

# Prolonged viral shedding following COVID-19 infection in a rheumatoid patient on rituximab treatment

Sir,  
 Since the beginning of the COVID-19 pandemic, we have seen several ways the disease can present, while it mostly manifests as a mild self-limiting upper respiratory infection in immune-competent individuals though a severe and variable course may be reported in individuals incidentally found to have latent immunodeficiencies. We report here a case of a patient with prolonged COVID-19 infection.

A 50-year-old woman with a longstanding history of rheumatoid arthritis, receiving regular rituximab (RTX) infusions, experienced fatigue and malaise in November 2022, subsequently diagnosed with a COVID-19 infection. Despite initial conservative treatment, her condition escalated to high-grade fever, revealing bilateral peripheral infiltrates on a chest computed tomography scan, which were confirmed as *Pseudomonas* infection through bronchoscopic cultures. This infection responded positively to specific antibiotics [Figure 1].

However, her fever relapsed, and the infiltrates were thought to have an autoimmune origin, leading to the diagnosis of organizing pneumonia. Consequently, steroid therapy was initiated in addition to antibiotic

coverage for the presumed bacterial infection. Intriguingly, bronchoscopic fluid was found to be COVID-19 PCR positive in April, 5 months from the initial COVID-19 infection.

Seeking further insights, she was referred to an immunologist who conducted a COVID-19 antibody assay. Surprisingly, the results indicated an absence of COVID-19 antibodies. Table 1 illustrates the decline in antibody levels over the years.

Subsequently, a multidisciplinary team convened to deliberate on the case. Given her medical history of immunocompromised status stemming from regular RTX infusions, a decision was made to administer oral antiviral treatment. Encouragingly, she displayed a favorable response to this therapeutic approach, leading to her discharge and return home [Figure 2].

Prolonged or severe COVID in young individuals has been linked to latent immunodeficiencies, which may be inherited or acquired.<sup>[1]</sup> Calderón-Parra *et al.* demonstrated in an extensive cohort of patients receiving anti-CD20 therapy within the last 6 months for various reasons that patients on therapy had a high incidence of hospital

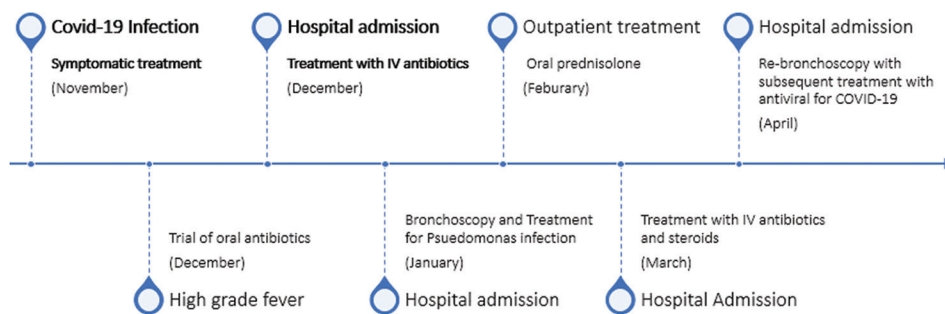
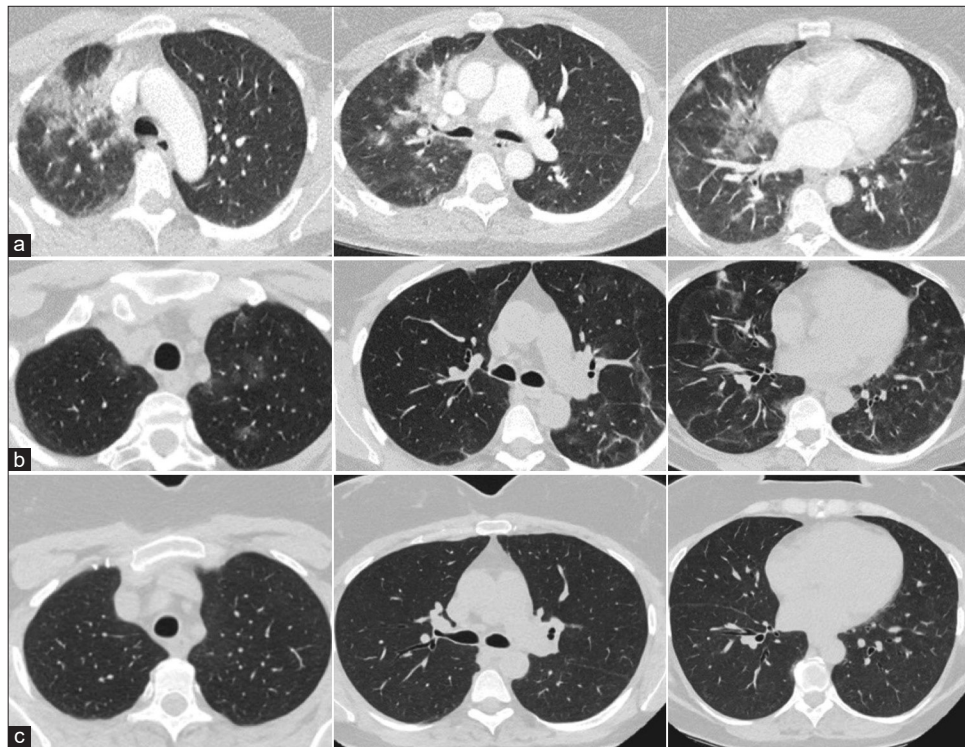


Figure 1: Timeline of clinical course

Table 1: Immunoglobulin levels trends over years

Dates	February 14, 2019	October 19, 2020	December 7, 2020	October 6, 2021	September 12, 2022	February 15, 2023	April 17, 2023	Range
IgG	8.92	8.11	7.83	7.53	6.82	5.97	5.20	6–16
IgA	1.30	1.16	1.09	1.12	1.08	0.88	0.78	0.8–4.0
IgM	0.42	0.35	0.30	0.28	<0.25	0.31	0.16	0.5–2.0
Total	73	70	66	72	67	70	65	60–80

IgG=Immunoglobulin G, IgA=Immunoglobulin A, IgM=Immunoglobulin M



**Figure 2:** Serial computed tomography (CT) scans: (a and b) Fleeting infiltrates on CT scan done in January and April, respectively, and (c) Resolution after antiviral treatment

admission severe infection relapse and death.<sup>[2]</sup> Therefore, it is imperative for physicians to recognize the potential for extended viral shedding in individuals receiving RTX, underscoring the importance of promptly initiating antiviral treatment to mitigate patient morbidity.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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