

CEREBRAL TUMOURS PRESENTING WITH PSYCHIATRIC SYMPTOMS

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ABSTRACT

Four cases of cerebral tumours presenting with psychiatric symptoms were referred to the psychiatrist for management. They displayed some degree of cognitive impairment, notably impaired memory for recent events, and nominal aphasia. Clinical neurological examinations were generally unremarkable with no evidence of focal signs or features of raised intracranial pressure. CT scan demonstrated parietal lobe lesions in all four patients with two showing involvement of the frontal lobe, one the temporal lobe and another the occipital lobe as well. Only one patient was operated, two died and the last continued treatment elsewhere. Factors contributing to the psychiatric symptomatology of cerebral tumours are raised intracranial pressure, location of the tumour, nature of the tumour and the individual constitution and response of the patient.

Key Words: Cerebral tumours, psychiatric symptoms

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INTRODUCTION

Cerebral tumours presenting with symptoms of raised intracranial pressure, focal neurological signs, or epileptic seizures are usually first seen by the neurologist or neurosurgeon. However, psychiatric symptoms may be the initial presenting features. As such the patient may be brought to the attention of the psychiatrist instead.

The following four cases were seen at the Department of Psychological Medicine, National University Hospital. They were either referred to the psychiatrist by the surgeon (as in case 1) or general practitioners (as in cases 2 and 4), or brought by relatives to see the psychiatrist because of the patient's psychiatric symptoms (as in case 3).

Case 1

Patient A, a 61-year-old retired Chinese shopkeeper, was referred by his surgeon for a one-month history of distinct change in his personality. Departing from his jovial and sociable pre-morbid self, he became quiet, withdrawn and indifferent. There was neglect of personal hygiene as well as urinary incontinence over the past one week. He was confused; he drank his own urine and wandered away from home. There was also significant deterioration in his memory, especially for recent events. Patient A smoked about 10 cigarettes a day for more than 40 years.

Mental state examination revealed impaired orientation in time, place and person. He appeared perplexed and preoccupied. His affect was blunted and mood was not labile. There was poverty of speech. Nominal aphasia and acalculia were present. There was no dressing apraxia or right-left disorientation. Memory for recent events was poor.

Physical examination revealed multiple matted cervical lymph nodes bilaterally (that was why he was attended to by the surgeon). The respiratory, cardiovascular and gastrointestinal systems were grossly normal. Apart from apraxia of gait there were no focal neurological signs (including frontal lobe signs) or any features of raised intracranial pressure.

A CT scan of the brain showed two hypodense areas in the frontal lobes with rim calcification, as well as a smaller calcified lesion in the right frontoparietal region. These were likely brain metastases. Chest radiography revealed a small opacity in the left upper zone. A bronchoscopy conducted showed presence of malignant cells obtained from bronchial washings. These were consistent with poorly differentiated adenocarcinoma.

Frontal craniotomy was performed by the neurosurgeon and histology confirmed metastatic poorly differentiated adenocarcinoma. A week later, his mental state improved. He was more cheerful and less impaired in his orientation. He continued with a course of chemotherapy.

Case 2

Patient B was a 61-year-old retired Chinese driver, who presented with a six-week history of difficulty in verbal expression and deterioration in recent memory. Although he was able to recognise family members, he had problems communicating with them. There was no social disinhibition or mood change. He had a history of being a chronic, heavy cigarette smoker.

During the mental state examination, patient B was conscious and relaxed. His affect was appropriate and mood was not labile. He was orientated to person but not to place and time. There was poverty and perseveration of speech. Expressive and nominal aphasia, acalculia, apraxia and right-left disorientation were present. Memory for recent events was poor.

Other neurological examination was unremarkable with no focal signs or features of raised intra-cranial pressure. The gait was normal.

A CT Scan of the brain showed a lesion in the left frontal lobe which also involved the parietal lobe. The appearances were highly suggestive of metastatic changes. Chest radiography showed a large mass in the lower lobe of the left lung.

Due to financial constraint, the family declined further treatment and brought the patient back to Malaysia with a referral letter to the oncologist.

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Case 3

Patient C, a 53-year-old Chinese housewife, presented with a history of paranoid ideation for one year and deterioration in recent memory for one week. She had prominent ideas of reference with complaints of being watched and plotted against by neighbours and strangers. She was irritable and quarrelsome. There were no aggressive behaviours or social disinhibition. Care of personal hygiene was unimpaired.

Clinically she was pale and lethargic. Orientation in time was impaired. Nominal aphasia, right-left disorientation and acalculia were elicited. There was also an episode of catastrophic reaction when she could not carry out simple tasks given. Dressing apraxia, hemisomatognosia and ideomotor apraxia were absent. Memory for recent events was poor. There were no delusions or hallucinations.

Physical examination revealed a ballotable right kidney. There was mild hyper-reflexia of the right limbs but the plantar response was flexor for both sides. There was no sensory deficit. Motor power was slightly weaker over the right lower limb. The fundi were normal.

Whilst in the ward, the patient showed a fluctuating level of consciousness and attention, with periods of relative lucidity.

X-rays of the abdomen with intravenous contrast showed a space occupying lesion over the upper pole of the right kidney which was confirmed by CT scan. Chest radiography revealed multiple nodular opacities in both lung fields, consistent with the presence of multiple metastases. A CT scan of the brain demonstrated a metastatic lesion in the parieto-occipital region on the left side, with fairly marked shift of the midline structures to the right. A renal biopsy showed clumps of malignant cells consistent with renal cell carcinoma.

As her condition was too advanced for surgery, a course of chemotherapy was instituted by the oncologist. She died six months later.

Case 4

Patient D, a 59-year-old Chinese housewife, was referred by a general practitioner for the complaints of deteriorating memory and change in behaviour for about two months. She appeared oblivious of her surroundings, had difficulty expressing herself verbally and was irritable. Recognition of her family members was faulty. She also had problems with self care such as inability to bathe, or brush her teeth (she brushed the tap instead), feed herself, or change her clothing. However, there were periods when she appeared more alert and could attend to herself.

Mental state examination revealed a perplexed looking lady with impaired orientation to place and time. There was poverty and perseveration of speech. Receptive and nominal aphasia, acalculia and finger agnosia were evident. There was no dressing apraxia or right-left disorientation. Memory for recent events was poor.

Other neurological examination was unremarkable. The gait was normal. In the ward she had a fluctuating level of consciousness and also changing of clinical signs.

A CT scan of the brain showed a left parietal lobe tumour extending to the temporal region with midline shift and cerebral oedema. Surgery was recommended but the family refused. Three weeks after discharge she was readmitted in a comatose state. There was coning of the brain and she died the following day.

DISCUSSION

Medical disorders not uncommonly present initially with psychiatric symptoms. Koranyi (1979) [1] found that about a third of patients seen at an outpatient psychiatric clinic suffered from a medical disorder that caused or substantially aggravated their symptomatology.

It is comparatively rare to find a cerebral tumour in psy-

chiatric patients. The incidence has been estimated to be between one and three per thousand [2, 3, 4]. Brain tumours have been found at autopsy in 1.5 to 4.0% of mentally ill patients [5]. However it is not unusual for patients with cerebral tumours to exhibit mental symptoms at some time in their course. The frequency has been reported to range from 10% to 100% of cases [6]. This depends on the thoroughness of the mental state examination and the stage of evolution of the tumour at the time of observation.

Tumours in the brain may be primary, or they may be metastatic deposits from cancer elsewhere in the body. The former is more common in children, whereas the latter in adults. Primary foci include carcinoma of the lung (as in cases 1 & 2) breast, gastrointestinal tract, kidney (as in case 3), and skin melanoma.

The neurological picture of an intracranial tumour is related more to the location of the lesion than to the type of neoplasm. The tumour may cause local effects (due to compression or destruction of nearby normal tissues), or general affects (as a result of raised intracranial pressure). The volume of the tumour mass, obstruction of the ventricular system, and haemorrhage and oedema contribute to the latter.

There is no clinical method of localizing or excluding a brain tumour by its psychiatric manifestation. In general, slow growing tumours tend to produce changes of personality, and allow premorbid tendencies to manifest themselves; more rapid tumours lead to cognitive defects; whilst the most rapid ones present as acute organic reactions with obvious impairment to consciousness [7].

Disturbance in the level of consciousness is the most commonly noted psychological change. Characteristically in the early stage this fluctuates in degree (as seen in patients C and D). There is impaired concentration and faulty memory. All the four patients displayed impaired memory for recent events and disorientation to place and time. Indeed they were referred with the provisional diagnosis of Dementia. As the condition progresses further, drowsiness, somnolence, and finally coma ensue if left untreated.

FACTORS CONTRIBUTING TO THE PSYCHIATRIC SYMPTOMATOLOGY OF CEREBRAL TUMOUR

Lishman (1987) [6] discussed the following factors which may contribute to the psychiatric symptoms in patients with cerebral tumours.

I Raised Intracranial Pressure

Because of the absence of a lymphatic system in the brain, fluid accumulation from leaking capillaries cannot be removed easily except by slow diffusion towards the cerebrospinal pathways. The resultant cerebral oedema produces symptoms by adding to the mass effect of the tumour. Fluctuation in the level of consciousness is probably due to fluctuation in the dynamics of cerebrospinal circulation. This contributes to difficulty in thinking, perception and memory, and emotional dullness and apathy. Prolonged elevation of intracranial pressure may lead to extensive parenchymal damage, ischaemia and metabolic derangements, and then the mental impairments will remain irreversible even though the pressure may be lowered subsequently.

II The Location of the Tumour

In general, frontal lobe tumours tend to present with personality disturbance, temporal lobe tumours with schizophrenia-like symptoms, parietal tumours with cognitive impairments, and occipital tumours psychoneurotic manifestations. Affective psychoses are related to right hemispheric dysfunction, and schizophrenia-like psychoses to left dysfunction.

All the above patients showed parietal lobe involvement on the CT scan. In addition, two showed frontal lobe involvement, one the temporal lobe, and the other the occipital lobe as well. All four had some degree of cognitive impairment and nominal aphasia. Tumours of dominant parietal lobe may present with the Gerstmann's Syndrome ie. finger agnosia, dyscalculia, dysgraphia, and right-left disorientation. Tumours of non-dominant parietal lobe are associated with disorders of visuo-spatial perception, dressing apraxia, and topographical disorientation.

III The Nature of the Tumour

Keschner et al (1938) [8] found that tumours which produced no mental symptoms were mainly of the slow-growing type. Busch (1940) [9] noted that mental symptoms were more frequent in malignant tumours than benign ones. This is probably due to the greater incidence of raised intracranial pressure in the former and also because malignant tumours invade the brain more widely. Understandably, metastatic tumours with several deposits scattered throughout the brain are associated with a higher incidence of mental disturbance than any variety of primary intracranial tumour [8].

IV Individual Constitution and Response

In patients with a special genetic predisposition to mental disorder, the tumour may act as little more than a precipitating factor in the psychiatric disturbance which develops. This is especially so where neurotic disorders or functional

psychoses are concerned. Enoch (1979) [10] emphasized the importance of the premorbid personality in assessing patient suffering from organic brain disease.

CONCLUSION

Interestingly, in three of the above four cases the psychiatrist was the first specialist to be consulted. It shows how easily psychiatric symptoms are viewed as predominantly functional in origin, possibly leading to a wrong or delayed diagnosis. Moreover, they may present with few or no significant physical signs. Also one must contend with the relative lack of specificity in the psychiatric symptomatology of cerebral tumours. Dietch (1984) [11] reported a case of glioblastoma multiforme in a 55-year-old lady with agoraphobia and panic attacks. Uribe (1986) [12] had a similar case who was initially diagnosed to be suffering from a major depressive episode with melancholia.

The clinician can never be too careful in ruling out organic diseases in patients with psychiatric symptomatology. Although it is difficult to distinguish physical disorders from functional psychiatric disorders on the basis of psychiatric symptoms alone, the body-mind dichotomy must be avoided [13]. It thus requires an alert clinician to have a suspicion of such a possibility, and actively seek to exclude a potentially treatable cause.

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