

“Mucormycosis and its correlation to steroid therapy and high plasma glucose levels, Oxygen therapy and vaccination status in post covid-19 patients.”

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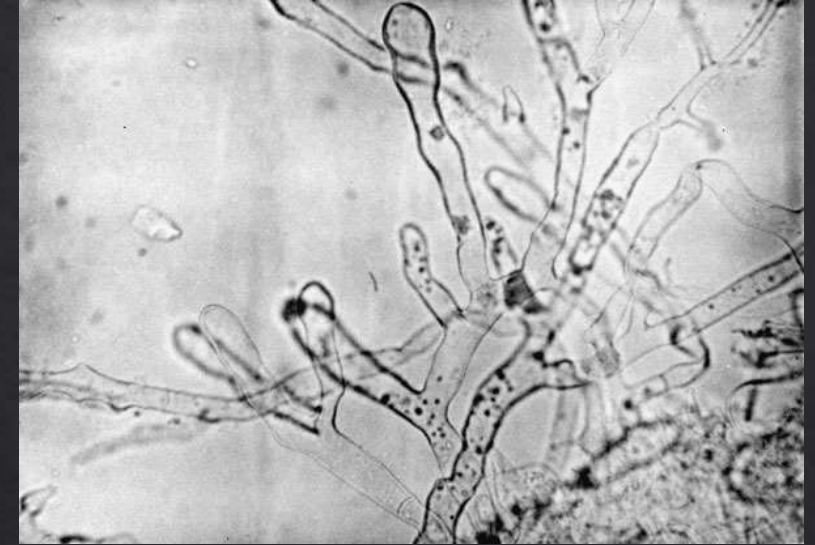
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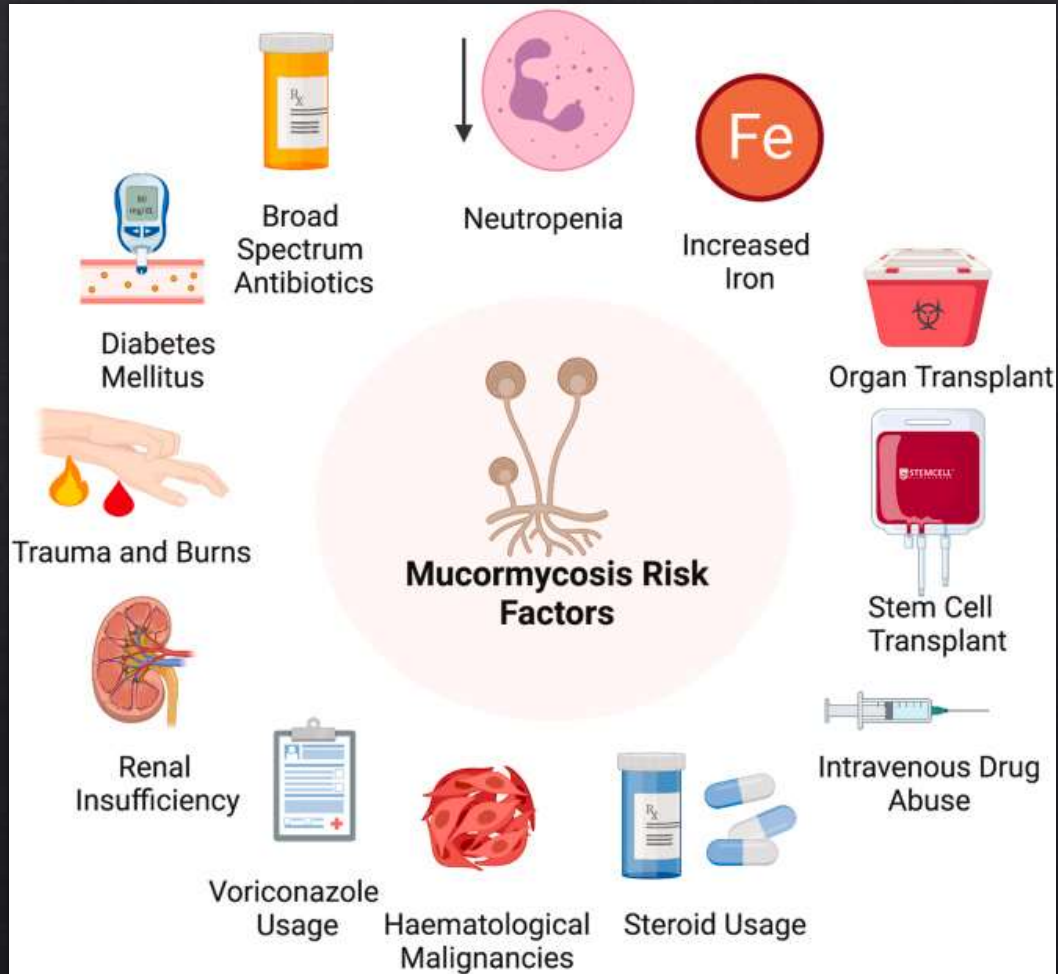
INTRODUCTION

- ◆ Coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has been associated with a wide range of opportunistic bacterial and fungal infections. Both *Aspergillus* and *Candida* have been reported as the main fungal pathogens for co-infection in people with COVID-19. COVID-19 pandemic where corticosteroids are often being used. There has been a steep rise in case reports/series of mucormycosis in people with COVID-19 especially from India. fatality rate with mucormycosis is pretty high. Especially the intracranial involvement of mucormycosis increases the fatality rate to as high as 90%

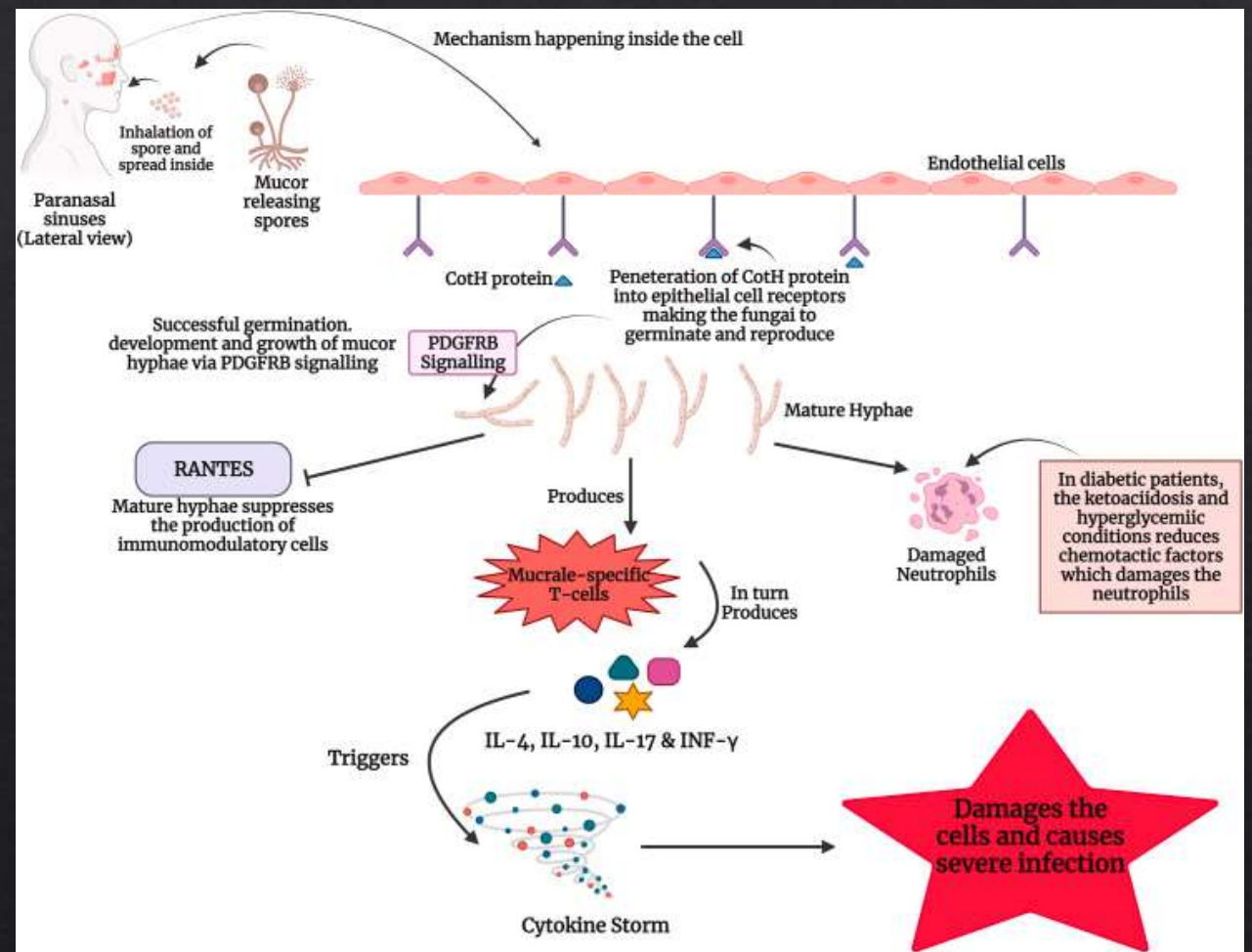


- Mucormycosis, a fungal infection caused by ubiquitous environmental molds, such as *Rhizopus arrhizus*, *Rhizomucor pusillus*, *Apophysomyces variabilis* and *Lichtheimia corymbifera*, is surging as a COVID-19-associated infection at unprecedented rates throughout India and raising alarm bells around the world.

RISK FACTORS



PATHOGENESIS



AIM

- ◆ To study the relation of steroid intake during covid-19 infection, high blood glucose levels, oxygen requirement during covid-19 infection and covid vaccination status of the patient presenting with mucormycosis and thus establishing a relation.

MATERIALS & METHODS

- This is a case study of 100 cases admitted in our hospital post covid-19 infection with different complaints and signs and symptoms indicating Rhino-Orbital-Cerebral mucormycosis.
- A complete history in regard to steroid, DM, O2 requirement and vaccination status was taken. All the cases were again screened for covid infection and comorbidities like DM, HTN or any other immunocompromised state.

HISTORY OF STEROID USE, COMORBIDITIES AND OTHER FACTORS

CRITERIA	NO.OF PATIENTS
DIABETES MELLITUS	65
STEROID USE	92
OXYGEN THERAPY	46
VACCINATION STATUS	52

RESULTS

- ◇ Data from this study showed mucormycosis was predominantly seen in patients with history of corticosteroid intake for the treatment of COVID-19 was present in 92% of cases.
- ◇ Hyperglycemia or new-onset diabetes or diabetic ketoacidosis [DKA]) was the single most important risk factor observed in 65% of cases of mucormycosis in people with post COVID-19 infection.
- ◇ Cases which presented with mucormycosis 46% had received oxygen therapy by one mode or another and 52% were vaccinated for covid with either one dose or both the doses.

DISCUSSION

- ◇ Mucormycosis is a life-threatening infection that occurs in patients who are **immunocompromised** because of diabetic ketoacidosis, neutropenia, organ transplantation, and/or increased serum levels of available iron. Because of the increasing prevalence of diabetes mellitus, cancer, and organ transplantation, the number of patients at risk for this deadly infection is increasing. Despite aggressive therapy, which includes disfiguring surgical debridement and frequently adjunctive toxic antifungal therapy, the overall mortality rate is high.

CONCLUSION

- ❖ This is an opportunistic fungal infection that is caused due to mucor hyphae that are commonly available in soil, plants, dungs, rotting fruits and vegetables. The COVID-19 affected patients who are more susceptible to these infections are immunocompromised, have diabetes, and are prescribed heavy steroids. As mucormycosis is angioinvasive, once inhaled, its spores begin to grow, and the fungal hyphae invade the blood vessels, further contributing to tissue infarction, necrosis and thrombosis.
- ❖ This fungal infection is life-threatening as it occurs among those who have immunosuppression accompanied with diabetic ketoacidosis, neutropenia, increased serum levels of iron, excess release of sugar due to overtake of steroids which finally results in a decrease in levels of WBCs, T-cells and other immunomodulatory cells and triggers the cytokine storm that damages the cellular organs.

REFERENCES

- ◇ [\(PDF\) Pathogenesis of Mucormycosis \(researchgate.net\)](#)
- ◇ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1195964/>
- ◇ [Mucormycosis: An opportunistic pathogen during COVID-19 \(nih.gov\)](#)

THANK
YOU