



A CASE OF ZYGOMYCOSIS IN AN IMMUNOCOMPETENT PATIENT

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ABSTRACT

Zygomycosis (mucormycosis) is a devastating fungal infection seen mostly in immune-compromised patients or in association with prolonged neutropenia. It often results in a fatal outcome mainly due to the difficulty of early diagnosis and its drug resistance. So, prompt diagnosis is challenging and influences outcome. Treatment involves a combination of surgical and medical therapies. Amphotericin B is the main drug for medical management of mucormycosis, although other agents have been used. This paper reports a case of a middle aged immunocompetent man with rinofacial zygomycosis whose final treatment was successful after antifungal and surgical treatment.

KEY WORDS: Zygomycosis, immunocompetent, Amphotericin B.

INTRODUCTION

Zygomycosis, also known as mucormycosis or phycomycosis or hyphomycosis, is a rapidly-progressive life-threatening deep fungal infection primarily affecting immunocompromised patients.^[1] An incidence of zygomycosis of 2-4% was found in autopsies of cancer patients both in Japan and the United States.^[2] The zygomycosis may involve skin, lung, gastrointestinal tract and other systemic organs, however, the rhino-orbital-cerebral is the most common one.^[3] Patients commonly present with nasal congestion, nasal discharge and chronic sinusitis, however, the infection may also present with fever, lethargy, headache, retro-orbital pain, sudden vision loss, proptosis, periorbital cellulitis, epistaxis and seizure. On physical examination necrotic crusts can be seen on the nasal septum, turbinates and palate. Initially, the orbit is involved, then the infection spread to the central nervous system by the ethmoid bone and sphenoid sinus after bone destruction.^[3] This disease diagnosis is clinical and histopathological, and its treatment is based on antifungal therapy and surgical cleaning.^[4] Delay in initiation of treatment; intracranial, palate or orbital involvement as well as bilateral facial sinus involvement, and facial necrosis are poor prognostic factors.^[3] For initial treatment amphotericin B is the drug

of choice. High doses of amphotericin B must be used for complete remission which is 0.8 to 1.5mg/kg daily, which correspond to doses very close to nephrotoxic levels.^[5] The disease is prevented by environmental control and avoidance or reduction of direct contact with fungal propagules, which are found in plants, flowers and house dust.^[3]

CASE REPORT

A 50 year male, nondiabetic and nonhypertensive, having no addiction and no chronic disease referred to our OPD for evaluation of some fungal element detected in histopathological slide of nasal polyp tissue and treatment of that. He gave history of intermittent frequent common cold, occasional epistaxis and gradually progressive broadening of nose for last 1 year for which he consulted with ENT surgeon. They did computed tomography of the skull which revealed sinusopathy. Then he was submitted to surgical cleaning of facial sinus along with oral antifungal drugs as histopathological exam showed some fungal element. Initially he improved with that treatment and he was disease free for 2 months. Then he gradually developed all the previous symptoms and this time he had pain and redness of the nose. This time repeat computed

tomography of the skull showed sinusopathy with polyp formation. With this clinical picture, the patient was treated with IV antibiotics followed by surgical cleaning and resection of polyp, and the patient was referred to our department with histology slides for proper diagnosis and treatment. We did H&E and PAS stain of the available slides (Fig 1 and Fig 2) which showed fungal non-septate hyphae with branching at wide angle suggestive of zygomycosis. Then we treated him with multiple amphotericin B infusions. Initially he developed nephrotoxicity and hypokalemia but we successfully treated him with full course of amphotericin B with proper precautions.



Fig 1

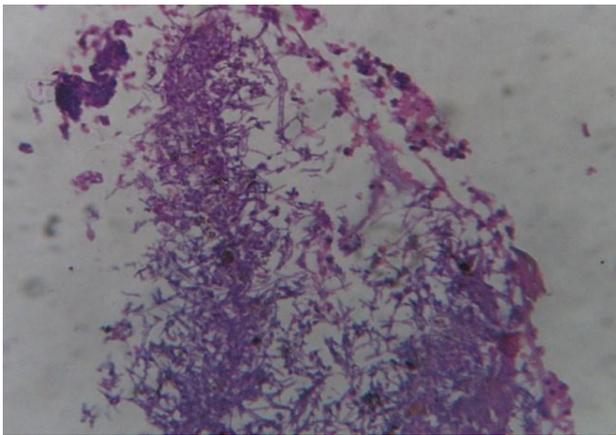


Fig 2

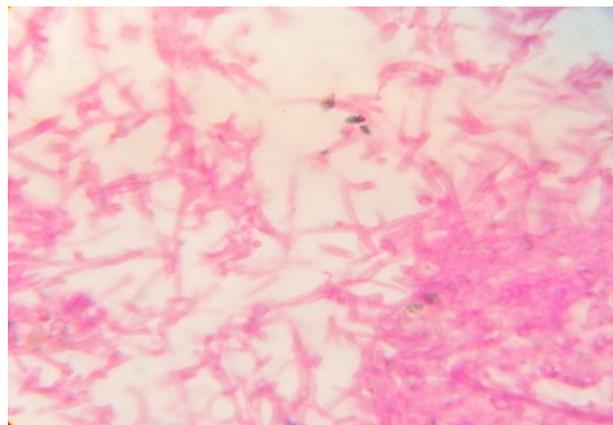


Fig 3

LEGENDS OF FIGURES

Fig 1: Destruction of nasal septum with extension of nasal polyp tissue in the right maxillary sinus.

Fig 2: Numerous wide non-septate and empty looking hyphae characteristic of zygomycosis. (Haematoxylin and eosin stain).

Fig 3: Numerous wide non-septate and empty looking hyphae characteristic of zygomycosis. (PAS stain)

DISCUSSION

Mucormycosis is an uncommon human infection and may result of depressed human immunity.^[6] Invasive mucormycosis (IMM) is life-threatening and an emerging infection caused by the ubiquitous filamentous fungi Zygomycota class and Mucorales order. The incidence of IMM is not well known due to a small number of national studies on this problem. The followings are high risk people for IMM: long-term neutropenia (>3 weeks), absolute neutrophil count (<200/mm³), monocytopenia (<100/mm³), graft-versus-host-disease, allogeneic bone marrow transplant, long-term corticosteroid treatment (>1mg/kg/bw), total body iron burden, prolonged hyperglycemia, relapsing and refractory leukemia, previous *Aspergillus* infection, as well as earlier antifungal voriconazole or echinocandin therapy.^[7] Our patient was neither immunosuppressed nor any above risk factor was present. The diagnosis of zygomycosis is rarely suspected and antemortem diagnosis is made in only 23–50% of cases.^[8] The diagnosis of zygomycosis is made on tissue section. The hallmark of a zygomycosis includes the demonstration of wide, ribbon-like, hyaline, predominantly aseptate hyphae with wide-angle branching.^[6] Intravenous amphotericin B has been considered the treatment of choice.^[3] In our patient, he received this medication by the adequate route and dose and the response was more satisfactory. However for a completely adequate treatment it is necessary to be careful with drug administration in order to avoid side effects, which were also observed in our report.

So it should be kept in mind that an apparently healthy immunocompetent patient may have fatal fungal infection like zygomycosis specially who present with recurrent sinusitis or nasal polyp and prompt diagnosis is needed as it may cause life threatening invasive disease.

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