

Sphenoid sinus mucocoele presenting with isolated oculomotor nerve palsy

DHARAMBIR S. SETHI, F.R.C.S.*, DAVID P. C. LAU, B.MED.SCI., F.R.C.S.*, CHUMPON CHAN, F.R.C.S.†

Abstract

We describe two cases of sphenoid sinus mucocoele. Both presented with isolated oculomotor nerve palsy. Mucocoeles involving only the sphenoid sinus are uncommon. They are probably under-diagnosed as they may be asymptomatic or cause non-specific symptoms. Nasal symptoms occur infrequently but the close relationship of the sphenoid sinus to the orbital apex means that ocular symptoms including cranial nerve palsies are a common presenting feature. Involvement of the third cranial nerve in isolation is rare but has important neurosurgical implications which must be excluded before this symptom is attributed to the sphenoid sinus.

Key words: Sphenoid sinus; Mucocoele; Oculomotor nerve

Case reports

Case 1

A 44-year-old male storekeeper presented to the Accident and Emergency department with a three-day history of drooping of his left eyelid and diplopia. He also gave a one-week history of left retro-orbital headache. There was no other past medical history of note. Examination revealed an isolated left-sided oculomotor nerve palsy (Figure 1). There was sparing of the ipsilateral pupil. Visual fields were normal and there were no other cranial nerve abnormalities. Physical examination was otherwise unremarkable. Standard haematological investigations including blood glucose were normal. A computed tomography (CT) scan showed a non-enhancing soft tissue mass filling and expanding the left sphenoid sinus. There was erosion of the posterolateral wall of the sinus (Figure 2). Magnetic resonance image (MRI) scanning showed hyperintensity of the mass on T1- and T2-weighted images. There was no enhancement with gadolinium DTPA (Figure 3). The patient underwent endoscopic sphenothmoidectomy to decompress the mucocoele. Bone overlying the middle cranial fossa and periorbita was found to be dehiscent but there was no CSF leakage evident. The patient was discharged 12 days post-operatively and demonstrated gradual improvement in his ocular symptoms over several weeks.

Case 2

A 61-year-old lady presented with a 24-hour history of drooping of her left eyelid and diplopia. She had previously undergone photocoagulation for a retinal lesion but there was no other significant past medical history. Examination revealed an isolated left oculomotor nerve palsy with a dilated ipsilateral pupil. Examination of her visual fields by an ophthalmologist revealed a field defect consistent with her previous photocoagulation. There were no other cranial nerve abnormalities and physical exam-

ination was otherwise unremarkable. An urgent CT brain scan showed a $3 \times 3 \times 1.5$ cm non-enhancing soft tissue mass expanding the sphenoid sinus. A MRI scan showed hyperintensity of the mass on T1- and T2-weighted images. There was no enhancement with contrast. A diagnosis of

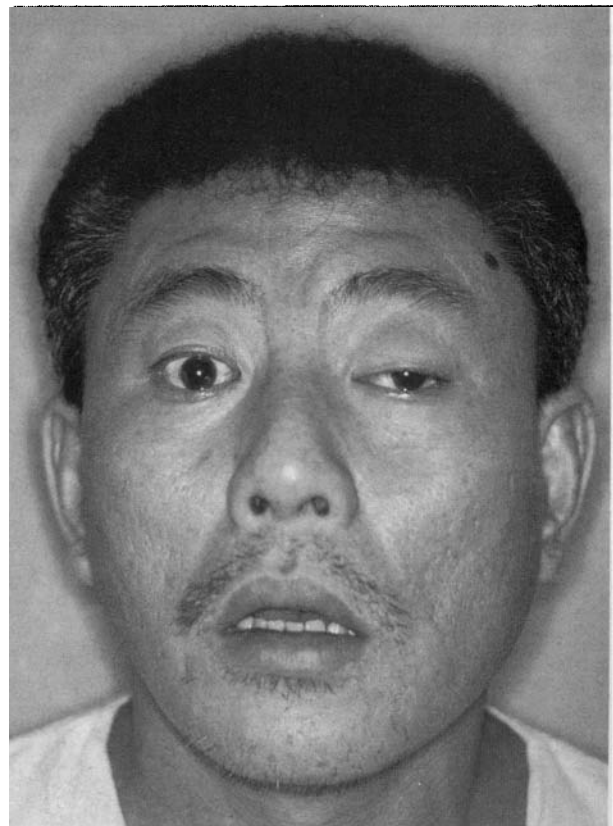


FIG. 1

Left ptosis due to oculomotor nerve palsy.

From the Departments of Otolaryngology* and Neurosurgery†, Singapore General Hospital, Republic of Singapore.
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Palsies of eye movement with diplopia occur in 30 to 50 per cent of cases (Friedmann and Harrison, 1970; Nugent *et al.*, 1970). Our series of four sphenoid mucocoeles concurred with these figures in that two (50 per cent) presented with oculomotor nerve palsy. The frequency of diplopia may reflect the disabling nature of this symptom and that it is often the reason for the patient seeking help. The oculomotor nerve is affected more frequently than the trochlear and abducent nerves. Oculomotor nerve involvement accounted for 70 per cent of 21 ocular palsies reviewed by Friedmann and Harrison (1970). There is often associated optic nerve involvement and isolated oculomotor palsy is rare. Oculomotor nerve palsy is characteristically recurrent. Pupil sparing occurs in approximately half of cases (Johnson *et al.*, 1986).

The importance of sphenoid sinus mucocoele presenting with isolated IIIrd nerve palsy lies in the differential diagnosis. Sphenoid sinus mucocoele is a rare cause of oculomotor nerve palsy (Friedmann and Harrison, 1970; Rush and Young, 1981). Isolated oculomotor nerve palsy with ipsilateral pupillary involvement frequently indicates an intracranial aneurysm (Jefferson, 1947). Features suggestive of mucocoele rather than aneurysm include recurrent palsy, associated optic nerve involvement and proptosis, but angiography is necessary to exclude an aneurysm.

Isolated oculomotor nerve palsy with pupillary sparing is characteristic of diabetic ophthalmoplegia. Pupillary sparing is believed to result from ischaemia of the central portion of the nerve with sparing of the more peripherally placed parasympathetic fibres. Mucocoeles probably cause ischaemia by compressing the microvascular supply to the nerve (Johnson *et al.*, 1986). Another theory for pupillary sparing is selective compression of the superior division of the oculomotor nerve. The nerve divides into superior and inferior branches in the anterior cavernous sinus with the inferior division supplying the parasympathetic fibres to the pupil. The latter theory seems less likely in the absence of other cranial nerve palsies (Stefanis and Przedborski, 1993).

We emphasize an awareness of sphenoid sinus mucocoele as a cause of isolated oculomotor nerve palsy. We also stress the need to exclude other important neurological diagnoses when faced with this symptom. The symptom of isolated oculomotor nerve palsy represents an important interface between the disciplines of otolaryngology, ophthalmology and neurosurgery.

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Address for correspondence:
David P. C. Lau, F.R.C.S.,
Department of Otolaryngology,
Singapore General Hospital,
Outram Road,
Singapore 169608,
Republic of Singapore.

Fax: 0065-2262079