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Case Report

Rhinomaxillary Mucormycosis - A Rare Case Report

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Abstract

Zygomycosis of the class Zygomycetes which is more commonly called as Mucormycosis, is an opportunistic fungal infection, which mainly infects immunocompromised patients. Even now a days it is being increasingly recognized in COVID recovered patients. Mucormycosis is the most suddenly occurring fatal infection which spreads through nose, sinuses and even sometimes involves the brain which can lead to reduced blood supply and necrosis. Its very important for oral health care providers to diagnose the case in early phase to reduce the mortality. A similar case of 54 yr old male of mucormycosis of maxilla was reported in our clinic which has been presented in the article.

Keywords: *Mucormycosis; Maxilla*

Introduction

Paultauf in 1885, first used the term mucormycosis for an acute lifethreatening opportunistic fungal infection which was caused by a filamentous fungi of class Zygomycetes [1].

Mucormycosis is not a very common fungal infection like candidiasis and aspergillosis which occurs in the oral cavity, it basically starts from nose and spreads to involve sinuses and sometimes brain leading to necrosis and death [2]. Patients with uncontrolled diabetes mellitus, malignancies and other systemic infections which compromises hosts immunity are more prone to have these infections. Even acquired immune deficiency syndrome, chemotherapy and long term steroids are high risk factors this infection [3,4].

As mucormycosis is an opportunistic infection it gets inoculated in an immunocompromised host leading to formation of thrombi and necrosis of blood vessels. It's very important for oral health care providers to diagnose the case in early phase to reduce the mortality [5,6]. Therefore, this article with the help of a case report encompasses complete review on the nomenclature, risk factors, virulent traits, early diagnostic methods and treatment modalities associated with mucormycosis.

Case Report

A 54-year-old male visited to a dental clinic with a chief complaint of pain and roughness over the hard palate since 2 month, which was gradually increasing in size. He also reported regurgitation from nose while drinking and nasal stuffiness with black discharge from nose. He was diabetic since 5 years with poor control. On general examination there was swelling of right side of face and was unable to open his right eye since 3 days (Figure 1).

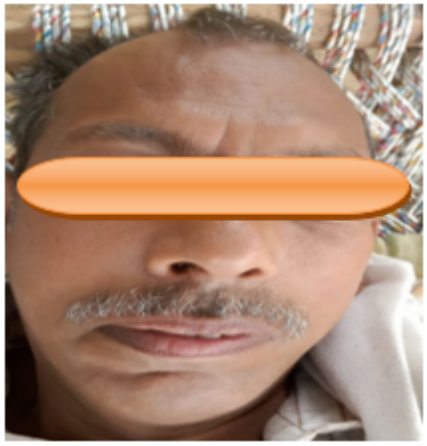

Figure 1: *Extra oral examination.*

In Intraoral examination there was a well defined ulcer on right side of the palate which measured 5 cm x 3 cm x 0.5 cm in depth. It was covered with yellowish black slough. On hard tissue examination 16 was missing which was extracted 1 month back only (Figure 2 and 3).

Figure 2: *Ocular examination.*

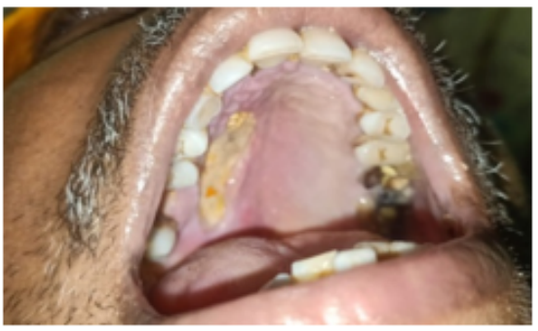

Figure 3: *Clinical examination showing lesion covered with grayish white slough.*

Routine blood investigations were carried out to rule out HIV, Hepatitis-B and diabetes mellitus, which showed a high blood sugar level and poor diabetic control. Computed tomography revealed areas of necrosis in maxilla suggestive of maxillary involvement. MRI of brain with orbit was also done which suggested that there were areas of necrosis and extensive extra sinus inflammation in periantral and pterygomaxillary region with hard palate, orbital and optic nerve involvement (Figure 4 and 5).

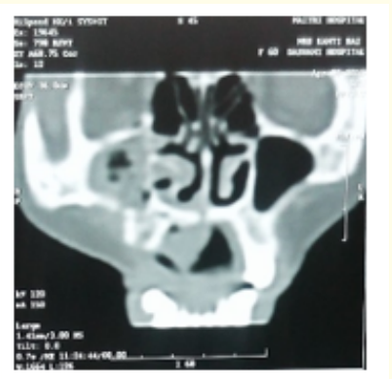

Figure 4: *CT scan showing bone involvement upto lateral nasal wall.*

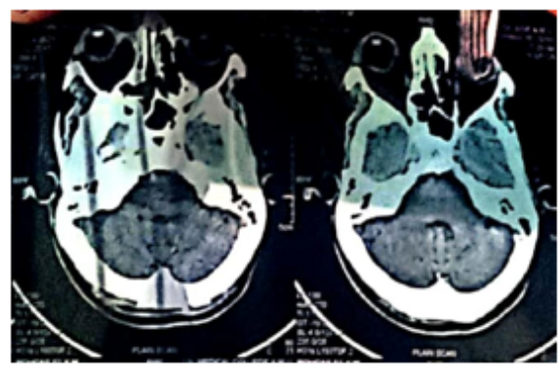

Figure 5: *MRI showing extensive inflammation.*

Histopathology of the ulcer from the hard palate showed hyperplastic squamous epithelium with subepithelial fibrosis and chronic inflammatory cells. There was degenerating food particles and numerous nonseptate branching fungal hyphae suggestive of mucormycosis.

He was started on amphotericin B (0.8 mg/kg/day) along with insulin. Presently, his sugar levels are under control and he is showing good response to therapy.

Discussion

Mucormycosis is an aggressive fungal infection. It gets inoculated by inhalation or sometimes by ingestion. The disease mostly target patients with uncontrolled diabetes who are mostly seen in developing countries. Similarly, patients with malignancies and other systemic infections which compromises hosts immunity are more prone to have these infections. Even acquired immune deficiency syndrome, chemotherapy and long term steroids are high risk factors this infection. In these patients phagocytic response is the major factor for spores inoculation [7,8].

Germination continues if the phagocytic response fails, leading to the development of hyphae; thereby, infection becomes established [9].

The patient who has been discussed in the case report was already an immunocompromised host as with uncontrolled diabetes mellitus, the infection started with nose and spread involving the maxilla and paranasal sinuses causing palatal ulceration and inflammation, as in cases of rhinomaxillary mucormycosis showing necrotic maxillary bone with black discoloration of mucosa of right side. After confirming the clinical findings similar to mucormycosis, it was necessary to get radiological (CT scan of the maxilla) and histopathological examinations done to rule out the suspicion of Cavernous Sinus Thrombosis. MRI was also done in our patient which also showed inflammatory changes. The Histopathological findings of mucormycosis include non septate hyphae with tissue necrosis.

It is very necessary for health care workers to work in different fields to rule out this infection with proper diagnosis and treatment so that complications can be avoided. Treatment should be a combined effort of medicinal and surgical therapy as needed [10]. For prevention of the disease underlying predisposing disorder, should be ruled out and treated. Since the disease has been noticed in 1885 amphotericin B is the best possible treatment which has been found to reduce the infection effectively with a survival rate of up to 72% and survival rate of 80% when the drug is combined with surgery [11,12]. But sometimes a serious complication of blindness or cranial nerve palsy can also occur [13]. In the present case report the patient was treated with Amphotericin B and he showed a good response.

We hereby stress the importance of early diagnosis of mucormycosis to limit the dissemination of infection, thereby preventing morbidity and mortality.

Conclusion

Mucormycosis is the most suddenly occurring fatal infection involving nose and sinuses. This is commonly seen in diabetics and immune compromised individuals. To get a 100% result in the treatment of the disease and to reduce the mortality rate, much more studies are needed to be performed worldwide so that patients suffering from oral mycoses are benefited and live a healthy life.

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