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## Coronavirus Disease (Covid-19) Associated Mucormycosis (CAM)

**Authors:** Mr. Bhupender, Dr. S.P. Subashini, Dean School of Nursing, Ms. Simrat Kaur, Ms. Deepti  
(Department of Medical Surgical, Mental Health and OBG Nursing)

GALGOTIAS UNIVERSITY

### ABSTRACT:

Severe coronavirus disease (COVID-19) is currently managed with systemic glucocorticoids. Opportunistic fungal infections are of concern in such patients. While COVID-19 associated pulmonary aspergillosis is increasingly recognized, mucormycosis is rare. Mucormycosis usually developed 10–14 days after hospitalization. Mucormycosis is an uncommon but serious infection that complicates the course of severe COVID-19. Person with diabetes mellitus and multiple risk factors may be at a higher risk for developing mucormycosis. Concurrent glucocorticoid therapy probably heightens the risk of mucormycosis. A high index of suspicion and aggressive management is required to improve outcomes.

**Keywords:** Zygomycosis, *Mucorales*, Tocilizumab, Dexamethasone, Diabetes, CAPA.

COVID-19 has already claimed more than one million lives worldwide. In the absence of an effective vaccine or antiviral therapy, supportive care plays a vital role in the management of COVID-19. Glucocorticoids and probably remdesivir are the only drugs proven to be beneficial in COVID-19. Glucocorticoids are inexpensive, widely available, and have been shown to reduce mortality in hypoxemic patients with COVID-19. Nevertheless, glucocorticoids can increase the risk of secondary infections.

Moreover, the immune dysregulation caused by the virus and the use of concurrent immunomodulatory drugs such as tocilizumab could further increase the risk of infections in COVID-19 patients. Diabetes mellitus has been associated with severe COVID-19. Those with diabetes are at an increased risk of death than those without.

While COVID-19 associated pulmonary aspergillosis (CAPA) has received much attention, mucormycosis, another devastating disease, remains unrecognized. Pulmonary mucormycosis is increasingly diagnosed, and the case fatality has improved over time. Control of hyperglycemia, early treatment with liposomal amphotericin B, and surgery are essential for the successful management of mucormycosis. However, COVID-19 has created a unique scenario where all

three aspects of the management are compromised. Firstly, hyperglycemia is aggravated by the most effective therapy for severe COVID-19, namely glucocorticoids. Coexisting ARDS and multiorgan dysfunction preclude timely diagnostic imaging and testing. Finally, the hospitals are overwhelmed by COVID-19 patients, and essential services, including diagnostics and surgeries, could be significantly curtailed. Hence, the mortality in CAM (87.5% in the current series) maybe even higher than that observed in non-COVID patients.

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