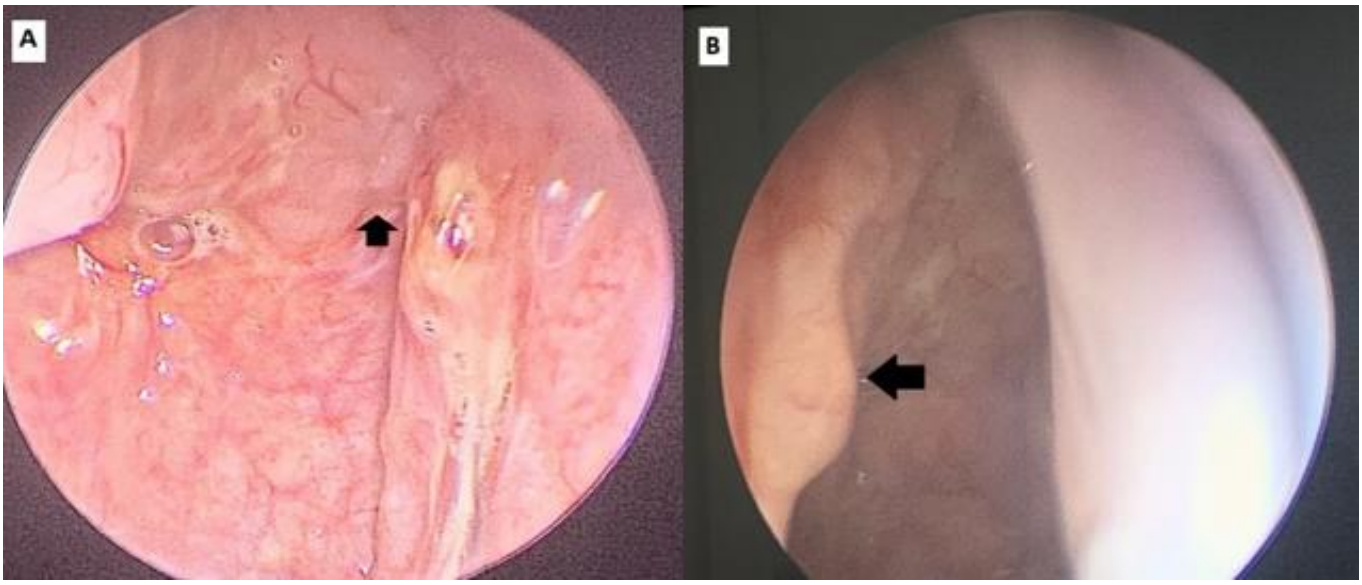

Figure 3 A: A nasoendoscopic view showing the pinkish, fleshy and hypervascularized mass at left fossa of Rosenmuller (arrow). B: Shows a pinkish, fleshy mass with an irregular surface at the posterior part of the septum (arrow).

DISCUSSION

Meningioma is a tumor over the meningeal layer of the brain and 90% of it are benign. The treatment is usually conservative depending on the extensiveness and the growth of the tumor. A dural tail sign is not only seen in a convexity meningioma but also in a meningioma at the falx, tentorium, sphenoid wing, base of skull and posterior cranial fossa [1]. Biopsy of the tumor tissue is requisite to exclude the malignant type of meningioma. The dural tail sign is also known as meningeal sign or flare sign on both T1 and T2 weighted MRI. It is due to thickening and enhancement of the dura by the tumor invasion and vascular congestion [2]. It used to be histologically believed that the enhancement is due to the tumor extension within or at the surface of the dura until a study by Kawahara et al found that the dural tails consists of dilated vessels from the attachment of the tumor to dura which is free of tumor cells. Therefore, the study suggested that the tumor cells initially invaded and packed the vessels at the tumor attachment [2]. Houman et al later suggested that the invasion and packing of dural vessels by the tumor cells at the point of tumor attachment were due to reactive hypervascularity [4]. However, with the current studies the imaging sign cannot be used as a sole pathognomonic for meningioma because it can also be used to describe an extra axial lesion, peripheral intra axial lesion and spinal lesion origin [4].

Non-keratinizing NPC is a more frequent subtype compared to the keratinizing NPC. The non-keratinizing NPC is prone to cause metastasis to the lymph nodes and distant organs while the keratinizing type is a more locally advanced disease. In our case, the patient was not present with any distant metastasis at the common site of NPC metastasis such as bone, lymph node, lung, and liver. Based on our literature review, only a few cases were reported regarding NPC with dural metastasis [5,6]. Dural metastasis in the NPC can occur due to a direct extension or hematogenous tumor spread. Direct extension into the intracranial are possible via foramen ovale, base of skull erosion and foramen lacerum [6]. Extension to the cavernous sinus may also affect the cranial nerves inside it just like our patient who had bilateral trochlear, abducens nerve palsy and right sided trigeminal nerve palsy. In other types of head and neck malignancy, cases with dural metastasis are about 8-9% which are believed to be spread via blood or from direct extension [7]. Dural metastasis is commonly found from the breast (34%), prostate (17%) and lung carcinoma (13%) [3].

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In our case, the patient had neither nasal symptoms nor headache and the initial finding was based on the MRI study that depicted an advanced disease at the central base of skull and a separate lesion at the left frontal area with a dural tail sign which made us thought it was an intracranial benign lesion. Furthermore, there was no sign of adjacent bony erosion. Taking into consideration of the epicenter of the tumor, a biopsy from a more approachable technique i.e. the endoscopic endonasal trans-sphenoidal approach was planned. The patient had undergone the customary and important examination by the ORL team which fortunately led to the findings and eventually the crucial biopsy.

As for the principle treatment of NPC, radiotherapy is the gold standard and depending on the stage of the tumor, a neo-adjuvant or concomitant chemotherapy may be considered. As a non-keratinizing type NPC, it is more radiosensitive than keratinizing subtype. The prognosis for the survival rate in a case with distant metastasis and elderly age patient is poorer compared to the metastasis after primary radiotherapy [8]. Therefore, an early initiation of oncology treatment may improve the prognosis. It is in contrast to the meningioma where it is mostly benign and manageable by observation. However, if the meningioma causes complications, surgical debulking, radiation therapy or combine therapy may be required.

CONCLUSION

The absence of nasal and ear symptoms as well as cervical lymphadenopathy that typically found in the nasopharyngeal carcinoma poses a challenge in diagnosing and initiation of treatment. Furthermore, the MRI image with the dural tail sign has led us to a different diagnosis. In our case, the mass at the nasopharynx was small and did not cause any nasal symptoms to the patient but considering we were investigating a lesion of unknown origin without any tissue biopsy yet and with the possibility of NPC, we were vigilant in taking the biopsy at the area. It was only because of the accidental finding of the small lesion at the posterior part of the nasal septum and the biopsy of abnormal looking FOR that we came to the diagnosis of NPC based on the HPE.

The routine examination i.e. nasoendoscopy has never been so vital in this case in assisting with the final diagnosis. Hence, we can conclude that a certain level of suspicion should be considered in dealing with any skull base lesion which is in close proximity to the nasopharynx that warrant a close look and even a biopsy.

Conflict of Interest

Authors declare none.

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Authors' contribution

NSM prepared for drafting the manuscript and literature review and RRR contributes for critical revision and final approval. All authors approved the final version manuscript before submitted for publication.

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