

Post-COVID Pulmonary Mucormycosis - A Case Report

Masseoud L, Trifi A*, Mehdi A and Abdellatif S

Medical intensive care unit of the teaching hospital of la Rabta, University of Tunis El Manar, Tunis, Tunisia

*Corresponding author:

Ahlem Trifi,
Medical intensive care unit of the teaching
hospital of la Rabta, University of Tunis El
Manar, La Rabta Jebbari 1007 Tunis,
Tunisia, Tel: 0021698692699;
E-mail: trifiahlem2@gmail.com

Received: 10 Sep 2022

Accepted: 20 Sep 2022

Published: 25 Sep 2022

J Short Name: ACMCR

Copyright:

©2022 Trifi A. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and build upon your work non-commercially

Citation:

Trifi A, Post-COVID Pulmonary Mucormycosis - A Case Report. *Ann Clin Med Case Rep.* 2022; V9(16): 1-2

Keywords:

Mucormycosis; Mucorales; pulmonary mucormycosis; Intensive care; CT scan

1. Abstract

Pulmonary mucormycosis, a relatively rare fungal lung disease, is difficult to diagnose. It is increasingly reported in immunocompromised patients that inhale fungal spores in the air or paranasal sinus, resulting in pulmonary mucormycosis. We report a case of a 45-year-old patient, with a medical history of hypertension and chronic bronchial disease. He was affected with Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) two months ago hospitalized in intensive care for acute respiratory failure with history of dyspnea, fever and hemoptysis for one month.

CT scan revealed a left perihilar excavated opacity exerting a mass effect on the stem bronchus, a second right posterobasal excavated nodule and diffuse ground-glass opacity. Histopathological results showed broad non-septate fungal hyphae with morphology suggestive of mucormycosis. The treatment was based on Amphotericin and the patient died one week later of septic shock with multiple organ failure.

The prognosis of mucormycosis remains poor, namely when associated to a pulmonary location. The precocity of diagnosis and appropriate management is the only guarantee to improve survival.

2. Introduction

Pulmonary mucormycosis usually occurs in uncontrolled, immunocompromised diabetic patients and is an opportunistic and fatal fungal disease [1]. The severe COVID-19, requiring admission to intensive care may be considered as an immunodeficiency situation due to the cytokine storm caused by the SARS-CoV-2 virus of part and administered therapeutics from other parts (Steroids,

Anti-IL-6 ...) [2]. The diagnosis of pulmonary mucormycosis is particularly difficult and it is based on the combination of predisposing factors (immunodepression, diabetes, chronic renal failure, etc.), radiology and mycology tests which leads to an under-estimation of the incidence of this disease [3].

3. Case Report

A 45-year-old male, diabetic at the stage of degenerative complications, hypertensive, and chronic bronchial disease. He presented a history of COVID-19 pneumonia with severe acute respiratory distress syndrome (ARDS) two months ago, which required hospitalization in intensive care and which progressed well under medical treatment and oxygen flow; he received dexamethasone 6 mg/d for ten days.

After two weeks, the patient presented dyspnea, hemoptysis and fever for a duration of one month. A thoracic CT scan done showed a 56 mm left perihilar excavated opacity exerting a mass effect on the stem bronchus with the presence of a parenchymal focus of atelectasis and homolateral apical retractile alveolar infiltration, a second right posterobasal excavated nodule and a small left pleural effusion (Figure 1). Initially, the diagnosis of pulmonary tuberculosis was evoked but sputum cultures were negative, then the patient received antibiotic treatment.

However, the symptoms did not improve, and he developed severe hypoxemia. Thus, he was admitted in ICU and in invasive ventilation was required. Bacteriological results were inconclusive which led to complete with a lung biopsy, which showed broad non-septate fungal hyphae with morphology suggestive of mucormycosis.

This last finding justified the prescription of Amphotericin at a dose of 5mg/kg/d. The outcome was unfavorable with occurrence

of a refractory septic shock associated to multiple organ failure in a delay of one week later.



Figure 1: Left perihilar excavated opacity exerting a mass effect on the stem bronchus (Red Arrow), presence of a parenchymal focus of atelectasis and homolateral apical retractile alveolar infiltration (green Arrow), a second right posterobasal excavated nodule (yellow arrow).

4. Discussion

Since emerging cases of COVID-19 pneumonia have spread worldwide, there have been many reports of the occurrence of fungal infections, particularly pulmonary aspergillosis, mucormycosis being less frequent. In most reported clinical cases, pulmonary mucormycosis is a life-threatening fungal infection requiring extensive medical and surgical treatment.

In a review of 101 Mucormycosis infections associated with COVID-19, 80% of the infected patients had pre-existing diabetes, most of them poorly controlled as in our case [4]. Several different factors in COVID-19 appear to account for the increased incidence of these co-infections. For example, COVID-19 patients who also have a history of diabetes, new-onset hyperglycemia, or steroid-induced hyperglycemia have elevated glucose levels that promote the environment necessary for *Mucor* spores to germinate [4].

The clinical manifestations are non-specific and commonly include fever, cough, chest pain, dyspnea and hemoptysis, since these pathogens can erode blood vessels [5]. Radiological manifestations include infiltrates, exudation, consolidation, cavities and nodules, while the disease typically has a predilection for the upper lobes [6].

Early diagnosis and treatment with the antifungal of reference (Amphotericin) are mandatory to improve the prognosis. In our reported case, the fatal outcome is partly related to the delay in diagnosis prior to admission to intensive care.

In the case of antibiotic treatment failure; in the presence of a SARS-CoV-2 history pneumonia and uncontrolled type 2 diabetes, fungal pneumonia must be considered namely the pulmonary mucormycosis. In such cases, urgent bronchoscopy should be performed in order to initiate early appropriate treatment.

5. Conclusion

This case report highlights the need to be aware that pulmonary mucormycosis may present as a secondary complication of COVID-19 co-infection in diabetic patients and to make the diagnosis early in order to improve the prognosis.

References

1. Serris A, Danion F, Lanternier F. Disease entities in mucormycosis. *Journal of Fungi*. 2019; 5(1): 23.
2. Tang Y, Liu J, Zhang D, Xu Z, Ji J, Wen C. Cytokine Storm in COVID-19: The Current Evidence and Treatment Strategies. *Front Immunol*. 2020; 11: 1708.
3. Skiada A, Pavleas I, Drogari-Apiranthitou M. Epidemiology and Diagnosis of Mucormycosis: An Update. *J Fungi (Basel)*. 2020; 6(4): 265.
4. Singh AK, Singh R, Joshi SR, Misra A. Mucormycosis in COVID-19: A systematic review of cases reported worldwide and in India. *Diabetes Metab Syndr*. 2021; 15(4): 102146.
5. Predictors of Pulmonary Zygomycosis versus Invasive Pulmonary Aspergillosis in Patients with Cancer. *Clinical Infectious Diseases*.
6. Cornely OA, Alastruey-Izquierdo A, Arenz D, Chen SCA, Dannaoui E, Hochhegger B, et al. Global guideline for the diagnosis and management of mucormycosis: an initiative of the European Confederation of Medical Mycology in cooperation with the Mycoses Study Group Education and Research Consortium. *The Lancet Infectious Diseases*. 2019; 19(12): e405-21.