



## Letter to the editor

## COVID-19 and infectious diseases: a frequent association



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## Dear Editor,

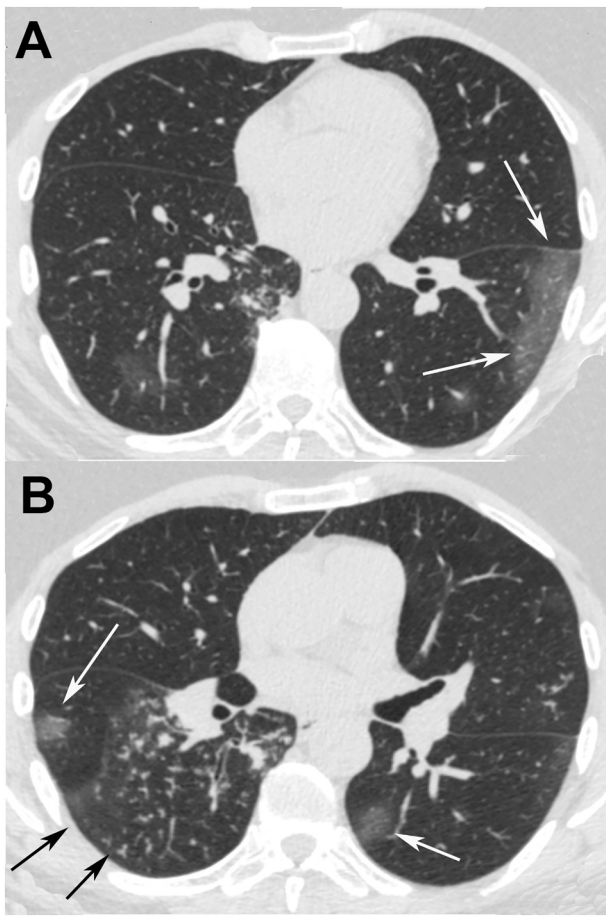
We read with great interest the well-written article by Durhan et al.,<sup>1</sup> who reported chest computed tomography (CT) findings from patients with 2019 coronavirus disease (COVID-19)-induced pneumonia and underlying diseases, with an emphasis on non-infectious entities (interstitial lung diseases, connective tissue diseases, sarcoidosis, other autoimmune diseases, pneumoconiosis, cystic fibrosis, chronic obstructive pulmonary disease, malignant diseases, pulmonary edema, and pulmonary thromboembolism). The authors reported that the diagnosis of COVID-19 pneumonia is much more challenging for clinicians and radiologists in the presence of concomitant lung disease. The imaging features of COVID-19 and underlying lung disease can overlap, causing difficulty with differential diagnosis. The authors noted the importance of radiologists' role in the establishment of accurate diagnoses, essential for appropriate management, given their knowledge of the imaging (including chest CT) findings of COVID-19, associated and underlying lung diseases, and possible complications.<sup>1</sup> However, they did not comment on the association between COVID-19 pneumonia and infectious diseases. We would like to share our experience with this co-occurrence, particularly with tuberculosis (TB).

Pulmonary TB continues to be a serious public health problem. Recent publications address various aspects of the relationship between COVID-19 and TB, with studies showing, for example, that COVID-19 may lead to TB reactivation in previously treated patients and that patients under TB treatment may be more susceptible to severe acute respiratory syndrome coronavirus 2 infection.<sup>2–5</sup> The use of

corticosteroids in the treatment of COVID-19 may also contribute to TB reactivation. The initial signs and symptoms of TB overlap with those of COVID-19, making the diagnosis of the combination of the two diseases very challenging.<sup>2–5</sup>

COVID-19 can occur before, at the time of, or after the diagnosis of TB, and more evidence is required to draw conclusions about the association between these diseases and to determine whether COVID-19 may reactivate or worsen active TB. Currently, most researchers believe that concurrent infection is likely to worsen TB. The careful analysis of tomographic findings in such cases can be decisive, providing clarity about the suspected association between the diseases. Bilateral ground-glass opacity is the most commonly observed pattern on chest CT in patients with COVID-19. CT findings of pulmonary TB include consolidation, cavitary lesions, bronchial wall thickening, and the “tree-in-bud” pattern.<sup>2,3,6,7</sup>

We would like to briefly report the case of a 58-year-old man admitted to the emergency department with a 3-day history of fever, cough, and dyspnea. On admission, he was tachypneic, his body temperature was 38.2 °C, and his oxygen saturation was 89%. Laboratory findings were unremarkable. Chest CT showed multiple areas of ground-glass opacity in both lungs, suggestive of viral infection, and tree-in-bud opacities with bronchial wall thickening and small nodules, suggestive of pulmonary TB (Fig. 1). The patient was diagnosed with COVID-19 by real-time polymerase chain reaction and with TB, as confirmed by culture. In conclusion, pulmonary infections should be considered to be among the diseases that can be associated with COVID-19 pneumonia.



**Fig. 1.** Axial chest computed tomography images (A and B) with pulmonary window settings showing multifocal ground-glass opacities in both lungs (white arrows), compatible with viral pneumonia, and “tree-in-bud” opacities predominating in the right lung (black arrows), with bronchial wall thickening and small nodules, suggestive of tuberculosis.

#### Declaration of competing interest

The authors declare that they have no conflicts of interest to express.

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