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MUCORMYCOSIS IN A DIABETIC CHILD AND ITS TREATMENT WITH FLUCONAZOLE: A CASE REPORT*

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We present here a case of a diabetic patient having complaints of painful swelling of the left eye, blurring of the vision and tonic-clonic convulsion. Surgical exploration of the sinuses was performed, and the histopathological examination revealed mucormycosis. Because of the side effects of Amphotericin B, we tried Fluconazole and the patient recovered completely. *Key words: diabetes mellitus, mucormycosis, fluconazole.*

Mucormycosis is a fulminant fungal infection caused by phycomycetes. Specific organisms affecting humans are species of the general Mucor, Rhizophus and Absidia, which are members of the order Mucorales. They may be recovered from nose and stool cultures in healthy individuals, and man usually has a strong natural resistance to infection[1]. In most cases there are predisposing factors, such as diabetes mellitus, leukemia, multiple myeloma, carcinoma, anemia, burns, septicemia, hepatitis, use of antibiotics, steroids and ionizing radiation, among which the most common is diabetes mellitus[2,3].

We report a case of rhinocerebral mucormycosis in a diabetic patient and his treatment with fluconazole.

Case Report

A 15-year-old boy was admitted to the hospital with the complaints of painful swelling of the left eye, blurring of the vision and a tonic-clonic type of convulsion

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of the right side of the body. He had been suffering from insulin-dependent diabetes, which was poorly controlled, for five years. Two months earlier, a painful swelling began in the left eye, and an inflammatory exudate was drained from the cheek. He used three different antibiotics of 10-day duration for a nonspecific infection, but the swelling persisted. On admission, he was cachectic. Ptosis, exophthalmus and chemosis of the left eye, as well as periorbital swelling and redness of the left cheek were noted. Total ophthalmoplegia was present and there was no direct or indirect pupillary light reflex of the left eye and no indirect light reflex of the right eye. His oral hygiene was poor. On the left side of the body, there was a motor deficit of 40 percent. The coronal and orbital computerized tomography showed complete opacification of the left maxillary, ethmoid, frontal and sphenoid sinuses as well as cerebral cortical atrophy. For treatment, sulbactam-ampicillin, chloramphenicol, ornidazole and diphenylhydantoin were initiated. An emergent surgical exploration was performed, and necrotic material was curetted from the left maxillary, ethmoid and sphenoid sinuses.

Histopathological examination of the curetted tissue revealed nonseptate, irregularly branching hyphae, which was diagnosed as mucormycosis. There was no growth from pus of the maxillary sinus, but Staphylococcus aureus was identified from the ethmoidal sinus. The culture on Sabaroud's agar from the maxillary sinus also revealed candida spores. For the treatment of mucormycosis, Amphotericin B was administered. After one week of treatment, the medication was changed to fluconazole because of the side effects of Amphotericin B (hepatotoxicity, chills, fever). For the first week, 100 mg of fluconazole (3 mg/kg/day) by 30 minute intravenous infusion was given; then the oral preparation was continued (100 mg/day for six weeks). With this treatment, the patient recovered completely.

Discussion

Mucormycosis is an opportunistic infection, and there is usually a predisposing condition. In patients with diabetes, such as in our case, most often rhinocerebral mucormycosis develops[3,4].

Rhinocerebral mucormycosis usually begins in the nasal sinus or palate. The mucor fungus has a specific predilection for invading arteries and veins; thus, cavernous sinus thrombosis is frequent[5]. The most common clinical manifestations are headache, dark blood-tinged nasal discharge, periorbital and/or perinasal swelling, ptosis of the eyelid, fixed dilated pupil, loss of extraocular movements, progressive lethargy, black necrotic palate and alveolar ridge of turbinates, decreased visual acuity progressing to blindness and loss of corneal reflex[5-7]. Early amaurosis secondary to occlusion of the central retinal artery helps to distinguish this entity from septic cavernous sinus thrombosis[6]. The diagnosis

depends on histological examination of a biopsy specimen showing characteristic large, irregular, nonseptate, clear branching filaments shown by hematoxylin-eosin and periodic acid schiff (PAS) stains. As the culture may be negative even when fungi are present in large numbers, any suspicious area in the nose or palate should be biopsied[8].

Successful treatment of orbital mucormycosis depends on early diagnosis, control of any underlying disease, systemic antifungal therapy, and aggressive surgical debridement[1, 3, 6, 7, 9, 10]. Until recent studies, Amphotericin B had been the only drug known to be effective in the treatment of mucormycosis[9]. Recently a case of mucormycosis resistant to Amphotericin B was reported[10]; rhinocerebral mucormycosis was cured with ketaconazole. In another case report, fluconazole for the treatment of pulmonary mucormycosis complicating acute leukemia was used[11].

Because of side effects of Amphotericin B, we used a triazole derivative fluconazole. It has an extremely long half-life (22 hours in serum) and a very low protein-binding capacity (11%)[12]. Because of 95 percent absorption from the gastrointestinal tract, oral use can be effective. In our patient, the cure was obtained by treatment with fluconazole. In our opinion, this new agent can be used as an alternate to Amphotericin B.

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