

ASPERGILLOSIS OF SPHENOID SINUS PRESENTING AS A PITUITARY TUMOUR

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SYNOPSIS

Aspergillosis of the Central Nervous System is a rare infection. We report a case of aspergillosis of the sphenoid sinus which presented as a nonfunctioning pituitary tumour. The diagnosis of aspergillosis was made during surgery. The clinical presentation, diagnosis and treatment of this rare infection is reviewed.

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INTRODUCTION

Aspergillosis is a rare infection. Aspergillosis of the central nervous system is even less common. We report a case of aspergillosis of the sphenoid sinus which presented as a non functioning pituitary tumour. There have been few cases reported in the literature. In many of the cases, the diagnosis was made at surgical operation or at autopsy. It is therefore of interest to review the literature on the presentation of aspergillosis of the central nervous system.

CASE REPORT

Our patient was a 55-year old Malay lady. Apart from a history of mild hypertension and diabetes mellitus, she was previously in good health. She was regularly treated and followed up for hypertension and diabetes mellitus. She had no other significant past medical history. She is not a drug abuser.

She had presented with nonspecific complaints of giddiness, lethargy, nausea and loss of appetite for a period of about 2 years. She was investigated by her general practitioner and had a series of blood tests done. Skull X-ray (Fig. 1) was also done and this showed destruction of the pituitary fossa. A CT scan of brain (Fig. 2) done was suggestive of a pituitary tumour. She was then referred to hospital.

At presentation, the patient's condition was satisfactory. Clinical examination did not reveal abnormalities, in particular no lung lesion, no signs suggestive of a functioning pituitary

tumour and no visual field defect. A formal perimetry was normal. Her hormonal profile was within normal limits. Diabetes was well controlled with diet and Glibenclamide 5 mg om, and hypertension with Propranolol 40 gm bd. She was then referred to the neurosurgeon.

An operation, a bone defect was found in the floor of the sphenoid sinus on the left side. The rest of the bone was very thin. On opening into the sphenoid sinus, thick yellowish creamy material was encountered. This was sent for examination and the rest scrapped out together with the sinus mucosa. There was no evidence of carcinoma. The bony sella floor was non existence but the dura was intact and did not look abnormal.

The histology (Fig. 3) showed multiple small pieces of nasal mucosa showing fibrosis and congestion of the submucosa. There was also an inflammatory infiltrate composing of lymphocytes, plasma cells, neutrophils and macrophages. A ball of fungi composing of septated hyphae with dichotomous branching was present. It was well demonstrated with the Gomori Methenamine Silver stain. This was consistent with aspergillosis.

On subsequent follow up, the patient was well. She was not given any antifungal chemotherapy.

DISCUSSION

There are over 350 recognised species of *Aspergillus*, most of which are nonpathogenic to man. Of the pathogenic species, the most common is *Aspergillus fumigatus* which accounts for approximately 90% of these infections.^(1,2) Aspergillosis is a relatively rare infection in man and Aspergillosis of the central nervous system is even less common.

There are different ways in which Aspergillosis may affect the nervous system. Firstly, the infection may be due to hematogenous spread in which case the source is usually a focus of active pulmonary infection.⁽³⁾ Secondly, the infection may reach the central nervous system as an extension of an infection in a contiguous site e.g. paranasal and sphenoid sinus. Our patient demonstrates the second form of presentation.

In the case of aspergillosis from hematogenous spread, there is usually predisposing immune deficiency, debilitating illness or drug addiction.^(4,5) Predisposing conditions that have been described include malignancies (especially of hematopoietic system) and treatment with corticosteroids. It is therefore understandable that this category of cases may be on the increase as there are now more patients surviving through improved treatment of cancers etc. and who are therefore more susceptible to systemic aspergillosis. The most common presentation here is either as a focal neuro-

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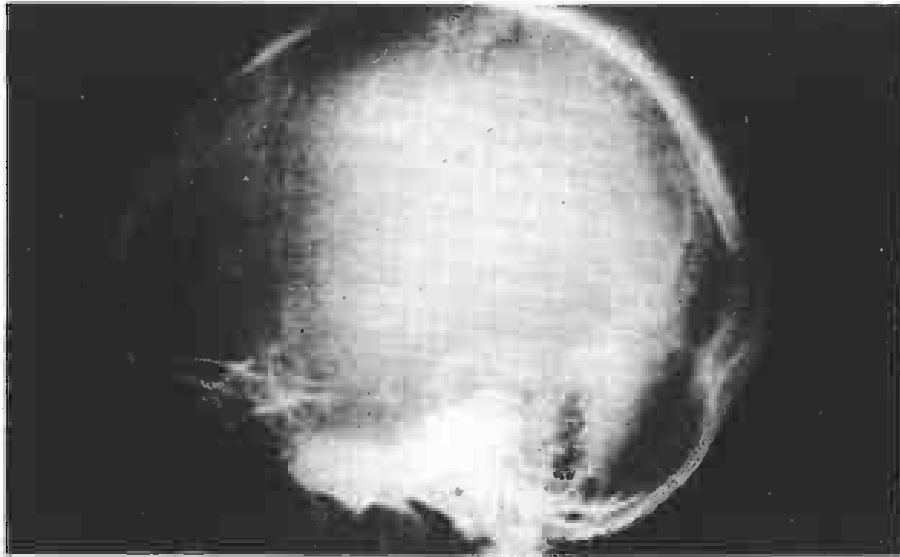


Figure 1: Skull X-ray shows the pituitary fossa to be enlarge and eroded

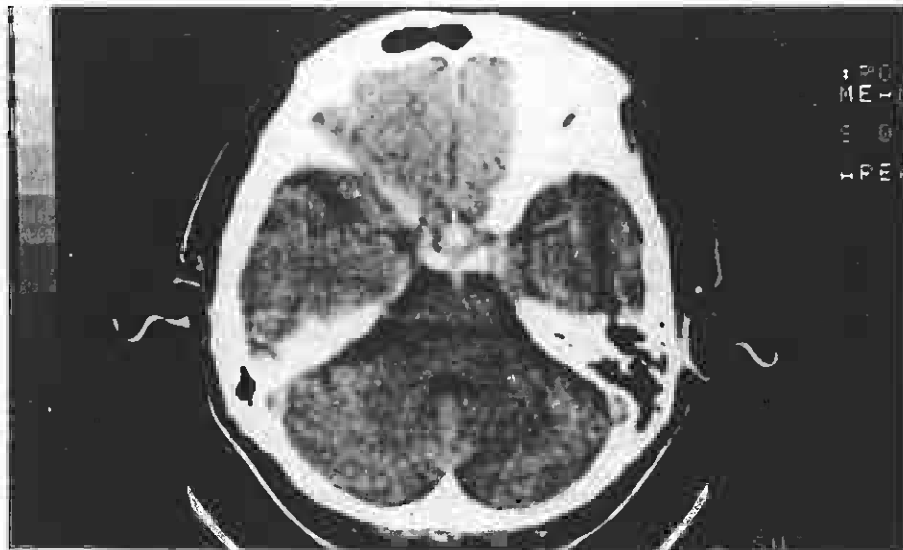


Figure 2: CT Scan Brain suggests a pituitary tumour

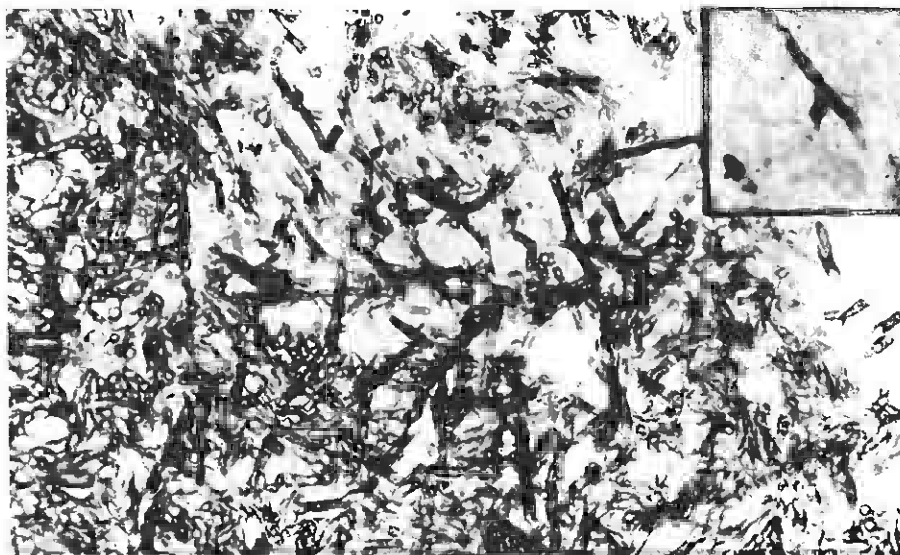


Figure 3: Histology showed Aspergillosis hyphae (X100)
Inset — septated hypae with dichotomous branching (X400)
(Gomori Methenamine Silver Stain)

logical deficit (Usually hemiplegia) or as meningitis. Aspergillosis may also give rise to mycotic aneurysm and present as sudden hemorrhage of the central nervous system. The mortality is high and early recognition, diagnosis and treatment with systemic antifungal agents (amphotericin B and 5-Fluorocytosine) are of benefits.⁽⁶⁾ Diagnosis is seldom made prior to operation or autopsy. CT scan of the brain is non specific and CSF examination is also non specific. Culture for Aspergillosis from CSF is usually negative. Diagnosis therefore requires a high degree of suspicion in predisposed patients and histological proof of infection through surgical approach.

The second route of entry of aspergillosis to the central nervous system is through infection of the paranasal sinuses. This is the case in our patient. This is an invasive Aspergillus infection where there is spread of the infection through the sinus wall to the surrounding tissue.⁽⁸⁾ In our patient the invasive aspergillus infection invades the sphenoid sinus and formed an abscess in the pituitary fossa, thereby simulating a pituitary tumour. This form of infection can occur in normal healthy persons with no immune deficiency or debilitating illness. Apart from mild diabetes mellitus and hypertension our patient was well.

The infection is believed to have started as a saprophytic infection localised to the nasal sinus. It has been suggested that Aspergillus fungus becomes pathologic only when the involved sinus becomes relatively anaerobic. This in turn is predisposed to by nasal polyps, chronic infection or mucosal thickening due to allergy. Aspergillus infection of the sinuses is relatively common in Sudan and this is attributed to the dry and dusty climate.⁽⁹⁾ Our patient however did not have any nasal symptoms.

Our patient was suspected to have a pituitary tumour on the basis of the CT scan and Skull X-ray findings. Although this is extremely rare, there have been 2 reports of similar cases due to aspergillosis of the sphenoid sinus.^(10, 11) There was no evidence of pituitary hyperfunction or hypofunction in our patient and the correct diagnosis was made during operation on a histological basis.

The transphenoid route is the one favoured in the surgical approach to such a problem. The transfrontal route has the attendant risk of spreading the aspergillus infection to the CSF and this may be fatal.⁽¹⁰⁾ The sphenoid route minimises the risk of CSF contamination. The value of systemic antifungals in such a situation is uncertain. The uncertainty is largely due to the rarity of such infection and most reports involved isolated cases of very small numbers. Surgical evacuation is definitely the most important form of treatment. Additional treatment with amphotericin alone, in combination with 5 fluorocytosine or 5 flucytosine alone have been tried and reported as useful.^(10, 12) Other authors dispute the added value of antifungal therapy and maintain that surgical evacuation and establishing aeration of the sinuses is sufficient to eradicate the infection.^(2, 13) Treatment with antifungal drugs should, if used, be commenced at time of surgery. In the case of our patient, the diagnosis was only confirmed a few weeks after surgery and the patient was well throughout this period. We therefore elected to observe our patient and institute systemic antifungal therapy later if necessary. At the time of writing, one year after the operation, the patient was well and asymptomatic. Close follow up of these patients is still necessary as recurrences of infection may occur.

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