

CASE REPORT

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A case report of rhino-facial mucormycosis in a non-diabetic patient with COVID-19: a systematic review of literature and current update

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Abstract

Background: COVID-19 disease may be associated with a wide range of bacterial and fungal infections. We report a patient with COVID-19 infection who developed rhino-facial mucormycosis during treatment with corticosteroids.

Case presentation: A 59-year-old non-diabetic male patient was admitted with a diagnosis of COVID-19 based on positive RT-PCR and CT of the lungs. Due to severe lung involvement, he was treated with methylprednisolone. The patient was re-admitted to hospital, due to nasal obstruction and left side facial and orbital swelling, several days after discharge. In sinus endoscopic surgery, debridement was performed and the specimens were sent to pathology and mycology laboratories. A nasal biopsy showed wide hyphae without septa. The sequenced PCR product revealed *Rhizopus oryzae*. Despite all medical and surgical treatment, the patient died. In addition, the characteristics of patients with COVID-19-associated mucormycosis were reviewed in 44 available literatures. In most studies, diabetes mellitus was the most common predisposing factor for mucormycosis.

Conclusion: Our report highlights the need for assessing the presence of mucormycosis in patients with COVID-19 and also it shows that physicians should consider the potential for secondary invasive fungal infections in COVID-19 cases.

Keywords: COVID-19, Mucormycosis, *Rhizopus oryzae*

Background

COVID-19 is a viral disease of the respiratory tract that continues to be a major health issue worldwide. The disease is associated with common symptoms such as fever, dry cough, fatigue, and shortness of breath and sometimes in severe cases, leads to acute respiratory distress syndrome (ARDS) [1]. On the other hand, the use of corticosteroids to modulating lung injury and reduce

mortality in COVID-19 patients may be exposes the patient to opportunistic bacterial and fungal infections [2].

Invasive pulmonary aspergillosis is one of the fungal diseases that complicates COVID-19 manifestations [3]. Moreover, mucormycosis as an opportunistic fungal infection can progress rapidly in immunocompromised patients. The most common clinical form of this fungal infection is rhino-cerebral mucormycosis [4]. We reported a case of rhino facial mucormycosis in a 59-year-old non-diabetic male patient with COVID-19 following corticosteroid treatment, which eventually resulted in death.

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