

Pituitary Apoplexy Associated with Ptosis

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ABSTRACT

Pituitary tumours are the most common sellar masses, frequently presenting with visual impairment and endocrine abnormalities. Two cases of pituitary tumour presenting with ptosis are reported.

Apoplejía Pituitaria Asociada con Ptosis

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RESUMEN

Los tumores pituitarios son las masas selares más comunes, que frecuentemente se presentan con problemas de visión y anomalías endocrinas. Se presentan dos casos de tumor de la pituitaria, acompañados de ptosis izquierda.

West Indian Med J 2005; 54: (1) 87

INTRODUCTION

Pituitary adenomas are common intracranial tumours, constituting 14.8 % of all histologically confirmed cases at the University Hospital of the West Indies with a generally reported incidence of 10-15 % . They are more common in women than men, usually presenting with endocrine abnormalities. Ptosis is a previously reported but rare presenting feature and may result from haemorrhage into the tumour. A patient with sudden onset of ptosis, particularly with a complete oculomotor palsy is most likely to be diagnosed as a posterior communicating artery aneurysm and not a pituitary tumour. The following patients remind us that pituitary apoplexy is an uncommon but important associated finding in acute unilateral ptosis.

Case 1

A 40-year-old Caucasian male presented with a two-day history of severe headaches and a one-day history of left-sided ptosis preceded by diplopia. There was no history of loss of consciousness, neck stiffness or features suggestive of seizure activity. The previous medical history was non-contributory. On examination, there was a complete oculomotor nerve palsy. Emergency computed tomography (CT) of the brain demonstrated no subarachnoid haemorrhage. An unruptured posterior communicating artery

aneurysm was suspected and urgent cerebral angiography performed.

Digital subtraction angiography of the carotid and vertebral circulation revealed persistent narrowing of the left carotid siphon but no aneurysm. Subsequent magnetic resonance angiography (MRA) also revealed narrowing of the left carotid siphon and images of the brain showed a pituitary tumour of inhomogenous but mainly high signal intensity on T1 weighted images (T1WI) and iso-intensity on T2 weighted images (T2WI), in keeping with a haemorrhagic tumour. Minimal peripheral enhancement following

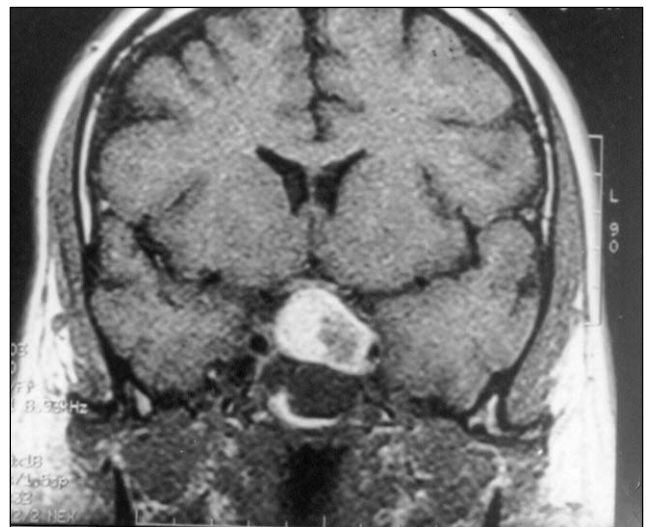


Fig. 1: Coronal T1WI (T one weighted image) post gadolinium, showing a heterogenous sellar mass with compression of left cavernous sinus, internal carotid artery and optic chiasma.

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administration of intravenous gadolinium was noted. The mass expanded the sella, compressing the left cavernous sinus and the left internal carotid artery with superior displacement of the optic chiasm (Fig.1). Coronal CT images suggested a breach in the floor of the sella turcica.

Visual field assessment revealed left nasal loss and mild constriction of the right nasal field. He subsequently developed palsies of left trochlear and abducens nerves, as well as inappropriate secretion of antidiuretic hormone.

At trans-sphenoidal surgery, there was erosion of the floor of the pituitary fossa with tumour extension into the sphenoid sinus. Histology confirmed a pituitary adenoma with extensive areas of haemorrhage and necrosis, consistent with apoplexy.

In the early postoperative period, there was complete resolution of his ptosis. Mild residual diplopia had resolved by three months.

Case 2

A 61-year-old male of African descent presented with a history of sudden severe headache followed by closure of his left eye. There was a previous history of hypertension but not diabetes mellitus. On examination, he was found to have partial left oculomotor (there was pupillary sparing) and trochlear nerve palsies. Emergency CT demonstrated no subarachnoid haemorrhage but showed an isodense



Fig. 2: Coronal T1WI post gadolinium showing sellar mass with compression of the optic chiasma and left internal carotid artery.

suprasellar mass with an enlarged pituitary fossa. Computed tomography angiography revealed a pituitary tumour with mild enhancement on delayed images.

The MRI showed a minimally enhancing sellar mass of predominantly high signal intensity on T1WI with a central

hypo-intense area. There was superior compression of the central optic chiasma (Fig. 2). At surgery, a haemorrhagic pituitary adenoma was found. The ptosis resolved completely postoperatively.

DISCUSSION

Both patients were male, had surgically confirmed pituitary apoplexy and presented with left sided ptosis. Anisocoria was not a consistent feature and extraocular muscle palsies varied between patients. Both tumours were demonstrable on CT. The MRI demonstrated the haemorrhage to greater advantage than did computed tomography.

Unilateral ptosis may be congenital or acquired. Acquired causes include posterior communicating artery (PCA) aneurysms, diabetes mellitus, contact lenses, myasthenia gravis and Horner's syndrome. Of PCA aneurysms, 33 – 56% present with ptosis. Lesions of the oculomotor nerve can involve the nucleus in the midbrain or nerve fascicles within the ventral midbrain, subarachnoid space, cavernous sinus, superior orbital fissure or orbit. Aneurysms of the PCA are an important cause of oculomotor nerve lesions from compression of the nerve outside the central nervous system (CNS), as it passes near the junction of the PCA with the supraclinoid portion of the internal carotid artery near the cavernous sinus. Clinical findings include dysfunction of the extraocular muscles innervated by the oculomotor nerve, with associated pupillary paralysis. Third nerve lesions from diabetes mellitus or hypertension typically spare pupillary function although it is not always possible to differentiate between medical and compressive causes of these lesions based entirely on clinical findings as in case two. Isolated unilateral ptosis due to superior rectus weakness without other ophthalmic muscle or pupillary abnormality may be due to involvement of the superior branch of the oculomotor nerve in the orbit and is rarely the initial feature of a pituitary tumour with apoplexy (5,9,11). The topographical anatomy of the oculomotor nerve with the peripheral location of the pupilomotor fibres may explain the tendency for compressive lesions to involve the pupil and non-compressive lesions to spare it (5).

Pituitary adenoma is the most common tumour of the sella turcica and suprasellar cistern. A tumour confined to the sella usually presents with hormonally related symptoms. Non-secreting tumours are usually large at diagnosis, frequently extending into the suprasellar cistern with compression of the optic chiasm, producing visual field deficits, particularly bitemporal hemianopsia (6). Cranial nerve palsies are decidedly uncommon, being more regularly seen in parasellar neoplasms such as meningiomas, less commonly with neurinomas, when the oculomotor nerve is the most likely to be affected, followed in frequency by the abducens and trochlear. Patients may present with acute ptosis. Oculomotor nerve palsies generally develop as the end stage of an expanding tumour, combined with visual loss. Large tumours may extend high in the brain obstructing

the foramina of Monro, causing hydrocephalus. Headache is common and may be the only presenting symptom .

Rarely, sudden haemorrhage into the tumour causes severe headache, often with acute chiasmal compression or oculomotor nerve palsy from rapid expansion of the tumour, pituitary apoplexy. The presence of mixed oculomotor palsies or bilateral ophthalmoplegia and an afferent pupillary defect or chiasmal patterns of field loss help to differentiate apoplexy from aneurismal subarachnoid haemorrhage. There is no proven association between pituitary tumours and aneurysms but they may coexist due to the frequency of occurrence of both.

Pituitary apoplexy is a surgical emergency. It has been reported postoperatively, in association with pregnancy, following treatment of a macroprolactinoma and related to adhesive arachnoiditis.

These cases are an important reminder that pituitary tumours (and other sellar masses) are an additional consideration in the differential diagnosis of patients presenting with ptosis.

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