SARS-CoV-2 B.1.1.7 reinfection after previous COVID-19 in two immunocompetent Italian patients.

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Case Report

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Abstract

To date only one case of SARS-CoV-2 B.1.1.7 reinfection has been reported. We report here two more such reinfection cases in Lombardy residents.

Main Text

Case 1 was a 56-years old immunocompetent male, a former smoker with obesity and dyslipidemia. He was employed as a truck driver, moving across Switzerland, Austria, and Germany. On December 31, 2020, he presented at Varese hospital's emergency room with moderate dyspnea; he was discharged and treated at home with levofloxacin, corticosteroids, and low molecular weight heparin. Clinical conditions worsened, and he was readmitted to the hospital on January 3, when interstitial pneumonia was diagnosed and treatment with continuous positive airway pressure (CPAP) ventilation was initiated. On Jan 4, he tested positive for SARS-CoV-2 RNA on the nasopharyngeal swab (NPS) (1242 RLU on Hologic Panther; Ct 10 on Abbott m2000). On Jan 6, he was moved to the intensive care unit (ICU) and intubated. On Jan 10, the patient was moved to the ICU of Milan hospital for logistical reasons, pronated, and finally extubated on Jan 20. He was then moved to the COVID ward: the radiological pattern of pneumonia showed marked improvement, and NPSs tested negative for SARS-CoV-2 RNA on Jan 23, Jan 31, and Feb 2. On Feb 3, he was moved to a different hospital for rehabilitation. On Feb 4, a new NPS tested positive for SARS-CoV-2 RNA (1233 RLU on Hologic Panther; Ct 24 on Abbott m2000), while anti-SARS-CoV-2 IgG was 194 AU/ml (LIAISON® SARS-CoV-2 Ab; DiaSorin, Saluggia, Italy), and C-reactive protein rose to 64 mg/l, but without clinical worsening. On Feb 5, serology was repeated on a new sample with the concordant result (169 AU/ml), but additional NPSs tested negative for SARS-CoV-2 RNA on Feb 5, Feb 6, and Feb 11. At this point, we sequenced the RBD fragment of the spike gene from NPS samples dated Jan 4 and Feb 4, as previously reported (2). While the Jan 4 RBD region showed no mutations when compared with SARS CoV-2 isolate Wuhan-Hu-1, the Feb 4 strain resulted in with all the barcoding mutations described above (deposited in GenBank as MW599860).

Case 2 was a 58-years old immunocompetent male who tested positive for SARS-CoV-2 RNA on NPS on Jan 7, 2021. He was treated at home with azithromycin, enoxaparin, and prednisone, required hospital admission on Jan 18, where interstitial pneumonia was diagnosed. On Jan 19, he tested positive for SARS-CoV-2 RNA on NPS (1302 RLU on Hologic Panther), and he was moved to the COVID ward for oxygen support, progressing to CPAP ventilation on Jan 21. CPAP was discontinued on Jan 26, and two follow-up NPSs on Jan 31, and Feb 2 were negative for SARS-CoV-2 RNA. New NPSs on Feb 4 and 6 were positive for SARS-CoV-2 RNA (1181 RLU on Hologic Panther, and Ct 27 on m2000 Abbott, respectively), with anti-RBD IgG >400 AU/ml. On Feb 10 the patient was moved to subacute medical unit. At that point, we decided to sequence the RBD from NPS samples dated Jan 19 and Feb 6: the Jan 19 RBD sequence showed absence of mutation if compared with SARS CoV-2 isolate Wuhan-Hu-1, while the Feb 6 strain resulted in B.1.1.7 (deposited in GenBank as MW599954).

According to Facebook mobility data(3), in 16 out of 19 countries analyzed, there is at least a 50% chance the variant was already imported by travelers from the UK by December 7th (4), with Italy being the country with the highest risk. Accordingly, many cases have been reported in Lombardy. Theoretical models have estimated the reinfection rate at 0.7%, similar to older strains (5), so that many more cases are likely undetected.

Declarations

We declare we have no conflict of interest to disclose.

Informed consent was obtained from the patients.

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