Case Report

Aspergillosis ball graft as complication of Covid-19 infection: Case report

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Abstract

Invasive pulmonary aspergillosis is a severe presentation of aspergillosis fungal infection, with a high mortality rate. Many Covid-19-associated pulmonary aspergillosis cases have been described in the literature giving rise to a major dilemma for physicians: discriminate a simple colonization from an invasive infection. In this paper, we will describe the case of a 40-year-old immunocompetent man with no medical history was admitted to the intensive care unit for Covid-19 infection with lung damage initially estimated at 50%-75%. Two weeks later, patient condition got worse, with a thoracic CT showing a newly developed, well limited lung cavitation indicative of an aspergillosis fungus ball.

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Introduction

Covid-19-associated pulmonary aspergillosis (CAPA) is a co-fungal infection that was reported along with Candida, Cryptococcus, and Mucorales [1].

Aspergillosis infection comes in many clinical presentations including invasive pulmonary aspergillosis (IPA), chronic pulmonary aspergillosis, allergic bronchopulmonary aspergillosis, chronic rhinosinusitis, and fungal asthma and bronchitis [2,3]. Many risk factors are identified for co-fungal and viral infection [4,5].

In this case report we present a 40-year-old immunocompetent man admitted to the intensive care unit for Covid-19 infection complicated during his hospitalization with a newly formed and well limited lung cavitation: aspergillosis cross-infection.

Case report

A 40-year-old man with no medical history, not vaccinated against Covid-19, was admitted to the intensive care unit for Covid-19 infection.

Competition Interests: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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https://doi.org/10.1016/j.radcr.2022.10.071

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Initial clinical findings were as follow: 85% pulsed oxygen saturation in ambient air, 95% on oxygen 12 L/min, heart rate at 88 beats per minute, blood pressure at 120/80 mmHg.

Initial thoracic CT scan showed signs of Covid-19 infection with lung damage estimated between 50% and 75% CORADS VI (Fig. 1).

Initial treatment consisted of vitamin C; zinc; corticosteroids (methylprednisolone 120 mg/day) and anticoagulation (low molecular weight heparin).

After initial improvement, his oxygen needs decreased to 5 L/min, the patient condition worsened gradually later on; he was put initially under high flow nasal oxygen therapy and non-invasive ventilation on the fifteenth day of his admission. Biological assessment showed increased white cells count, C-reactive proteins, and procalcitonin.

A second CT scan was performed 2 weeks after admission showed stable Covid-19-related lung damage, no pulmonary embolism. However, a new, well-limited lung cavitation indicative of tuberculosis or aspergillosis (Fig. 1) was described.

The blood cultures showing fungal growth in blood cultures. The patient was then started on intravenous voriconazole for subacute invasive pulmonary aspergillosis.

He was transferred on the 25th day to the Medicine – Infectious diseases department without any other complications.

Discussion

Viral pneumonia increases the risk of co-fungal infection including IPA, and worsens the prognosis of critically ill patients with acute respiratory distress syndrome [6-8]. This causality can be explained by:

- Direct airway damages caused by respiratory virus leading to aspergillosis cross-infection [9].
- Immune dysfunction or dysregulation [10].
- Corticosteroids use [11]. As a matter of fact, the risk of developing co-fungal infection is increased with the use of corticosteroids, which was proved in the previous viral pandemics: influenza B, influenza H1N1, and SARS-COV1 in 2003 [7,12,13].

Many studies have been published during Covid-19 pandemic showing the association of this latter and aspergillosis...
co-infection [1,6,14–19]. This study confirmed that CAPA is a serious underrated problem in critically ill patients especially with invasive ventilation requiring regular surveillance.

Radiological findings of IPA include multiple pulmonary nodules or lung cavitation, halo sign, ground-glass opacities, crazy paving pattern, pleural effusion, and pulmonary cysts [1,17–19].

In this paper, we report of invasive pulmonary aspergillosis in a patient with Covid-19 infection, who had no risk factors for potential aspergillosis cross-infection (pulmonary tuberculosis, sarcoidosis, or preexistent lung cavitations).

**Conclusion**

Subacute invasive pulmonary aspergillosis cross-infection in patients with SARS-CoV-2 is a rare entity. It is associated with a high mortality rate especially among patient with invasive ventilation requiring routinely surveillance.

**Patient consent**

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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