

## Mucormycosis and prosthodontic management



The black fungal disease is widespread due to recent COVID outbreak. It is caused by mucormycetes. The disease becomes significant when the body defense mechanism becomes weaker. It affects significantly the immunocompromised individuals. The disease is presented in various clinical forms – rhinocerebral, pulmonary, gastrointestinal, cutaneous, and disseminated. The infections spread from sinus to the brain in rhinocerebral mucormycosis. It is observed in patients with renal transplants or uncontrolled diabetic patients. The lung or pulmonary mucormycosis is witnessed in the organ transplant or cancer patients. The gastrointestinal mucormycosis is common in children than adults. The clinical situations of extensive use of antibiotics or surgeries that compromise the immune response of children are affected by gastrointestinal mucormycosis. The skin or cutaneous mucormycosis occurs due to the outbreak in skin or cutaneous tissues. The disseminated mucormycosis occurs through the infection spreading through the bloodstream. It primarily affects the brain and the other vital organs such as heart and spleen. The different fungal species that cause the diseases are mucor species, *Syncephalastrum*, *Rhizopus* species, *Cunninghamella bertholletiae*, *Rhizomucor*, *Lichtheimia*, and *Apophysomyces*.<sup>[1,2]</sup>

The symptoms of the disease vary with the type and system affected. The most common sinus and brain mucormycosis have headache, sinus congestion, one side facial swelling, vision disturbances, loss of extraocular functions, pupillary fixation, black lesions on the nasal turbinate and palate, gingival or periodontal abscess, fever, and black pus drainage. The other symptoms such as dyspnea, chest pain, nausea, vomiting, gastrointestinal bleeding, coma can vary with type and severity of the disease.<sup>[1]</sup>

The risk populations involve diabetes, organ transplants, long-term corticosteroid use, excessive iron, and conditions that decrease immunity. The disease occurs due to the contact with the spores and weaker immune

responses increase the widespread chance of the disease.<sup>[1-3]</sup> The disease is diagnosed with the symptoms, history, examination, and laboratory investigations. Computed tomography scan of sinus, fungal culture, and tissue biopsy can be supportive investigations. The treatment involves the control of any metabolic diseases, antifungal medications, and surgical resection of affected tissues. Surgery majorly involves the radical removal of infected area or region. Intravenous or oral administration of amphotericin B, posaconazole, or isavuconazole is effective mode of treatment. The prognosis depends on the early diagnosis and treatment. The disease can rapidly spread in midfacial and orbital region causing lasting damages as palatal defects, maxillectomy, oral-antral fistula, blindness and associated craniofacial damage.<sup>[1-3]</sup>

The postsurgical treatment leads to extensive scarring and alters the functions of the diseased persons. The defects can be minor intraoral to major midfacial defects. The primary modality of management exists in careful planning and designing of the prosthesis. The conventional prosthetic management of defects plays a greater role in establishing the function for the patient. Unlike other disease/defects, the choice of surgical planning for prosthesis is limited in mucormycosis.<sup>[2]</sup> The choice of prosthesis varies with simple removable prosthesis to advance implant prosthetic options.<sup>[4-8]</sup> The rehabilitation treatment is done after complete recovery from infection. The stability of the tissues is assessed, and prosthesis design is decided on the functional requirements. Majorly nonkeratinized mucosa is observed in the defect areas. The nonkeratinized mucosa can complicate the postoperative care and retention of prosthesis. The use of skin grafts or protection of raw tissues with keratinized mucosa can be supportive.<sup>[2]</sup> The principles of prosthetic management are simple and fundamental. The design of the prosthesis is varying with the type and extension of the defect. The conventional obturator designs and fabrication procedures are followed with great success.<sup>[7]</sup> The use of immediate surgical obturator improved the patient quality of life,

especially in phonetics, deglutition, and safeguarding the tissue for complete healing. The use of additional wrought wire clasps for retention is vital for immediate surgical obturation. The changes of immediate obturators are done during the healing phase with soft reliners to improve the stability and prosthesis comfort. The facial defects are rehabilitated with suitable prosthesis. The advanced treatment with implant is less reported in the literature.<sup>[8]</sup> It can be due to the lesser prevalence of the disease in past years. The use of implant and other options is planned with fundamental principles that can help in improving the quality of life of patients.

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**Submitted:** 05-Sep-2021, **Revised:** 25-Sep-2021,  
**Accepted:** 02-Oct-2021, **Published:** 09-Nov-2021

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	<b>DOI:</b>
	10.4103/jips.jips_436_21

**How to cite this article:** Chander NG. Mucormycosis and prosthodontic management. *J Indian Prosthodont Soc* 2021;21:317-8.

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