

“Long COVID”: A case report of persistent symptoms in a patient with prolonged SARS-CoV-2 shedding for over 110 days

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Abstract

Coronavirus disease 2019 is a novel disease currently ravaging the world as a pandemic. More emphasis has been focused on the acute disease, with less attention on the detection and management of long-term sequelae which develop in some patients, variously termed “Long COVID,” Post-coronavirus disease 2019 syndrome, or ongoing coronavirus disease. There are also various reports in the literature on the duration of viral shedding, with the longest known recorded being about 70 days, and whether this duration has an effect on prognosis or patients remaining infectious is still unknown. We report the case of a 22-year-old health care worker with prolonged multi-systemic features of coronavirus disease 2019 including cardiovascular, respiratory, central nervous system, and musculoskeletal symptoms lasting about 18 weeks from symptom onset, though never hospitalized, and persistent detection of severe acute respiratory syndrome coronavirus 2 attributed to viral shedding for over 110 days, which is the longest duration recorded to our knowledge.

Keywords

COVID-19, “Long COVID,” prolonged viral shedding, SARS-CoV-2

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Introduction

The median duration for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) viral shedding from onset of symptoms has been documented to be around 12–20 days,^{1,2} although there are case reports of patients exceeding this,^{3,4} with the longest known reported being 70 days in an elderly immunosuppressed woman.⁵ A study carried out in Wuhan, China, revealed that prolonged viral shedding was not uncommon in patients with coronavirus disease 2019 (COVID-19) pneumonia, with a median duration of 53.5 days in 36 patients tested for SARS-CoV-2 using real-time reverse transcriptase polymerase chain reaction (RT-PCR) test.^{6,7} Several risk factors including administration of corticosteroids and immunoglobulins, delayed admission to the hospital, severe illness at admission, male sex, as well as old age have been found to be responsible for prolonged viral shedding,^{8–10} with some studies linking this prolonged shedding with poorer prognosis and increased severity of the disease.⁸ Patients with COVID-19 can go on to develop long-term sequelae and complications, although the exact prevalence and risk factor for this is yet to be elucidated.¹¹ A

large prospective study of 4182 COVID-19 patients found 558 (13.3%) had symptoms lasting ≥ 4 weeks, 189 (4.5%) for ≥ 8 weeks, and 95 (2.3%) for ≥ 12 weeks.¹¹ This distinct pathway of ongoing effects has been termed “Long-COVID,” ongoing COVID, or Post-COVID-19 syndrome.¹² According to the Chief Executive Officer of the National Health Service, “Long COVID is already having a very serious impact on many people’s lives and could well go on to affect hundreds of thousands.”¹³ This has gone largely unnoticed by health care workers especially in our environment, and the lack of a working diagnosis prevents planning

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for necessary services and impedes access to care for these patients. The National Institute for Health and Care Excellence (NICE), the Scottish Intercollegiate Guidelines Network (SIGN), as well as the Royal College of General Practitioners (RCGP) have now defined post-COVID syndrome as the following: “Signs and symptoms that develop during or following an infection consistent with COVID-19, continue for more than 12 weeks and are not explained by an alternative diagnosis.” These symptoms can be multi-systemic, often appear as clusters, fluctuate over time, and can have significant psychological and social impact on patients.^{12,14} Patients with prolonged viral shedding can present with symptoms of “Long-COVID” according to the definition given above. We present the case of a 22-year-old health care worker with “Long-COVID” lasting about 18 weeks, and prolonged SARS-CoV-2 shedding for over 110 days, which is the longest recorded duration to our knowledge.

Case report

A 22-year-old health care worker presented to our medical outpatient clinic with low grade fever, generalized body weakness, sore throat, anosmia, and headache all of approximately 1-week duration. She had no pre-existing condition. Generalized physical examination revealed a young overweight (body mass index (BMI): 29.4 kg/m²) lady, with mild breathlessness on exertion. She was afebrile with a normal cardiovascular, pulmonary, and systemic examination. Ancillary investigations including complete blood count with differential, serum electrolytes, urea and creatinine, chest x-ray, and electrocardiography were essentially normal. Nasopharyngeal swab for SARS-CoV-2 using RT-PCR was first positive on 29 June 2020. For treatment of COVID-19, she received the following medication: azithromycin 500 mg orally daily for a week, chloroquine 250 mg BID for 6 days, zinc 50 mg BID for 2 weeks, vitamin C 500 mg daily, analgesics, and anti-histamines. Anosmia and sore throat resolved at the end of the second week, while recurrent fever and headache persisted, and patient also developed a mucoid, non-bloody diarrhea associated with nausea and generalized abdominal pain. The diarrhea lasted 5 days with patient receiving ciprofloxacin 500 mg orally BID for 5 days and oral rehydration solution. In the third week after her symptom onset, she developed a mild to moderate sub-sternal non-radiating chest pain with occasional exertional dyspnea and easy fatigability which recurred until week 8. She also noted insomnia, and poly-arthritis involving both small and large joints, including the neck, with associated mild joint stiffness, for which she initiated naproxen 250 mg orally as needed. Fatigue, insomnia, joint pains, and breathlessness worsened over Week 6–12, although patient was still able to carry out activities of daily living. For the treatment of COVID-19, she was initiated on ivermectin at week 12; 12 mg orally daily for 5 days, aspirin 75 mg orally daily,

continued on multivitamins, with dexamethasone 2 mg BID for 3 days after completing ivermectin, and incentive spirometry. Laboratory investigations from week 12 revealed the following: erythrocyte sedimentation rate was 75 mm/h, urea was 70 mg/dL, and Cr was 3.8 mg/dL. She had no clinical features of renal impairment. Other laboratory investigations, chest x-ray, and electrocardiogram (ECG) results were essentially normal. Exertional dyspnea improved remarkably after the course of ivermectin (week 12), with some improvement in fatigue and joint pain. She continued to have neck pain, abdominal bloating, excessive flatus, and headache for which she eventually initiated topiramate 50 mg BID and propranolol 20 mg BID. Symptoms waxed and waned with significant resolution of all other symptoms by week 18, aside from occasional easy fatigability and exertional dyspnea which were still present as at last contact with the patient (February 2021). Nasopharyngeal swabs for PCR were positive for SARS-CoV-2 on 29 June, 7 July, 22 July, 21 August, 29 September, and 20 October, with the first negative test occurring on 3 November 2020.

Discussion

Wide ranging values have been given in the literature for the duration of SARS-CoV-2 viral shedding from onset of symptoms,^{1–3} but the longest known documented duration is 70 days in an elderly immunocompromised woman.⁵ In this particular case, the virus shed was noted to be still infective, in contrast to other studies that have shown non-infective viral particles.¹⁵ Our patient had none of the risk factors defined earlier for prolonged viral shedding, and it is really not known why she shed virus for this long. A large prospective study comprising 4182 COVID-19 patients who prospectively entered their symptoms in the COVID Symptom Study app were examined by a group of researchers. The study demonstrated that 558 (13.3%) patients with COVID-19 had symptoms lasting >28 days, 189 (4.5%) for >8 weeks, and 95 (2.3%) for >12 weeks. Patients with long-COVID-19 had symptoms of fatigue, breathlessness, headache, and anosmia characterizing “long-COVID” and was more likely to occur in patients who were females, had increased age, and increased BMI.¹¹ Our patient had all of these characterizing symptoms as well as two of the risk factors: female gender and increased BMI. Having more than five symptoms during the first week had the most significant association with “long-COVID” in all age groups and gender. These predictive symptoms were fatigue, headache, dyspnea, hoarse voice, and myalgia.¹¹ Our patient had two of these predictive symptoms: fatigue and headache. In another population, dyspnea was found to be a significant predictor of long-term symptoms,¹⁶ another prominent symptom in our patient. The only pre-existing condition with significant association with “long-COVID” in this study was asthma,¹¹ which was not present in our patient. The most common symptoms associated with “long-COVID” were fatigue and headache,

followed by anosmia and lower respiratory symptoms. Two basic patterns of symptomatology were identified: patients with predominant symptoms of fatigue, headache, and upper respiratory complaints, and those with multi-system complaints.¹¹ Our patient fell into the latter with respiratory, cardiovascular, central nervous system, gastrointestinal, and musculoskeletal symptoms.

Conclusion

Risk factors for prolonged viral shedding such as immunosuppression and use of corticosteroids among others should be assessed in COVID-19 patients. In those with prolonged shedding, infectiousness should be ascertained through viral culture because of the implications for possible continued transmission. It is really not known why our patient shed virus for this long, as she had no immunocompromising condition or any of the earlier identified risk factors. This underscores the need for more research in understanding this condition. There is also an urgent need for greater awareness about “long-COVID” among the healthcare community, in-depth research for better understanding especially in our environment which could then pave way for specialized interventions and better quality of life for these patients. There have been anecdotal reports of improvement in “long-COVID” symptoms in patients who have received COVID-19 vaccination, and this should be looked at in more detail. On a wider scale, COVID-19 preventive measures such as strict adherence to use of facemasks, hand hygiene, and social distancing might be the best way to prevent “long-COVID” in the long run.

Declaration of conflicting interests

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Ethical approval

Our institution does not require ethical approval for reporting individual cases or case series.

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Informed consent

Written informed consent was obtained from the patient(s) for their anonymized information to be published in this article.

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