Posterior fossa tumours presenting to psychiatrists

M.F. BRISTOW

Academic Department of Psychiatry, Charing Cross Hospital, Fulham Palace Road, London W6 9RF, UK

Posterior fossa tumours may in their early stages give rise to dizziness, nausea and subjective unsteadiness. Such symptoms are commonly accompanied by psychological distress and are not always easy to diagnose. In the presence of a past psychiatric history, they may be wrongly interpreted as exacerbations of neurotic disorder. Two examples of this are given. Because of the commonness of vestibular symptoms and the rapid growth of these tumours, a normal scan early in the history may be misleading.

Introduction

The majority of patients with brain tumours show psychiatric symptoms at some stage (Lishman, 1983), and in a sizeable minority psychiatric symptoms are the presenting complaint. It is important to be alert for clues in the history and mental state that will suggest the presence of a tumour.

So far most of the attention has concerned the anterior fossa, particularly the frontal lobe (Ron, 1989; Maurice Williams and Dunwoody, 1988). There are good reasons for this. Studies suggest that anterior fossa tumours are more likely than their posterior fossa counterparts—19% compared with 5%—to present with mental symptoms (Lishman, 1983). The frontal lobe, especially its pre-frontal aspect, gives little in the way of localising signs whereas the brainstem and cerebellum have several. Meningiomas which, with their long histories and subtle symptom development, are potential diagnostic pitfalls (Law, 1988), are not found in the posterior fossa.

But posterior fossa tumours can also mislead. In their early stages they may produce disturbances of balance, dizziness, nausea, vomiting and occipital or nuchal pain. All these may be interpreted as symptoms of arousal and tension due to anxiety or depression. If the tumour is midline there may be no lateralising symptoms until late, or the tumour may present with hydrocephalus (Lishman, 1983) which may itself be misinterpreted as severe somatic anxiety. Neurological signs may or may not be present, but if the patient has a history of neurotic disorder it is likely that neurological examination will be cursory.

I present two cases where posterior fossa tumours presented in this way. The presence of a psychiatric history may have misled investigators as to the significance of the symptoms.

Case 1

A 47 year old woman was referred by her GP to a physician for epigastric pain, nausea and belching. She was described as having "all sorts of symptoms" and of being "a worrier" in this case worrying that her symptoms denoted cardiac problems. Investigations were normal, except for a finding of a small hiatus hernia and she was reassured. Two months later she was presented back to her GP with a history of right sided earache and tinnitus of a few weeks' duration. This was accompanied by transient sensory and motor symptoms on the right side together with generalised paraesthesiae, dizziness, sleep and appetite disturbance, fatigue and malaise.

She had a previous history of Meniere's syndrome although it was not clear where the initial diagnosis was made or on what grounds. She also had hypertension, controlled with Capoten and was apparently suffering hot flushes thought to be menopausal. Past psychiatric history included three episodes of depression, one postnatal in 1965 and two reactive to marital disharmony in 1980 and 1982.

On this occasion she was diagnosed as depressed with an exacerbation of Meniere's disease. However her symptoms failed to improve with antidepressant drug treatment and 4 months after presentation she was admitted to a psychiatric ward where she remained for a further 3 months, her mood showing slight improvement although her vestibular symptoms did not. Three months after discharge she developed in addition a rapidly progressive right sided clumsiness and was admitted to a neurological ward as an emergency. A CT scan showed a mass in the left side of the pons thought to be a glioma, as no evidence of tumour elsewhere in the body could be found. The tumour was thought inoperable and she was treated with DXT without success. she died 3 months later, about a year and a quarter after her initial presentation.

Case 2

A 41-year-old woman presented to Casualty with a 4-week history of occipital headache, loss of balance and dizziness. She was referred to a medical team who performed a full battery of tests including a CT scan, all of which were normal. While an inpatient she was noted to be tearful and worried. A diagnosis of benign positional vertigo was made with depression reactive to her physical symptoms.

Her past psychiatric history included a 6-year period of amphetamine abuse followed by a diagnosis of "chronic depression with personality disorder" made 10 years previously. Not long after this she had an EEG which showed a pattern consistent with left sided TLE although she never had any evidence of a fit. The depression was thereafter mild and intermittent, generally related to problems with her marriage, until the onset of the presenting complaint.

The symptoms remitted but recurred 1 year later together with nausea and vomiting. She was again admitted to a medical ward and the diagnosis was again benign positional vertigo. Low mood and tearfulness were again evident and she was admitted 2 weeks later to a psychiatric ward where she was noted to be dehydrated and a diagnosis of depression with anxiety symptoms and psychogenic vomiting was made.

FIG. 1. The photograph show the CT scan from Case 2. The arrow indicates the dilated fourth ventricle within which is a loculated mass, later found to be an ependymoma.

She was treated in the psychiatric day hospital with antidepressants and behaviour therapy and improved over the next 5 months. However just before discharge her dizziness, unsteadiness, nausea and headache returned. Although there was some debate as to whether these symptoms denoted separation anxiety, neurological examination showed nystagmus and mild unilateral ataxia and a CT scan showed marked hydrocephalus and a posterior fossa mass (see Fig. 1). The neurosurgeons were able to remove most of an ependymoma arising from the floor of the fourth ventricle and treated the remainder with DXT. Six months post-operatively she shows mild dysarthria and balance problems but no anxiety or depression. Her CT scan shows no recurrence.

Discussion

Certain similarities are worth noting. In both cases, anomalous symptoms were present. Earache is a common symptom neither in Meniere's disease nor depression (Case 1) and vomiting sufficient to produce dehydration is not commonly found in functional disorders (Case 2). In both cases the patients were women in their forties, good candidates for recurrent neuroses but also approaching the peak age for the incidence of glioma.

The most salient similarity is that both had previously received benign physical diagnoses for their symptoms, Meniere's disease in Case 1 and benign positional vertigo in Case 2. That is not to say that these diagnoses were erroneous; both are much commoner than brain tumours at the patients' age and the relatively rapid course of posterior fossa tumours compared with their anterior fossa counterparts suggests that in each case the tumours' symptoms may have been

superimposed on the original ones. But the relatively rapid course of posterior fossa tumours also makes a year-old normal scan of little value.

There is a problem with the significance of psychological distress in vestibular disorders. Tinnitus and vertigo are commonly accompanied by psychological symptoms. One study (Berrios, 1988) looking at ENT outpatient attenders found that GHQ scores were highest in those suffering from tinnitus, another (Harrop Griffiths, 1987) found prevalence of psychiatric disorder in tinnitus sufferers to be 48% compared with 7% in those suffering uncomplicated hearing loss. The association between vertigo and psychiatric disorder was recognised by Gowers in 1893 (Pratt and McKenzie, 1958) and in those with Meniere's disease, psychiatric disorder is prevalent in the majority of vertigo sufferers compared with under a half of non-sufferers (Coker *et al.*, 1989). It is unwise to infer too much about the cause from either the presence or severity of psychiatric symptoms. Neither does the "response" of the psychiatric symptoms to treatment described in both cases preclude a tumour, a case has been described (Maurice Williams and Simon, 1984) of a tumour-induced depression responding to leucotomy prior to the discovery of the tumour.

The classical descriptions of mental abnormalities in brain tumours (Ron, 1989) fall into three broad categories; confusional states, mood or behaviour disturbances mainly of organic type and paroxysmal disturbance. The above two cases do not fit these categories but comprise the rarer group of those who seem to have well defined "functional" disorders. In these the diagnosis may be missed not because cardinal symptoms of organicity are ignored, as Maurice Williams and Dunwoody conclude in their case review, but because once we are biased towards "mental" causality we cannot be shifted. As psychiatrists we are more familiar with the opposite bias, where physician or patient is unable to shift from a model of physical causality and accept psychosocial influences, and it is salutary to confront our own blindspots. The best cure for such biases is to be aware of exceptional cases such as these.

Acknowledgements

I would like to thank Dr Shon Lewis for comments on the manuscript.

References

- Berrios, G.E. (1988). Psychiatric morbidity in subjects with inner ear disease. *Clinical Otolaryngology*, **13**, 259–266.
- Coker, N.J. *et al.* (1989). Psychological profiles of patients with Meniere's disease. *Archives of Otolaryngology*, **115**, 1355–1357.
- Harrop Griffiths, J. (1987). Chronic tinnitus associated with psychiatric diagnosis. *Journal of Psychosomatic Research*, **31**, 615–621.
- Law, J. (1988). Late diagnosis of frontal meningiomas. *British Medical Journal*, **297**, 423.
- Lishman, W.A. (1983) In "Organic Psychiatry," 2nd Ed, Chap. 6. Longman, London.
- Maurice Williams, R.S., and Dunwoody, G. (1988). Late diagnosis of frontal meningiomas presenting with psychiatric symptoms. *British Medical Journal*, **296**, 1785–1788.
- Maurice Williams, R.S. and Simon E.J. (1984). Depression caused by an intracerebral meningioma

- relieved by leucotomy prior to discovery of tumour. *Journal of Neurology, Neurosurgery and Psychiatry*, **47**, 884–887.
- Pratt, R.T.C., McKenzie, W. (1958). Anxiety states following vestibular disorders. *Lancet*, **2**, 347–349.
- Ron, M.A. (1989). Psychiatric manifestations of frontal lobe tumours. *British Journal of Psychiatry*, **155**, 735–738.