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Case Report

Mucormycosis of Middle Ear - An Incidental Finding

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ABSTRACT

Mucormycosis is a saprophytic fungal infection, commonly affecting the paranasal sinuses. An aggressive invasive form of infection is common in people with uncontrolled diabetes and in individuals with immunocompromised state. Most of the reported cases of otomycosis by mucor are of invasive disease in people with long history of diabetes mellitus. Thecase presented here as mucormycosis of middle ear cavity was diagnosed incidentally in a healthy nondiabetic woman while performing tympanoplasty as part of management of chronic suppurative otitis media.

Keywords: Chronic suppurative otitis media, Mucormycosis, Otomycosis, Tympanoplasty

INTRODUCTION

Sinonasal region is often the site of many common infections, albeit infections by unusual microbial agents such as fungi are highly uncommon. Fungal infections have been known to occur in sinonasal region sporadically in patients predisposed to certain immunocompromised states, not necessary having immunosuppression. Among fungi Mucormycosis and Aspergillus infections are found to be relative more commonly causing mycosis of the nasal cavity. Both mucormycosis and aspergillosis are seen mostly in patients suffering from debilitating chronic illnesses and diabetic mellitus. [1] Infections by these fungi in patients with diabetes mellitus and other chronic debilitating conditions clinically manifest in five major forms: Rhinoorbitocerebral, pulmonary, disseminated, cutaneous, and gastrointestinal. [2] Nevertheless, these fungi are known to cause less common forms of mucormycosis like endocarditis, osteomyelitis, peritonitis, and pyelonephritis. Mucormycosis of the middle ear is a very rare clinical entity. [3] There is only one reported case of mucormycosis of middle ear and mastoid region in a nondiabetic person, who was treated by radical mastoidectomy. [1] The case of mucormycosis of the middle ear in a middle aged lady being presented here was an incidental finding presenting in a unusual manner in a patient who was undergoing tympanoplasty for chronic suppurative otitis media.

CASE REPORT

A 45-year-old woman presented to OPD of a tertiary care hospital with history of profuse, recurrent, mucopurulent discharge from left ear since 8 months.She did not have any history of systemic illnesses including diabetes mellitus. Middle ear cavity was completely cleared while conducting tympanoplasty with residual tissue after scraping sent for histopathological examination.

HISTOPATHOLOGY

Histopathological examination of the specimen revealed fibrocollagenous tissue showing mild to marked oedema with sparse to focally dense infiltration by predominantly mononuclear inflammatory cells. At places, the oedematous fibrocollagenous tissue showed plenty of fungal hyphae in multiple clumps with admixed spore-like structures. The hyphal structures were broad, aseptate with frequent branching at almost right angles [Figure 1,2]. Sections stained with special stains for fungi such as Gomori'smethanamine silver stain and Periodic Acid Schiff stain displayed diffuse positivity for branching fungi which were composed of predominantly non-septate hyphae [Figure 3,4], thus the histopathological features being suggestive of mucormycosis. No granulomatous inflammation was evident in the sections studied.

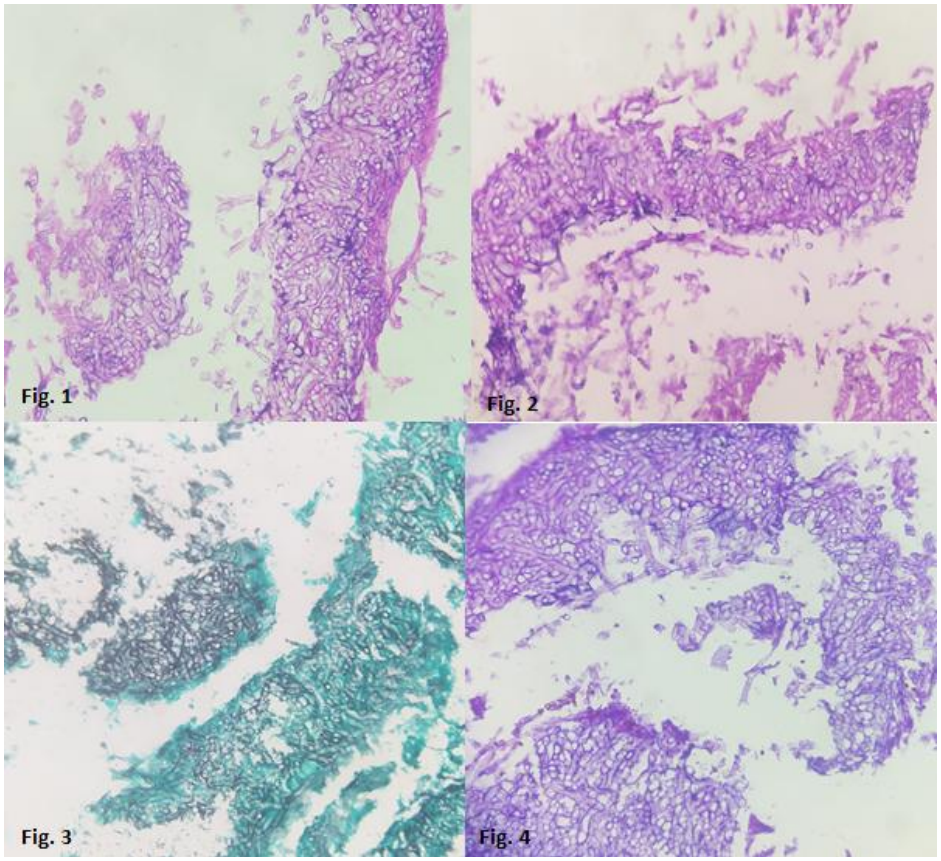

Figure 1 & 2 – 40 x magnification; H&E stain showing aseptate fungal hyphae
Figure 3– 40 x magnification; GMS stain
Figure 4- 40x magnification; PAS stain

DISCUSSION

Otomycosis is uncommon in healthy individuals, though it is often found to be associated with some occupations such as deep sea divers, farmers, horticulturists and agro-industries. Mucormycosis is the commonest form of otomycosis caused by mucor species of fungus, a common upper respiratory commensal in patients with immunocompromised states. The mucor species comprise fungi belonging to the order mucorales which include mucor, rhizopus, rhizomucor, absidia, apophysomyces, cunninghamella, and saksenea. Mucor are essentially saprophytes found in the soil and decaying organic matter. [4] They gain access into the middle ear from the nasopharynx via Eustachian tube or through a perforated tympanic membrane. Mucormycosis characteristically manifests in immunocompromised hosts suffering from chronic debilitating

conditions such as diabetes, hematological malignancy, neutropenia, organ transplantation, deferoxamine therapy, and people on immunosuppressive therapy with corticosteroids. Interestingly, human immunodeficiency virus (HIV) infection is certainly not a likely risk factor for mucormycosis in the initial phases of infection. This could possibly be explained by the fact that the defense against mucorales is provided mainly by the neutrophils, which are not affected by HIV, AIDS virus affects predominantly T lymphocytes. [4] Nonetheless, infection mucor can be seen affecting imunocompetent people, though the incidence of such an infection is very rare. [1,5] The most clinical manifestation or form of mucormycosis is rhinoorbitocerebral, followed by cutaneous and pulmonary mucormycosis. [6] Hazarika et al., [1] in their report of a case, opined that mucormycosis in the middle ear in a nondiabetic patient is noninvasive and may occur as indolent infection which may coexist with chronic suppurative otitis media. The case presented here is unique and unusual in that the patient did not have clinical history of previous fungal infections of the middle ear nor the patient was suspected of having mucormycosis of the ear as clinical manifestations of the disease were apparently camouflaged by overwhelming clinical manifestations of chronic suppurative otitis media.

CONCLUSION

Mucor infections of middle ear are very rare in healthy individuals, but when they occur in hosts with preexisting infective lesions, the clinical diagnosis is hampered by overwhelming features of pre-existing conditions such as chronic suppurative inflammation as in the case being presented here. Though it is diagnosed as incidental finding, the clinical management and outcome of such clinical conditions such as tympanoplasty in the present case could have been complicated had there not been any sampling of the lesion for histopathological examination or had histopathological diagnosis been not forthcoming in time. An eventful clinical management of invasive mucormycosis is mandated by early diagnosis, successful management and regulation of underlying risk factors, extensive surgical debridement of necrosed tissue and antifungal therapy.

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