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COVID-19 and granulomatosis with polyangiitis (GPA): a diagnostic challenge

Rheumatology key message

- Accurate diagnosis of COVID infection is especially important in those with comorbid lung conditions such as GPA.

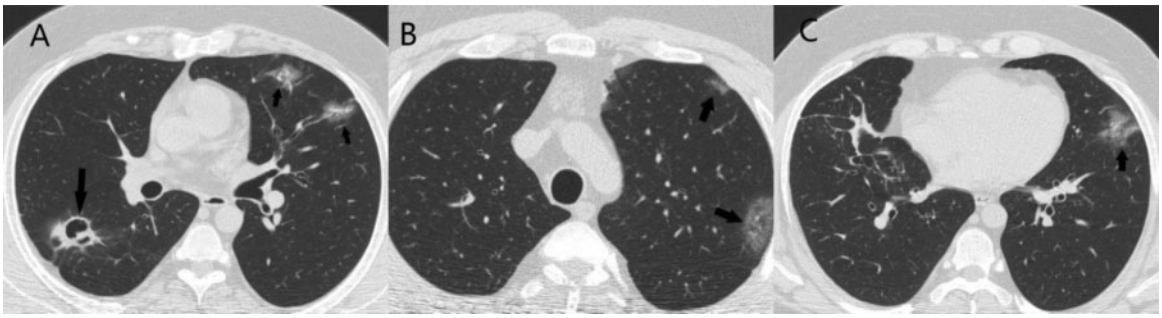
Dear Editor, In December 2019, a spreading outbreak of pneumonia associated with a novel coronavirus was reported in Wuhan, China, and soon was defined as a Public Health Emergency of International Concern (PHEIC) [1]. Accurate, prompt diagnosis is crucial to prevent further spread of the infection and improve clinical prognosis. This is usually suggested by clinical symptoms, especially when accompanied by a history of contact. RT-PCR test and chest CT scan are the two main diagnostic tools for the evaluation of patients who are clinically suspected to have COVID-19. In many cases, the clinician can often make a confident diagnosis based on clinical and/or imaging findings. The presence of peripheral bilateral ground-glass opacities (GGOs) with or without consolidations or visible intralobular lines is regarded as typical for COVID-19 pneumonia, especially in the setting of a high pretest probability [2]. However, when COVID-19 is superimposed on a prior lung pathology, then the imaging findings may overlap, making the diagnosis challenging.

Fig 1 demonstrates axial chest CT images of a case of granulomatosis with polyangiitis (GPA) presenting during the COVID-19 outbreak. The patient was a 35-year-old man, with cavitary lung lesions, scleritis and sinusitis since 6 years ago. His disease was relatively controlled on rituximab 500 mg IV every 9 months, azathioprine 50 mg and prednisolone 7.5 mg per day with normal lung exam in his last visit one month before the admission. On 12 March 2020, he was admitted with complaints of cough, fever and dyspnoea. CT scan revealed multiple new left-sided peripheral patches of GGO in addition to the pre-existing right-side cavitary lesion. Because this finding could be a feature of either early COVID-19 pneumonia or a presentation of the GPA, the patient was admitted to an isolation ward and RT-PCR was done using a nasopharyngeal sample. The RT-PCR result came back positive for COVID-19. He received IV cefepime, azithromycin and hydroxychloroquine and was discharged after 4 days in good health condition with a recommendation of 14 days' home isolation. Follow-up visits at two and four weeks after discharge revealed significant clinical improvement with two consecutive negative RT-PCR results.

Clinical manifestations of patients infected with Severe acute respiratory syndrome (SARS) CoV-2 are varied. Fever, cough and expectoration are the most common symptoms [3]. Alveolar and interstitial changes, including GGO, consolidation, septal thickening and reticulations have all been described on high-resolution CT [1–3]. These radiologic features are, however, nonspecific and can be seen in many other lung conditions including organizing pneumonia, other viral pneumonia such as influenza virus pneumonia, and also rheumatologic diseases including lupus pneumonitis and GPA.

GPA is a condition characterized by a necrotizing granulomatous vasculitis with the ability to affect different organs. Lung involvement has been reported in many cases, hence, the CT scan commonly performed in GPA. Major pulmonary CT scan findings are GGOs, pulmonary nodules, masses and consolidations [4]. Lung haemorrhage, which is seen in the active phase of the

Fig. 1 Chest CT scan of a known case of GPA



(**A**)–(**C**) Chest CT images of a known case of GPA demonstrate a pre-existing cavity in the right lung (large arrow) as the result of previous lung involvement by GPA. Also, patches of GGOs are evident on the left side (small arrows), most possibly representing COVID-19 pneumonia.

disease, may present as ground-glass opacity and consolidation in CT studies. Moreover, lung infarctions due to small vessel vasculitis can also appear as consolidation [5].

While pulmonary nodules and mass lesions are not typical for COVID, GGOs with or without consolidations are highly suggestive of COVID-19 pneumonia [2]. As GPA and COVID-19 pneumonia share clinical and radiological features, discrimination based on imaging could be cumbersome. Prompt diagnosis and appropriate clinical management of COVID-19 superinfection in such cases are essential to prevent further morbidity and mortality [6]. This was the case in our patient. In such conditions, the specificity of a chest CT scan in proposing a correct diagnosis may be reduced; therefore, meticulous attention to the recent clinical presentation and also past medical records, together with the application of confirmatory laboratory tests such as RT-PCR can be problem-solving.

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Successful treatment of severe COVID-19 with subcutaneous anakinra as a sole treatment

Rheumatology key message

- Anakinra as a sole treatment may be useful in the immune-mediated hyperinflammatory phase of COVID-19.

Dear Editor, Coronavirus disease 2019 (COVID-19) is a global pandemic caused by the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2).