

“Mucormycosis: The Black Fungus Incapacitating Covid Patients In India”: Case Report.

Abstract:

COVID-19 pandemic is still going on. This has led to many secondary infections like opportunistic fungal infections. It is likely that oral lesions in patients with COVID-19 is more likely induced by co-infections, immunity impairment, and adverse reactions instead of direct SARS-CoV-2 infection. Mucormycosis is one such secondary infection caused by fungi belonging to the order Mucorales. Rhinocerebral mucormycosis is one form of mucormycosis, which targets the maxillary antrum and the surrounding tissues and cause necrotizing ulceration of the palate with exposure of underlying bone. The treatment given in mucormycosis cases include restoration of metabolic immunologic competency, intravenous amphotericin B, and surgical debridement. Surgical debridement results in difficulty in speech, deglutition, mastication, and respiration. Both physical and psychologic needs of the patient are best served if an immediate surgical obturator is provided. Definitive prosthodontic treatment should be considered only when healing is complete.

Keywords : Mucormycosis, covid-19, fungal Infection, maxillectomy

Introduction:

COVID-19 pandemic is still going on. This has led to many secondary infections like opportunistic fungal infections [1]. Mucormycosis is caused by fungi belonging to the order Mucorales [2].

It is an angioinvasive disease [3]. Host tissue infarction and necrosis resulting from vasculature invasion by hyphae is its characteristic features. Most commonly presented as rhino-orbito-cerebral and pulmonary. Incidence is increased probably due to an increase in the at-risk population and improved diagnostic tool [4,5].

Prevalence of mucormycosis globally varied from 0.005 to 1.7 per million population. In India it is 80 times higher (0.14 per 1000) compared to developed countries [6,7,8]. India happens to have highest cases of the mucormycosis in the world according to the data above.

There are a number of differential diagnoses of palatal ulceration, among it is rhinocerebral/ craniofacial

mucormycosis and may be the first presenting clinical finding. A number of different pigmented lesions may be encountered upon intra-oral examination [9].


There is an emerging concern regarding co-infections. Co-infections can primarily occur through the following: Before viral infection patients themselves might be carrying viral infection, patients might be having underlying chronic infection, or when the patient is hospitalized. It is likely that oral lesions in patients with COVID-19 is more likely induced by co-infections, immunity impairment, and adverse reactions instead of direct SARS-CoV-2 infection. [10].

¹GEETA RAJPUT, ²ABIRAMI S, ³ZEBNA NAZ,
⁴SHIVANIYADAV, ⁵SAFIA ALMAS,
⁶PRIYANKA SINGH RAGHAV

¹⁻⁶Dr. Ziauddin Ahmad Dental College,
Aligarh Muslim University, Aligarh

Address for Correspondence: Dr. Abirami. S
H.No. 102, Gulzar Residency, Medical Road,
Aligarh-202002
Email : abisornam@gmail.com

Received : 2 Nov., 2021, **Published :** 31 March, 2022

Access this article online	
Website: www.ujds.in	Quick Response Code 
DOI: https://doi.org/10.21276/ujds.2022.8.1.18	

How to cite this article: Sornavel, A., Zebna Naaz, Shivani, Shivani, Safia Almas, & Safia Almas. (2021). "Mucormycosis- The Black Fungus Incapacitating Covid Patients in India". UNIVERSITY JOURNAL OF DENTAL SCIENCES, 8(1). 95 - 98

Case Report:

A 40-year-old male patient reported to the Department of Prosthodontics, Dr .Z. A. Dental college with a chief complaint of difficulty in consumption of food and speech discrepancies. Intraoral examination revealed large maxillary defect on the left side with partially edentulous arch.(figure 1



B) Figure 1 A & B – Maxillary

DEFECT On past medical history, it was found that the patient under went maxillectomy for post Covid- 19 necrosis of maxilla due to mucormycosis three months back. The treatment plan was to fabricate a removable partial denture.

Treatment:

A linear design for a Class-IV defect was selected for this case according to design principles described by Aramany in 1978 in which remaining palatal tissues provided the support and retention was achieved from the clasps made on the remaining intact dentition[11].

Fabrication of The Rpd:

A primary impression was made with irreversible hydrocolloid impression material (Fig 2 a) using a stock tray.

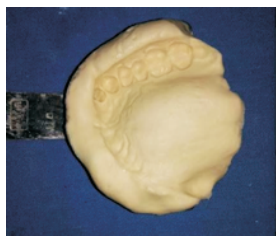


Figure 2 A-primary Alginate Impression

After obtaining the primary cast, (Fig 2 b) a special tray was fabricated with self-cure acrylic resin. Bordermoulding was done with greenstick material .A light body secondary

impression was made to record the undercuts which aid in anatomic retention. The master cast was obtained .



Figure 2 B- Secondary Impression With Light Body temporary denture base with occlusal rim was fabricated on the master cast. (fig 3 a) Bite registration was done. Maxillary and mandibular casts were mounted on the articulator. Teeth arrangement and try-in were done. Occlusion, aesthetics, and phonetics were evaluated and found to be acceptable by the patient. A clasp extending from canine anteriorly to second molar posteriorly was given for retention. Try in was done. (fig 4a and 4b) The final wax-up was done.



Figure 3- Occlusalrim



Figure 4. a and 4b -TRY-IN After final finishing and polishing, Insertion of the prosthesis was done and post-insertion instructions were given.(fig 5 a ,b,c& d)



Figure 5a- Finished And Polished Prosthesis



Figure 5 B & C – Intraoral View After Insertion



Figure 5 D- Extraoral View After Insertion

Discussion:

Rhinocerebral mucormycosis is one form of mucormycosis, which targets the maxillary antrum and the surrounding tissues and cause necrotizing ulceration of the palate with exposure of underlying bone. Patients present with the symptoms like facial pain, nasal discharge, and sinusitis with clinical signs of orbital cellulitis and necrotic black tissue in the nasal turbinates and septum. Metabolic derangements, such as liver/renal failure and uncontrolled diabetes with ketoacidosis are also seen in severe cases [13].

High degree of suspicion to ward mucor mycosis should be maintained when patients present with mid facial symptoms because early clinical findings can be subtle and confusing in the secases.

Successful treatment of the disease depends on early diagnosis and treatment planning.

The treatment given in mucormycosis cases include restoration of metabolic or immunologic competency, intravenous amphotericin B, and surgical debridement. Aggressive surgical debridement results in the loss of the palate, maxilla, and contiguous structures [12].

This results in difficulty in speech, deglutition, mastication, and respiration. Both physical and psychologic needs of the

patient are best served if an obturator is provided.

An obturator provides following functions:

1. It allows normal speech
2. Allows normal deglutition
3. Protect surgical site during healing.

Because of larger defect retention might be essentially dependent on the teeth. Due to this reason, adequate clasping should be provided. Close tissue adaptation of the prosthesis is essential for stability..

The patient should be called every week for the evaluation of fit and modifications should be done accordingly.

Permanent defect is determined by the healing process and scar contraction can be a prominent feature in these cases. That's why definitive prosthodontic treatment should be considered only when healing is complete [13].

An obturator prosthesis is the treatment of choice in these cases. It has following functions:

1. It creates a partition between the oral and nasal cavities
2. It restores facial contour
3. Improves mastication
4. Improves articulation
5. Improves speech
6. Provides lip support. However, support and retention of the prosthesis are often difficult to achieve in these cases due to the absence of teeth, lack of favorable undercuts, and the presence of non-keratinized nasal mucosa [12].

References;

1. Garg D, Muthu V, Sehgal IS. Coronavirus disease (Covid-19) associated mucormycosis (cam): case report and systematic review of literature. *Mycopathol.* 2021;186:289-98.
2. Hibbett DS, Binder M, Bischoff JF, et al. A higher-level phylogenetic classification of the Fungi. *Mycol Res.* 2007;111:509-47.
3. Eucker J., Sezer O., Graf B., Possinger K. Mucormycoses. *Mycoses.* 2001;44(7):253-260.
4. Bitar D, Van Cauteren D, Lanternier F. Increasing incidence of zygomycosis (mucormycosis), France, *Emerg Infect Dis.* 2009;15(9):1395-401.

5. Guinea J, Escribano P, Vena A. Increasing incidence of mucormycosis in a large Spanish hospital from 2007 to 2015: Epidemiology and microbiological characterization of the isolates. *PLoS One*. 2017;12(6):e0179136.
6. Skiada A., Pavleas I., Drogari-Apiranthitou M. Epidemiology and diagnosis of mucormycosis: an Update. *JFungi*. 2020;6(4):265.
7. Chander J., Kaur M., Singla N. Mucormycosis: battle with the deadly enemy over a five-year period in India. *J. Fungi*. 2018;4(2):46.
8. Prakash H., Chakrabarti A. Global epidemiology of mucormycosis. *JFungi*. 2019;5:26.
9. International Diabetes Federation Idf diabetes atlas. 2019.
10. NG Ourania, SSotirios, DA Maria, MMaria, GDimitra, YXanthi, RDemetra, YIoannis, P George and P Gerassimos. Mucormycosis presenting with dental pain and palatal ulcer in a patient with chronic myelomonocyticleukaemia: case report and literature review. *JMM Case Reports* (2015);1-8.
11. Aramany MA. Basic principles of obturator design for partially edentulous patients. Part I: Classification. *J Prosthet Dent* 1978; 40:554-557
12. Inbarajan A, Natarajan S, Thirumalai Thangarajan S, et al. Impact of Prosthodontic Treatment on the Oral Health-related Quality of Life in Mucormycosis Patient: A Case Report. *Cureus* 10(10)
13. KurraschM,BeumerJ,KagawaT. Mucormycosis: Oral and prosthodontic implications. A report of 14 patients. *The Journal of Prosthetic Dentistry* 1982;47(4):422–429.