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Sir,

Acute painful third nerve palsy: the sole presenting sign of a pituitary adenoma

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Painful third nerve palsy is a well known presenting sign of a posterior communicating artery aneurysm.[1] However it is unusual for a pituitary adenoma to present as a third nerve palsy. This report describes a patient who presented with an acute painful pupil involving third nerve palsy, which on neuroimaging was found to be due to a pituitary adenoma with parasellar extension.

Case report

A 43-year-old man presented with a 3-week history of headaches, intermittent drooping of right upper lid and diplopia. These had largely settled on antibiotics prescribed by his GP for frontal sinusitis. He was seen in the eye Casualty and apart from tenderness in the right supratrochlear region and mild ptosis, the ocular examination was normal. A month later he represented to the eye clinic with a sudden onset of severe occipital headache, diplopia and right upper lid ptosis. On examination the unaided visual acuity was 6/6 in the right eye and 6/5 in the left eye. There was right partial ptosis with anisocoria that increased in the bright light. The pupils measured 4.5 mm on the right, with sluggish reaction to direct light, and 3 mm on the left, with a normal reaction to light. A cover test revealed exotropia with a mild restriction of adduction, moderate restriction of depression and elevation in the right eye. The Hess chart was consistent with the diagnosis of right third nerve palsy (Figure 1). Fundoscopy showed well-defined disc margins with preserved spontaneous venous pulsations. The patient was X-linked red-green colour blind. Visual fields were normal.

The remaining cranial nerves were intact and there was no evidence of sensory or motor weakness. A diagnosis of a right painful pupil involving third nerve palsy was made. An aneurysm of the posterior communicating artery was suspected. An MRI scan of head and sellar region showed a large mass centred on pituitary fossa with invasion of both cavernous sinuses and bilateral parasellar extension, more marked on the right (Figure 2). There was no evidence of intracerebral aneurysm and this was confirmed on cerebral angiography. Haematological and endocrinal investigations were normal. The patient subsequently underwent transphenoidal resection of the tumour. Histology confirmed the diagnosis of pituitary adenoma. Postoperatively his visual acuity was 6/12 in the right eye and 6/5 in the left. Over the next 6 months the patient's ocular motility and ptosis improved and at the last follow-up visit his right third nerve palsy had resolved completely.

Comment

The most common ophthalmic presentation of pituitary tumours is with visual field defects.[1] Painful third nerve palsy is an unusual presentation of pituitary adenoma. Saul *et al*[1] reported five cases of third nerve palsy as the sole presenting sign of pituitary adenoma. Out of these in only one patient the third nerve palsy was painful. Cano *et al*[2] reported one case of intermittent third nerve palsy secondary to pituitary adenoma. This was accompanied by short nocturnal attacks of retro-orbital pain, rhinorrhoea and lacrimation.

Pituitary tumours cause third nerve palsy by several mechanisms. It may occur slowly secondary to mechanical compression against the interclinoid ligament, or by compression and invasion of the cavernous sinus by the tumour. Secondly it may occur rapidly, associated with headache due to compressive

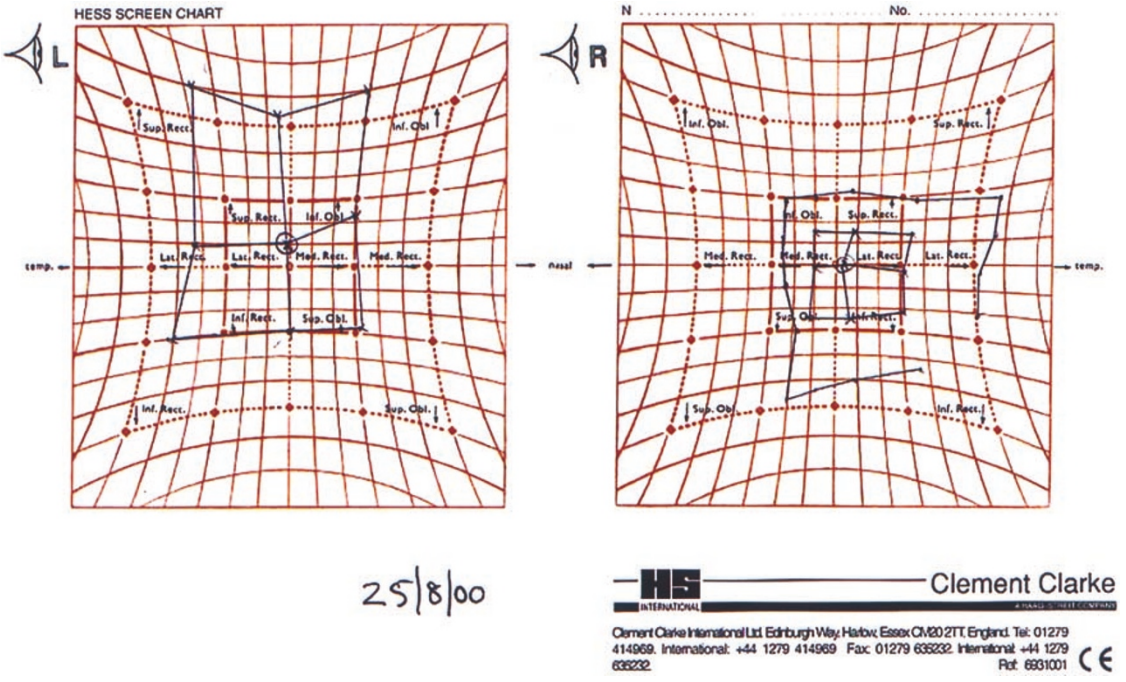

Figure 1 Hess chart showing right third nerve palsy.

Figure 2 MRI scan of head and sellar region. Gadolinium-enhanced T_1 weighted axial image showing a large mass centred on pituitary fossa, with invasion of both cavernous sinuses and bilateral parasellar extension, more marked on the right side.

effects or by compromise of the vascular supply to the nerve itself.[1] In our patient the initial symptoms of intermittent diplopia were due to slow compression of cavernous sinus by the tumour with acute expansion of tumour mass causing sudden onset of severe occipital headache and pupil involving third nerve palsy.

We conclude that pituitary tumour should be included in the differential diagnosis of a patient presenting with isolated painful third nerve palsy.

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