

What is Mucormycosis?

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As world is reeling from the effects of COVID -19 pandemic, an occurrence of fungal disorder popularly called as black fungus grabbed the headlines of the media all around the world. Shortly afterwards a relation between the persisting viral infection and the sudden rise of otherwise dormant fungal infection was established. The state of Gujarat itself reported around 3726 cases with approximately 14,872 cases all across India following which the authorities quickly formed dedicated teams to manage the spiraling situation as we stood to stabilize the already precarious situation.

Mucormycosis is caused by class of moulds called mucormycetes which belong to order mucorales, with most common etiologic agent *Rhizopus oryzae*, is a rare but potentially fatal infection especially if inadequately treated. It occurs usually in immunocompromised patients because of diabetic ketoacidosis, neutropenia, and organ transplantation and/or increased serum level of iron. With increased prevalence of diabetes and organ transplants, the risk of infection is rising. Apart from diabetes, traumas, burns, patients on hemodialysis, treatment with corticosteroids or even malignant hematologic disorders are some of the risk factors that should be considered. Despite aggressive therapy, which includes disfiguring surgical debridement and adjunctive toxic antifungal therapy, the mortality rates remain high. It is the interaction of the host to the invading hyphae is where the key to a novel therapeutic approach lies.

After black fungus - White fungus...

White fungus or *Candida albicans* of class Saccharomycetes is the most common to cause infection amongst 20 other types. It is found in immunocompromised patients and is frequently encountered in ENT and Dental OPD as thrush type presentation which is

a white membrane which can be removed to expose the underlying moderately inflamed mucosa. However, there has been considerable research suggesting not only high level of *Candida* colonization in various gastrointestinal disease but also increased resistance to antifungal drugs in last 30 - 40 years. Reports have been found where there is a variant of presentation apparently no different in appearance than that of a peptic ulcer during endoscopic examination which may delay the diagnosis and as well as timely intervention.

What do we know so far?

The infection is contracted from the environment after inhalation of fungal spores leading to pulmonary infection. There abundance is found in dust rich areas for example a construction or excavation site. This can also happen in case of prolonged exposure in damp environment especially water damaged buildings. It however is not known to spread from person to person or animal to person.

Additives to Amphotericin B which is a known nephrotoxic and myelosuppression has been suggested in form of Posaconazole oral suspension as a step down therapy. Sometimes Posaconazole can be administered intravenously if the patient is not responding to Amphotericin which is then called a salvage therapy.

Personal experiences albeit not published from the maxillofacial and oral surgical faculty has found out that resected specimen have revealed only 5 - 10% of the area with hyphae invasion. This has led to the need for identifying infected bone from the affected bone in order to limit the extent of debridement and subsequently the quality of life post excision however, this needs to be weighed against possibility of cranial ascension of the disease which is primarily the reason for radical debridement of the maxillofacial region. Reha-

bilitation following surgery is challenging and has to be taken up in second stage unlike conventional radical resections which support the one stage approach, the recent discussions on online platforms and webinars conducted by higher centers have suggested that the dental rehabilitation is best limited to removable prosthetics and that the procedures to fixed prosthetics require adequate time and investigations before they can be undertaken. However, reconstructive options along with dental rehabilitation are definitely and can be described as predictable in terms of favorable outcomes as well.

The limited involvement of the fungal infection in an otherwise rampant clinical presentation does invoke the need to diagnose the disease carefully. Unsuspecting dental presentation like sudden onset of mobile teeth along with extensive draining sinuses in the alveolar mucosa despite the absence of any odontogenic factor should alert the clinician to think in terms of fungal infection. Apart from these, complaints of generalized weakness, loss of appetite, one sided headaches are also the symptoms to look out for. The sure shot way to diagnose it is in direct vision with help of nasal and antral endoscopy.

A multispecialty team needs to be in place in order to manage the disease effectively and the same has been issued by the MOHFW in light of emerging incidences of this disease.

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