IMAGING IN INTENSIVE CARE MEDICINE

Intracerebral *Aspergillus fumigatus* abscess and SARS-CoV-2

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Laboratory findings of coronavirus disease 2019 (COVID-19) include lymphopenia and elevated inflammatory markers. Some cases of pancytopenia are described. However, to our knowledge, no case of intracerebral *Aspergillus fumigatus* abscess associated to SARS-CoV-2 is currently reported.

A 60-year-old patient was admitted in the intensive care unit (ICU) and promptly intubated because of acute respiratory distress syndrome (ARDS) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), confirmed with reverse transcriptase-polymerase chain reaction (RT-PCR). During his stay, the patient was treated with dexamethasone for 10 days and multiple antibiotic treatments for various bacterial infections. From day-10 to day 17, a pancytopenia with neutropenia appeared. The myelogram was not conclusive, and pancytopenia was probably related to the infectious situation, as suggested by a serum protein electrophoresis.

On day-35, the patient presented a tonic-clonic prolonged seizure, as sedation was discontinued, treated with benzodiazepine. Computed tomography (CT) scan and magnetic resonance imaging (MRI) revealed a 20 mm left parietal cortico-subcortical cerebral abscess. Usual MRI sequences were performed: sagittal T1, axial diffusion, FLAIR T2*, 3D TOF and 3D T1 gadolinium. This exam detected a left parietal cortico-subcortical

lesion measuring approximatively 20 mm long axis (Fig. 1). This lesion was characterized by T1 hypointensity, central FLAIR hypersignal with a double peripheral layer, T2* hypointensity, restricted apparent diffusion was associated with a ring shaped enhancement with perilesional vasogenic oedema. No other lesion is visualized. The median structures are in place.

Stereotaxic brain biopsy revealed the presence of filamentous fungus, then confirmed as *Aspergillus fumigatus*. The patient was treated by voriconazole for 6 weeks as recommended. *Aspergillus fumigatus* sensitivity to voriconazole was confirmed 3 days after the biopsy (0.25 µg/mL). A control MRI 6 weeks after tonic-clonic prolonged seizure revealed significant decrease of the abscess (5 mm versus 20 mm).

This medical history suggests that *Aspergillus fumigatus* brain abscess can be associated with SARS-CoV-2 infection. Therefore, an infected SARS-CoV-2 patient presenting with new-onset neurological symptoms associated with recent prolonged (>7 days long) neutropenia should alert the clinician and lead on adequate brain investigations.

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Fig. 1 **A, B, C** T1 hypointensity (**A**). Central FLAIR hypersignal with a double peripheral layer (**B**) T2* hypointensity of peripheral layer. Restricted apparent diffusion coefficient (ADC) associated with a ring contrast enhancement with perilesional vasogenic oedema (**C**)

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