Sphenoid sinus metastatic lesion from a pyriform fossa squamous cell carcinoma

Authors: G Barrett, A Espeso, SA Hickey
Location: Department of ENT, Torbay Hospital, Lawes Bridge, Devon, UK
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ABSTRACT

Head and neck cancers represent a significant proportion of all malignancies; comparatively few occur in the nasal sinuses, and fewer still of these are metastatic in origin. This case describes the presentation and management of a sphenoid sinus metastasis from a primary squamous cell carcinoma of the pyriform fossa.

INTRODUCTION

Head and neck cancers make up 4% of all malignancies in the UK, with 90% being squamous cell carcinoma (SCC) (1). Of these, pyriform fossa SCC is common, particularly amongst smokers. It is not unusual for a primary head and neck tumour to recur after treatment. Even in the absence of nodal involvement, occult metastasis or recurrence occurs in 10-30% of patients (2).

Laryngeal carcinomas have been reported to metastasize most frequently to the lungs, ribs and thoracolumbar vertebrae (3).

This case report provides evidence of metastatic spread to the paranasal sinuses.

CASE REPORT

An asymptomatic 68 year old smoker was referred to the 2 week wait head and neck clinic after noticing a mass arising in his left neck. Flexible nasolaryngoscopy revealed a lesion in the left pyriform fossa. A fine needle aspiration showed malignant cells suggestive of adenoid cystic carcinoma. At panendoscopy a mass was seen in the left pyriform fossa involving both the medial and lateral walls. Multiple biopsies were taken, and subsequent immunohistochemical profiling suggested a diagnosis of squamous cell carcinoma.

A staging CT scan showed necrotic nodal disease, but no evidence of distant metastasis. Accordingly a staging of T1 N2a M0 SCC of the left pyriform fossa was made. After discussion with the multidisciplinary team the patient underwent a Left Type 1 Modified Radical Neck Dissection, followed by chemoradiotherapy. There were no immediate complications from this treatment.

One year after completion of treatment, the patient presented to his GP with double vision and frontal headaches. On examination he had horizontal diplopia consistent with an isolated right sided VIth cranial nerve palsy. Visual fields and Ishihara colour vision were normal and there was no evidence of an afferent papillary defect or papilloedema. A CT scan of the head showed no abnormalities, so the right medial rectus muscle was treated with Botox injection. His diplopia improved.

Six months later, the patient represented with diplopia, but this time had signs of a left sided VIth cranial nerve palsy. MRI of the brain showed an enhancing soft tissue mass extending from the left sphenoid sinus posteriorly to involve the clivus, cavernous sinus, pituitary fossa and the prepontine space. Biopsy of the sphenoid sinus under general anaesthesia confirmed recurrence of the original pyriform fossa tumour. The patient is currently awaiting treatment with stereotactic radiotherapy to the metastasis.

DISCUSSION

Sinonasal tumours represent 1% of all cancers (4), and of these very few are metastatic. One study (5) found that renal primary tumours were most often responsible for secondary spread to the paranasal sinuses, and of these, the maxillary sinus is involved in 42%, the nasal cavity in 42% and the sphenoid sinus less frequently (6).

The sphenoid sinus is a very rare site of metastasis, and only isolated case reports link it with primaries of the larynx and lung (7,8). Metastasis have been shown to occur even after the initial malignancy has been controlled (9) but no reports could be found in the literature of metastasis originating from a pyriform fossa primary.

Anatomically the sphenoid sinus has important relations which dictate how tumours present. The cavernous sinus lies laterally containing the internal carotid artery, the occulomotor, trochlear and abducens nerves, and branches of the trigeminal nerve. The sella turcica is situated superoposteriorly and contains the pituitary gland. Posteriorly, the sphenoid sinuses may abut the brain stem.

An isolated unilateral cranial nerve palsy is a “red flag symptom” and mandatory urgent imaging is indicated. Whilst CT scans are recognised as the modality of choice for imaging bone lesions, MRI is more reliable in detecting soft tissue pathology. Thus the scans are complimentary and should both be used.

Treatment of tumours invading the skull base from the sphenoid sinus is challenging. As malignancies of this nature carry a poor prognosis, in many cases treatment is restricted to symptomatic control, often through the use of palliative radiotherapy. Surgical resection may be possible, either via transfacial or lateral approaches, or via an endoscopic transphenoidal approach (10). All approaches carry significant risks including paralysis, damage to cranial nerves, and death as a result of injury to the internal carotid artery. Unresectable tumours may be treated with stereotactic radiotherapy. This treatment can be used in patients who have previously had radiation to the same area. Likely side effects include headache, nausea,

vomiting and transient neurological symptoms secondary to cerebral oedema.

This case is the first in the literature documenting a pyriform fossa SCC primary as the source of a sphenoid sinus secondary deposit. It reminds us that recurrence of head and neck primary SCCs are common, so unusual neurological presentations should be fully investigated to exclude malignant pathology.

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