Cranial CT confirmed a swollen brain with tonsillar herniation. The right parietal and left frontal lobes had become more prominent. Biopsy of the right parietal lobe lesion was performed through a burr hole and histological examination showed the appearances of a grade IV astrocytoma. She died three weeks after her operation.

At necropsy the brain was diffusely swollen (fixed brain weight—1449g) with flattened gyri and narrowed sulci. An area of grey discoloration was seen on the left posterior frontal lobe adjacent to the midline. There was a similar area on the right posterior frontal lobe 5 cm from the midline. A needle tract on the right anterior parietal lobe was present.

Coronal slices showed small asymmetrical ventricles, the left being larger than the right. Several areas of partly necrotic tumour involving the left frontal, the right parietal lobes and both caudate nuclei were prominent. The left anterior corpus callosum was enlarged and the left pericallosal gyrus showed pale grey discolouration. The brain stem and cerebellum were macroscopically normal.

Histological examination showed a multifocal glioma. The tumour, which invaded the grey matter, varied in the degree of cell density and pleomorphism. In the most malignant-looking areas numerous mitoses per low power field could be seen as well as newly formed capillaries with swollen endothelial cells. The cerebellum and brain stem were free of tumour. However, in the mid pons there was a small area of myelin loss with preserved nerve cells, the appearances of which suggested central pontine myelinolysis which may have been related to an incidental electrolyte disturbance.

The three points of note in this case: 1) intracranial tumour is a rare cause of myoclonus. Symptomatic action myoclonus may often be a manifestation of anoxic encephalopathy, or may occur in the course of encephalitic illness such as Creutzfeld-Jakob disease; 2) this is an unusual presentation of glioma, 7-5% of malignant tumours are multicentric, and just 2.9% show different histological appearances; 3) it was most surpris-
lesions and the antigen titre has not risen.

Although infection has been described in a range of animals, pigeons are the main source of human infection by cryptococcus. The organism is inhaled in infected dust usually in attics where pigeons roost. Following entry into the lungs, infection may spread to any site, but especially to the meninges. Even if the primary lung lesion resolves, spread to other organs can still occur.1

Granulomas of the CNS make up 2–3% of all lesions first diagnosed as tumours and may be due to tuberculosis, syphilis, sarcoidosis, fungal or other unusual infections. Cryptococcal granulomas causing space-occupying masses are rare, but may occur in both previously healthy patients, or in those with already diagnosed pulmonary or meningeal cryptococcosis. Immunosuppressed patients, particularly those with Hodgkin’s disease, other lymphoid malignancies, or AIDS are at risk. Fujita et al.2 noted a lower incidence of such underlying conditions in patients with intracerebral cryptococcomas (5%), compared with those having cryptococcal meningitis (50%).

We believe that development of a mass lesion may reflect a relatively “competent” host reaction to the organism, with localisation of infection, rather than dissemination in the meninges. Our patient had no evidence of immunosuppression, and had a well marked inflammatory reaction around the mass.

Cryptococcal masses have been described in the cerebral hemispheres, ventricles, brainstem, cerebellum and spinal cord.3,4 In Fujita’s comprehensive review of the literature,3 55 intracerebral cryptococcal mass lesions were found, which were multiple in 19 patients. These cases included small (1 cm) lesions found at necropsy, not causing space-occupying symptoms. Only 18 of the 55 patients had intracerebral masses without meningitis. Seventeen of the 55 had lung involvement. Six had no abnormality on neurological examination, and CSF was negative in some cases.

There is no established treatment for this unusual condition.5,6 In our patient, the response to steroid therapy was dramatic, almost certainly due to suppression of inflammation and oedema around the lesion. Although the treatment of CNS cryptococcosis does not usually include corticosteroids, in our patient the effect was beneficial. The response to steroids, lack of fever, chest signs or meningitis, meant that the diagnosis was not considered before surgery. In our patient, removal of the mass was probably curative. Six other patients have had successful surgical resection without adjuvant chemotherapy.7 None had meningitis.

Detailed follow up on these patients is not given. In other patients, surgery and therapy with Amphotericin B and 5 fluoro-cytosine were combined, mostly in cases with meningitis or predisposing underlying diseases. We plan to review our patient regularly, and if there is clinical or antigenic evidence of disease activity chemotherapy will be given.

C. KEOHANE*
R. J. GALVIN+
T. BUCKLEY*
Departments of Pathology, Neurology, and Neurosurgery,
Cork Regional Hospital, Wilton, Cork, Ireland.
Correspondence to: Dr Katherine Keohane.

The Cryptococcal antigen titres were kindly performed by Dr. F. McKenzie at the Central Public Health Laboratory, Colindale, London, United Kingdom.


A simple method for localisation and removal of small subcortical brain tumours

In recent years the widespread utilisation of computerised tomography (CT) has made it easier to reach an early diagnosis of cerebral lesions which are often too small to be found at conventional open surgery without damaging brain tissue.

We present a method to localise and remove small subcortical brain tumours, even those seated in critical areas.

This is a very simple method that needs only a CT scanner and a circular piece of hollow rubber (2 cm in diameter, 7 mm thick). The advantage of rubber is that it is dense and radiopaque without creating artifacts on the CT scan.

Before surgery the patient has a CT scan with the rubber piece attached to the scalp allowing visualisation of the probable site of the tumour. The rubber piece is moved and scanning is repeated until the centre of the scalp marker exactly overlies the middle of the tumour. After this the rubber is removed and a small mark with a dermatographic pencil is left in its place, providing the landmark of the tumour on the scalp.

At operation a smaller than usual skin and bone flap is made so that the scalp marker is in the centre of the flap. The flap is drawn on the scalp after accurately measuring the distance from the tumour marker.

It is very important to preserve the relationship between the scalp marker and the tumour. Neither the scalp nor the brain must be displaced during the initial stage of operation. For this reason it is necessary to take the following precautions: a) Rats can be used for haemostasis of the wound; b) the peristeaum of the flap edges should not be taken off the skull for the same reason; c) the patient’s head should be positioned so that an imaginary line passing through the scalp.