



Long COVID a perpetual threat even after COVID era? A case presentation.

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ABSTRACT

Coronavirus disease 2019 (COVID-19) is a highly infectious disease. The acute phase of the disease has been focused upon and less importance is given to the long-term sequelae. A new term 'long COVID' is used to describe a diverse set of symptoms that persists for more than 12 weeks after a diagnosed COVID-19 infection with no alternative diagnosis. Predominant symptoms include persistent breathlessness, fatigue, cough, chest pain, palpitations, neurological and cognitive deficits, rashes, and gastrointestinal dysfunction. Risk factors for the development of long COVID are female gender, increased age, and increased BMI. Lung fibrosis is an important ailment in COVID survivors. Long COVID needs urgent attention for better understanding and specialized action plans to improve the quality of life in these patients and decrease their financial burden. Studies are warranted to investigate the early installation of antifibrotic agents in high-risk patients. Till we find better measures to counter long COVID, preventive measures and vaccination are the best available options. We are presenting here a case of long COVID who was admitted on multiple occasions for exacerbation of symptoms. He is now being managed on an outpatient basis.

Keywords: Long COVID, Vaccination, Lung fibrosis



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INTRODUCTION

COVID-19 is an abbreviation for Coronavirus disease 2019 which is caused by a severe acute respiratory syndrome coronavirus 2 (SARS-CoV2). This virus belongs to a family called coronavirus and is responsible for the COVID-19 pandemic. As of 20th January, 2022 total number of patients who have suffered from Coronavirus is 339,666,049 with the total number of Deaths being 5,584,394, and 273,249,320 have recovered. The total number of cases in Nepal has been 877717 with a total number of deaths being 11628 and recovered 818160.¹ Clinical features of active and acute COVID-19 can be mild like fatigue, myalgia, fever, dry cough, and dyspnea. It can also have severe manifestations like acute respiratory distress syndrome (ARDS), septic shock, disseminated intravascular coagulation (DIC), and acute renal failure. Severe manifestations of the disease are usually seen in elderly adult males with chronic comorbidities like chronic lung diseases, obesity (body mass index >40), liver disease, chronic kidney disease, diabetes mellitus, under immunosuppressant drugs which can weaken the immune functions of these patients.^{2,3}

With the number of COVID 19 survivors rising a novel syndrome of persistent clinical features of disease even after being PCR negative is frequently being encountered in many

patients. Studies suggest that 10% of patients in the UK have persistent or progressive symptoms after the resolution of the acute viral infection.⁴ Researchers in Italy report that 60 days after the disease onset, 87.1% of discharged patients with COVID-19 still experience at least one symptom, and 55% experience three or more symptoms, such as dyspnea, chest pain, fatigue, and reduced quality of life.⁵ Recent National Institute for Health and Care Excellence (NICE) guidelines effectively define and clarify the terminology that can be used to describe the condition. 'Post-COVID-19 syndrome' is defined as the persistence of symptoms beyond 12 weeks from the date of onset. These are not explained by an alternative diagnosis. Ongoing symptomatic COVID-19 is defined as signs and symptoms that persist between 4 and 12 weeks from the onset of the infection. The term 'long COVID' includes both ongoing symptomatic COVID-19 (4–12 weeks) and post-COVID-19 syndrome (>12 weeks).⁶

Pathogenesis of acute and chronic symptoms involves dysregulated inflammation, vascular dysfunction, pulmonary vascular endotheliosis, angiogenesis, thrombosis, and respiratory complications. It is understood that coagulopathy,

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cytokine storm, hyper inflammation are the contributors of disease severity. Hence immunomodulatory therapies should also be considered along with supportive therapy.⁷⁻¹⁴

Studies on COVID-19 patients discharged from the hospital suggest that more than a third of recovered patients develop fibrotic abnormalities. The patient who developed ARDS during the course of the disease undergoes diffuse alveolar damage (DAD) which is characterized by an initial acute inflammatory exudative phase with hyaline membranes, followed by an organizing phase and fibrotic phase.¹⁵

CASE PRESENTATION

We are presenting a case of a 47-year-old male without any known past co-morbidities who presented to ED of National Medical College teaching hospital after being referred from National Medical College COVID 19 designated hospital. He was admitted to COVID hospital for one month. Nasopharyngeal swabs for PCR were positive for SARS-CoV-2 on 20 May 2021, with the first negative test occurring on 8 June 2021. He reported worsening dyspnea even after getting negative PCR reports and one month of treatment. He was short of breath even at rest but was unable to perform daily activities including walking to the bathroom and preparing food. He also complained of dry cough, fever, generalized body weakness, fatigue, sore throat, and headache. On his presentation, PaO₂/Fio₂ ratio was 200, and oxygen requirements were met with a standard face mask at 8-10L/min of oxygen with gradual improvement to 95% saturation on nasal cannula with 2 L/min of oxygen but desaturating to 90% after walking a few steps. He denied previous comorbidities, positive family history for similar illness, occupational exposures, and substance abuse. Vital Signs showed blood pressure 130/80 mmHg, Pulse 122/min regular, Respiratory Rate 22 breaths/min, Temperature 99.4 F. On physical examination, there was the absence of Pallor, Icterus, Clubbing, Cyanosis, Lymphadenopathy, and Dehydration. On auscultation of lungs, fine Velcro-like inspiratory and expiratory crackles were present at lung bases. Other systemic examinations were within normal limits. Repeat chest x-ray showed patchy opacities diffusely worsened from previous X-rays. CT pulmonary angiogram showed no pulmonary embolism. However diffuse bilateral patchy infiltrates with ground-glass opacities and multiple reticular thickenings with traction bronchiectasis involving bilateral lung fields were found on HRCT Chest. Complete blood count, BNP, procalcitonin, LFT, RFT, lactate, autoimmune workup, and Echocardiogram were normal. Work up for tuberculosis was negative. PFTs showed mixed patterns and later it showed a moderate restrictive pattern. He was treated with methylprednisolone, antifibrotic agents, and oxygen. He was discharged after 1 month of hospital stay on home oxygen, pirfenidone, and tapering dose of steroids with outpatient follow-up. On further follow-up visits, all other symptoms resolved however occasional exertional dyspnea and easy fatigability persisted with gradual improvement. Occasional exacerbations require the need for oxygen via nasal cannula at 2-3 L/min. The patient

has been able to carry out activities of daily living as at last contact with the patient (January 2022).

DISCUSSION

A large prospective study had a conclusion that patients with long-COVID-19 had characterizing symptoms of fatigue, breathlessness, headache, and anosmia. Risk factors for the development of Long COVID included female gender, increased age, and increased BMI.¹⁶ Our patient had one of the risk factors: 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.¹⁶ Our patient had all of these predictive symptoms. The only pre-existing condition with significant association with "long-COVID" in this study was asthma.¹⁶ Asthma 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.¹⁶ Our patient fell into the first category. According to a study, almost one-third of patients who recovered from COVID 19 will develop fibrotic abnormalities. Our patient had new-onset fibrotic changes in the lungs as evident from the CT findings.

CONCLUSION

With the number of patients recovering from COVID 19 on the rise, long-term sequelae among survivors are posing a significant threat adding to the financial and health burden of survivors. Long COVID needs urgent attention for better understanding which could help us to formulate specialized action plans to improve the quality of life in these patients and decrease their financial burden. Till we find better measures to counter long COVID, preventive measures and vaccination are the best available options.

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