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LETTER TO THE EDITOR

Vestibular schwannoma presenting with psychosis

Robert Morris · Neil Kitchen

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Dear Editor,

We describe an unusual case of vestibular schwannoma presenting with psychotic symptoms, which resolved with excision of the lesion.

A 22-year-old right-handed female presented with a 1-day history of abnormal behaviour. She was disorientated, confused and claimed that the people around her were an illusion. Over the preceding month she had become introverted, slept longer hours and stopped going out. She noticed decreased hearing in the left ear and had been treated for ear wax. On the day of presentation she reported that she saw unusual shapes that made her feel like she was in 'another world'. She shouted 'I want God' repeatedly and then just 'god'. At times she was unresponsive with rapid eye movements. She became calmer following sedation and explained that her imagination frightened her and that chanting made her feel safer.

There was no history of drug or alcohol abuse, and no previous medical or family history of note.

Imaging showed a large tumour in the left cerebellopontine angle with associated obstructive hydrocephalus (Fig. 1a). She was commenced on dexamethasone and underwent insertion of a ventriculoperitoneal shunt.

The patient's psychosis was treated with risperidone. Further review revealed auditory and visual hallucinations. She described ringing in the left ear interspersed with voices saying 'I hate you'. She was unable to describe her visual hallucinations other than reporting they were on the ceiling. Her psychosis and agitation worsened, which required intensive nursing on a secure psychiatric unit. Electroencephalographic (EEG) examination did not reveal any epileptiform activity.

The lesion was removed via a retrosigmoid approach. A remnant of the tumour was left at the internal auditory meatus. Histological examination demonstrated a WHO grade I vestibular schwannoma. She had complete sensorineural hearing loss in the left ear.

Following surgery the patient made a steady recovery. Her visual and auditory symptoms receded and she stopped risperidone 6 weeks postoperatively. At outpatient review at 3 months she was entirely well and had applied to restart an undergraduate course of study. Postoperative imaging revealed encephalomalacia in the left middle cerebellar peduncle, consistent with prior compression (Fig. 1b).

This patient's presentation is unusual for vestibular schwannoma, which commonly presents with hearing and balance loss. Peduncular hallucinosis (PH) is a syndrome that combines hallucinations ('sensory perception in the absence of external stimuli') with brainstem symptoms. First described by L'hermitte in 1922 [2], it is associated with intrinsic brainstem lesions, subarachnoid haemorrhage and surgical trauma in the posterior fossa [6]. However there is no description of a vestibular schwannoma that presented with PH and resolved with resection. It was postulated that our patient's auditory hallucinations were linked to hearing loss and tinnitus in the left ear, following a 'disinhibition' model [1, 10]. It is not clear that this is the case, however. Psychosis was not related solely to auditory symptoms, and her symptoms persisted for weeks following resection of the lesion and complete loss of hearing on the left side.

The psychosis of PH consists of visual hallucinations, associated with hypersomnolence and oculomotor disturbance. Causative lesions are usually located in the rostral brainstem but are also found in the thalamus and basal ganglia [5]. It is unusual for extrinsic brainstem compression to cause such symptoms.

R. Morris (✉) · N. Kitchen
Department of Neurosurgery, National Hospital for Neurology and Neurosurgery,
Queen Square,
London WC1N 3BG, UK
e-mail: robcmorris@hotmail.com

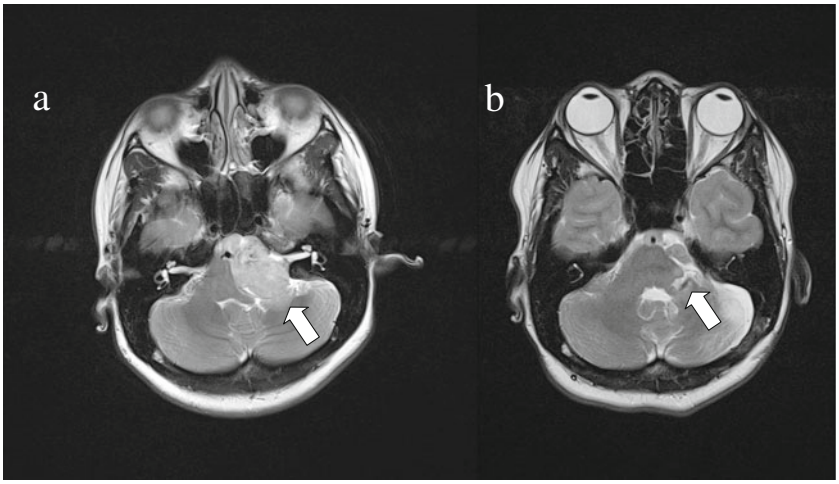

Fig. 1 **a** T2-weighted MRI showing a left cerebellopontine angle space-occupying lesion (*arrow*). **b** T2-weighted post-operative MRI that shows encephalomalacia (*arrow*) in the left middle cerebellar peduncle

Transient PH has been described secondary to extrinisic compression of the brainstem by a cystic craniopharyngioma [3]. In this case the symptoms also resolved with relief of the compression. Posterior compression of the brainstem by medulloblastoma has also been shown to cause hallucinosis that resolved with excision [7]. Large posterior fossa meningiomas have been associated with psychotic symptoms, which resolved within days of excision [4]. The pathophysiological mechanism is unclear. There are numerous publications describing lesions around the limbic system that present with psychotic symptoms [8]. The role of the cerebellum in cognitive and emotional activity is less documented, but may be implicated via influence on dopamine pathways [9].

Our report confirms the possibility that compression of the brainstem by an extra-axial posterior fossa tumour can present with psychosis. Psychiatric symptoms resolved with excision of the lesion.

Contributors RM and NK jointly conceived and wrote this report.

Conflicts of interest None.

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