

## 8. COVID-19-ASSOCIATED PULMONARY MYCOSIS: A DIAGNOSTIC DILEMMA

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**Introduction.** Diabetes mellitus (DM) and corticosteroid treatment are independent risk factors for both: severe COVID-19 and lung mycosis. An uncontrolled DM and the use of corticosteroid in a background of COVID-19 appeared to increase the risk of mucormycosis in immunocompromised hosts. Because the diagnosis of fungal infections can be challenging, the empirical appropriate antifungal is critical to provide a successful outcome that was demonstrated in the presented case.

**Case presentation.** A 40-year-old male, non-smoker, without any known chronic lung diseases, was referred to our clinic due to an episode of hemoptysis (30 ml). He was discharged from a hospital two weeks previously due to a severe form of COVID-19. A hyperglycemia was primarily diagnosed during the SARS-CoV-2 infection, but no hypoglycemic treatment was initiated. High doses of corticosteroids were administered during the hospitalization for COVID-19 and a regimen of 12 mg/day of methylprednisolone has been started after discharge. At the admission to our hospital, he presented with hyperglycemia (22.8 mmol/l) and with HbA1C 9.4%. HRCT of the chest showed an area of consolidation in the right upper lobe close to the right hilum accompanied by lymphadenopathy. Bronchoscopy showed purulent, cheesy secretions, extensive necrosis of the right upper lobe segments. Histopathological examination of the lung and bronchial wall tissue obtained by transbronchial biopsy identified hyphae with invasion in the vessels and muscular tissue of the bronchial wall, highly suggestive for mucormycosis. Serological tests for *Aspergillus fumigatus* were negative. Antifungal treatment with itraconazole (the onliest available antifungal drug in the Republic of Moldova) was initiated, and no other episodes of hemoptysis and with an improvement of the bronchial and infectious clinical syndromes. HRCT of the thorax after two months of antifungal treatment demonstrated a resolution of the consolidation area and no lymph nodes enlargement.

**Discussion.** Reports of COVID-19-associated mycosis have been increasing in frequency since early 2021, particularly among patients with uncontrolled diabetes. In the absence of serum antigenic biomarkers and because the availability of PCR testing is low, particularly in low-income countries, COVID-19-associated mycosis diagnosis is challenging, with conventional culture and histopathological demonstration of fungi being the mainstay of diagnosis, albeit with low sensitivity.

**Conclusion.** COVID-19-associated mucormycosis can be a serious complication of severe COVID-19, particularly in patients with uncontrolled diabetes. This case highlights the diagnostic and treatment challenges in a case of pulmonary mycosis associated with COVID-19.