Cerebral Phaeohyphomycosis Caused by *Xylohypha bantiana*

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Cerebral phaeohyphomycosis is a rare fungal infection of man. There are approximately 53 published cases to date. *Xylohypha bantiana* has been shown by histology or culture to be the aetiological agent in 28 of these cases. Two cases of cerebral abscess caused by *Xylohypha bantiana* are presented. One patient was alive eight months after surgery and antifungal drug therapy. His was the first recorded case of cerebral phaeohyphomycosis treated with itraconazole. His course was complicated by adhesive arachnoiditis. The second patient died post-operatively without appropriate treatment.

The results of investigations for bacteria or fungi were negative. The patient remained afebrile, but his headache persisted despite analgesic medication. Ten days after admission to hospital he became drowsy and confused. He developed an ataxic gait, slurred speech, neck stiffness and papilloedema. Computerized axial brain tomography showed a large hypodense, multi-loculated, ring-enhancing, space-occupying lesion in the posterior fossa involving the vermis and both cerebellar hemispheres. Obstruction of the fourth ventricle with secondary hydrocephalus of the lateral and third ventricles was observed (Figure 1). A ventriculo-peritoneal shunt was inserted and six days later a formal posterior fossa craniectomy was performed. At operation a thick walled abscess was found from which 40 ml of pus was aspirated, which yielded *Xylohypha bantiana*. There was rapid improvement of signs and symptoms following surgery. A course of itraconazole (100 mg b.i.d.) was administered for six weeks. This therapy failed to resolve the cerebrospinal fluid pleocytosis, hypoglycorachia and raised protein levels which persisted for two months after cessation of itraconazole treatment.

The results of screening tests of immune competence, including serum immunoglobulins and T-cell phenotypic subpopulations, were normal. Test for human immunodeficiency virus antibody were negative.

Figure 1: CT scan of the brain (patient no. 1) after administration of contrast material, showing a large ring-enhancing multi-loculated abscess in the posterior fossa, as well as dilatation of the ventricular system.
Six months after initial presentation the patient noticed weakness of both legs. Examination revealed lower motor neurone weakness of both lower limbs involving predominantly the second to fifth lumbar myotomes. Sphincter function and appreciation of all sensory modalities were intact. Repeat computerized axial brain tomography demonstrated resolution of the posterior fossa abscess (Figure 2). Streaky arrest of contrast medium at L3 was found following lumbar myelography which was accompanied by a marked rise in the cerebrospinal fluid protein concentration. Magnetic resonance imaging of the lumbar region showed no evidence of spinal cord compression. These findings indicated the presence of an adhesive spinal arachnoiditis at the site of repeated needle lumbar punctures and was presumed to be the result of ongoing Xylohypha bantiana infection. A six week regimen of intravenous amphotericin B with oral 5-fluorocytosine and rifampicin was commenced.

Case no. 2, a 31-year-old black male, was admitted with a three-week history of progressive confusion. On examination he was found to be babbling, incoherent, uncooperative and occasionally violent. He was afebrile, wasted and clinically dehydrated. There was no neck stiffness and no lateralizing or localizing neurological signs. The fundi were not examined. The haemoglobin concentration was 18.9 g/dl, white cell count 10.9 X 10^9/l and serum glucose 5.3 mmol/l. The results of the initial electrolyte analysis were: sodium 144 mmol, potassium 5.9 mmol, chloride 111 mmol, urea 66.5 mmol and creatinine 404 µmol per litre. The patient was treated for dehydration. His level of consciousness fluctuated and 14 days after admission he developed neck stiffness and obtusion. Computerized axial brain tomography with intravenous contrast revealed multiple left hemispheral abscesses (Figure 3). An emergency burr-hole drainage was performed. An abscess was penetrated with a needle and 20 ml of pus aspirated. The patient died two days after surgery. No post mortem examination was performed.

Mycological Investigations. Mycological investigations included direct examination of the unstained brain pus which revealed the presence of numerous, darkly pigmented fungal hyphae (Figure 4). Using a sterile pipette, the pus was spread on two plates containing 4 % Sabouraud's dextrose agar with chloramphenicol (50 mg/l), one of which contained cyclohexamide (500 mg/l), and on brain heart infusion agar with 4 % dextrose as the nutrient base. The plates had a diameter of 85 mm and contained 35 ml of media, they were incubated at 30 °C and 37 °C. Within one week a black growth was noted on all three plates at both