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Case Report

Post Covid-19 Dermatomyositis: A Case Report

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Abstract

Viral infections have been known to trigger autoimmune diseases and inflammatory myopathies. Here we report a case of a previously healthy 40-year-old lady who developed a COVID-19 infection which was followed by a prolonged period of myalgia, weakness, and fatigue. These symptoms were attributed to 'long Covid'. Later when she presented with skin rashes, and increasing weakness, she was investigated and diagnosed with Dermatomyositis. The disease progressed and gave rise to difficulty in breathing and swallowing. She responded favorably to immunosuppressants and steroids along with an intensive rehabilitation program and had an almost full recovery.

Introduction

Viral infections are known to trigger autoimmune diseases, and coronavirus disease-2019 (COVID-19) infection notorious for its intense immune response, has been implicated in the exacerbation of preexisting autoimmune disease or give rise to new autoimmune diseases. New onset DM has been reported in persons following the (COVID-19) infection during the pandemic [1,2] as well as exacerbation of DM after Covid-19 infection [3].

Case History

Here we present the case of a 40-year-old female, without any previous history of illness, including a negative family history of autoimmune diseases, who developed a COVID-19 infection in October 2022. She had been vaccinated for Covid-19; the last booster dose was received in December 2021. The symptoms of Covid-19 were relatively mild and did not require hospitalization. Two weeks later when the myalgia and fatigue did not subside, she consulted her doctor and was told that her symptoms were due to "long COVID" and would resolve with time. In December she began to develop skin rashes on her face and arms after exposure to sun on the beach and was diagnosed with Rosacea by a dermatologist. In May 2023 the rashes spread to involve the neck, upper chest, back (Shawl sign), legs, arms, and over the MCP and IP joints of hands (Gottron's sign). Laboratory investigations revealed elevated CK level (8281U/L) and positive Antinuclear antibodies (1:2560), elevated aspartate transaminase, and alanine transaminase - around 200 U/L (normal values 3-35 U/L). However, the myositis panel workup was unremarkable. EMG studies supported the clinical diagnosis of myositis. She was diagnosed with Dermatomyositis based on current American College of Rheumatology /European League Against Rheumatism (ACR/EULAR) diagnostic criteria for idiopathic inflammatory myopathy [4] (score 8.2). She was started on immunosuppressant medications (Azathioprine and Prednisolone). A few days later her condition deteriorated further, and she presented to the Emergency Department with shortness of breath, difficulty in swallowing (tolerating soft food only), and muscle weakness. She was admitted to the hospital and received intravenous methylprednisolone and intravenous immunoglobulin therapy. Her symptoms improved gradually. HRCT Chest showed atelectatic band in the lung bases. Holter ECG and Echocardiography were normal. Screening tests for malignancy were negative. She was discharged with oral Prednisolone and

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Mycophenolate Mofetil and referred to PMR Hospital for rehabilitation.

Rehabilitation

The patient was referred to Physical Medicine and Rehabilitation Hospital in June 2023. On admission, her examination revealed motor power by MRC grading (Medical Research Council Manual Muscle Testing Scale) for proximal muscles in the upper limbs was 3/5 and in the lower limbs grade 2/5. The distal muscles for both upper and lower limbs were grade 4/5 bilaterally. The muscles were tender on palpation. Functional Assessment showed that she needed mild assistance for bed mobility, moderate assistance for getting up from a low level, and could walk only indoors for short distances with an unsteady gait. She needed moderate assistance for grooming and showering and maximum assistance to get up from the floor. Her endurance was poor, and she required multiple rest breaks during the therapy sessions. She received an intensive rehabilitation program for 8 weeks after which her strength and endurance improved. She could walk outdoors unaided at discharge and stopped using a wheelchair for long distances. She became independent in all activities of daily living and returned to sporting activities at the end of one year. Her FIM score (Functional Independence Measure) was 101 on admission and 126 on discharge.

Discussion

Since the outbreak of COVID-19, an increased number of inflammatory myopathies (including DM) have been reported. COVID-19 and DM potentially have a common pathogenesis, which not only participates in organ damage of COVID-19 but also mediates muscle fiber damage in patients with DM [5]

Megremis et al. [6] proposed that DM patients have three immunogenic linear epitopes with a high sequence similarity to the SARS-CoV-2 protein. Hence exposure to the coronavirus group of viruses may lead to the development of DM, as in our case. According to Gokhale et al. [7], a surge in the incidence of DM was noted from April to August 2020 coinciding with the COVID-19 pandemic in the City of Mumbai.

Similar to our case, Niedzielska et al. [8], reported a 37-year-old man with the onset of DM after COVID-19 infection. Laboratory findings showed a positive ANA (1/5120) and anti-Mi 2, with increased muscle enzymes (CK 8253 U/l). EMG study suggested inflammatory myopathy. A diagnosis of DM was ultimately established based on the clinical picture and the results of laboratory and electrophysiological tests.

It is important to discriminate between real Dermatomyositis and post-viral myositis following SARS-CoV-2 infection. Post-viral myositis typically presents with diffuse or multifocal muscle pain and/or rhabdomyolysis. The most common muscles to be affected are the gastrocnemius and soleus muscles. Symptoms generally begin about 3–7 days after the onset of fever and respiratory symptoms and usually resolve within the first week but can last up to 1 month [9]. Skin manifestations such as heliotrope rash with periorbital edema, malar erythema, or diffuse facial rashes indicate a diagnosis of dermatomyositis. Sometimes, less specific erythematous rashes over the extensor surfaces of limbs (knees, elbows) and trunk may be the only clue. Muscle weakness is invariably present, being symmetric, proximal, and involving upper and lower limbs [10]. Dysphagia is a clinical hallmark and part of the current American ACR/EULAR diagnostic criteria for idiopathic inflammatory myopathy [4].

Conclusion

Due to similar pathogenic mechanisms and clinical manifestations in COVID-19 and DM, the symptoms could be misinterpreted as post-COVID syndrome, leading to a delay in the diagnosis and appropriate treatment. Even though we are now in the post-pandemic era, doctors should continue to be vigilant and investigate any atypical symptoms in their patients.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. The patient has consented to images and other clinical information to be reported in the journal.

Conflict of interest: The authors declare no conflict of interest

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