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Fungal brain abscess in the era of COVID-19: an experience from a tertiary care Neurosciences Institute in South India
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Introduction: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is ruling the world for more than 2 years since 2020. In 2021, the second wave of COVID-19 arrived in the ‘delta variant’ across India, causing significant morbidity and mortality. In addition, the epidemic of COVID-19-associated macromycoses affected the Indian subcontinent specifically, with a whopping 41,512 cases and 3516 deaths attributed to this dreadful disease.

Methods: The single-center retrospective cross-sectional study was aimed to determine the impact of COVID-19 on fungal brain abscesses at a non-COVID tertiary care Neurosciences Institute in South India. The study included all cases diagnosed with fungal brain abscess microscopically (microscopy and/or fungal culture), supported by radiological findings or by histopathological examination. Cases of brain abscess which were negative for fungal elements by microscopy, culture, and imaging were excluded from the study. Fungal culture was done on routine mycological media as per standard procedures. Fungal identification was done by microscopic morphology, MALDI-TOF MS, and ITS sequencing.

Results: A total of 406 cases of brain abscess were recorded between January 2020 and April 2022. Out of these, 26 (6.4%) were cases of fungal brain abscess. In 2021, these out of 153 (25%) cases had a fungal etiology, while it was 10.4% (20/193) in 2021 and 2022 (142) till April 2022. Overall, a male predominance was observed (2026, 76% were males). The cases had an even distribution from 6 to 62 years, with no predilection in any particular age group. The most common underlying cofactor was type 2 diabetes mellitus (13/26, 50%). Four cases had a past history of COVID-19. Radiological suspicion of fungal infection was present in all the cases. Mycological examination (swab test and 20% KOH mount) of brain abscess pus from all the cases revealed fungal elements. Out of 26 cases, 25 cases showed hyaline, broad aseptate hyphae, 2 showed melanized septate hyphae and 1 showed budding yeast cells with pseudohyphae and arthroconidia on direct microscopy. Culture positivity was observed in 15 cases (57.7%). Out of 25 suspected cases of rhinoencephalitis mucosae cases based on clinical, radiological, and direct microscopic findings, fungal culture was positive in 15 cases, all of which were identified as Dothichiza bantiana. Out of two cases that showed melanized hyphae in direct microscopy, one grew a dematiaceous mold that was identified as Cladosporiopsis bantiana. The other isolated fungus failed to grow in culture. The single case of brain abscess caused by a yeast-like fungus was attributed to Trichosporon dohaise, identified by ITS sequencing. It was initially misidentified as T. candidefaciens by VITEK MS due to lack of non-vital database for T. dohaise.

Conclusions: A significant increase in the incidence of fungal brain abscess has been observed in the COVID-19 era, particularly with the new wave of infection. Clinical features along with imaging and mycological findings are crucial in making an early diagnosis and deciding antifungal therapy. Accurate identification to the species level is necessary to guide optimal antifungal therapy as several species exhibit emerging resistance to antifungal drugs.

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Differential diagnosis in Pneumocystis pneumonia in case of long COVID-19
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Background: To diagnose Pneumocystis pneumonia in an underlying COVID-19 infection is difficult because of the clinical and radiological indistinguishability of the presentation.

Case Presentation: We report a case of a 67-year-old male background of type 2 diabetes mellitus (DM) and hypertension (HTN), who presented to the emergency department for severe dyspnea for 6 days. He was treated with corticosteroids and supportive therapy initially. Later, the patient responded with that treatment but suddenly his symptoms are increasing and getting uncontrolled. All possible causes of deteriorating hypoxia were evaluated and cause reported. Later stage, RA was diagnosed and immunofluorescence test for PCP was positive. Systemic, contrasted started and gradually hypoxia improved and extinguish.

Conclusions: Pneumocystis and COVID-19 co-infection needs serious consideration, particularly for patients with long-term COVID-19, even if patients do not have conventional risk factors for Pneumocystis pneumonia.

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COVID-associated invasive pulmonary aspergillosis (CAPA) — a case report
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COVID-associated invasive pulmonary aspergillosis (CAPA) is a severe fungal infection with a high mortality rate. The incidence of CAPA is on the rise possibly due to the prescription of corticosteroids and tocilizumab two repurposed drugs used for treating SARS-CoV-2. Diagnosis is challenging due to the non-specific nature of symptoms. Voriconazole is the mainstay of therapy. We present a case of a 42-year-old male presenting with left hydro pneumothorax post recovery from COVID-19 infection, and later succumbed to this complication. Patients developing pulmonary aspergillosis after short-term intensive therapy is uncommon. The possibility of aspergillosis in immunocompromised patients should be considered in those on systemic steroids and discontinue pulmonary functions.