



Severe myalgia may develop in COVID-19 virus infection: A Case Report

Authors

**Bandana Mehrotra, Vasundhara Sharma, Ruchi Shukla, Ashok Kumar Kapoor,
Supriya Mehrotra, Rajesh Srivastava, Hari Shyam**

Corresponding Author

Dr Ashok Kumar Kapoor

Abstract

Present case relates to the results of SARS CoV-2 RT-PCR tests which were done in a family. Nasopharyngeal samples were collected from both the parents and from their son. The patient was a 77 years old male. He complained of severe myalgia involving calf, gluteal and abdominal muscles for several days. Later, he developed mild fever. Nasopharyngeal swab was collected on fifth day of the illness and coronavirus RT-PCR test was done. The patient was SARS CoV-2 RT PCR positive. His son was aged 48 years. He complained of hyperpyrexia; coronavirus RT-PCR was also positive. Wife of the patient was RT-PCR negative for SARS CoV-2. Both patient and their son were treated with Paracetamol 650 mg BD, Flavipiravir 400 mg/day and vitamin D 60,000 units/week. Both patient and his son recovered within 7 days.

Keywords: *myalgia, RT-PCR, atypical presentation, coronavirus.*

Introduction

COVID-19 pandemic was caused by SARS CoV-2, a member of coronavirinae subfamily. SARS CoV-2 is a β -coronavirus. COVID-19 induced pneumonia was reported from Wuhan city of China in December 2019^[1]. Later, air-borne infection occurred in other countries as a global pandemic. Typically, coronavirus infection is characterized by high fever, non-productive cough, dyspnoea, fatigue and generalized weakness. Further, CT examination may show ground-glass opacities in subpleural region of lungs. About 80% of patients, infected with coronavirus may develop mild to moderate disease while other 13% to 14% patients may

develop severe disease requiring hospitalization. Other 4% to 6% patients become critically ill requiring ICU treatment. Hospitalized patient may develop acute respiratory distress syndrome (ARDS), hemoptysis, cardiac arrhythmias and acute renal injury. Hypercoagulability leading to thrombosis may develop^[1,2]. Rarely, diabetic ketoacidosis and subacute thyroiditis may develop^[3]. In addition, abdominal or testicular pain may be acquired^[4]. Severe COVID-19 disease may progress to shock, resulting in mortality (4.3%). Elevated serum LDH and prolonged prothrombin time may also develop^[2]. In addition, aldose, electrolytes and myoglobin may also be released in blood and in extracellular space. Coronavirus

(COVID -19) infection is described. Current patient presented as a case of severe myalgia.

Case Report

Subject 1

The patient had severe pain in calf muscles for 2 days followed by pain in gluteal muscles for another 2 days. It was followed by pain in abdominal muscles for another 2 days. Subsequently, the patient developed mild fever (100°F). RT-PCR COVID-19 virus qualitative test was done as per protocol ICMR/GOI. Nasopharyngeal sample was collected and RT-PCR for coronavirus was done. Sample was screened for presence of E-Sarbacov, Rd RP and N Genes. The results tested positive for COVID-19 infection. The patient took 2 doses of covishield vaccine prior to coronavirus infection. Covishield was developed by British Swedish pharmaceutical company, Astra Zenca and was manufactured by Pune -based Serum institute of India. The patient gave history of diabetes mellitus and essential hypertension; both comorbidities were controlled. Further, creatine phosphokinase (CPK) was not raised.

Subject 2

Forty-eight year-old son of the patient presented with typical coronavirus infection. RT-PCR test was done simultaneously with case 1 and positive result was obtained. Clinically, the subject 2 had high fever (102° F to 104° F). Subject 2 had single dose of covishield vaccine 4 days prior to fever. Both the patient (subject 1) and subject 2 were treated with Paracetamol 650mg BD, vitamin D 60,000 units once a week and Flavipiravir 400mg OD. Both the subjects recovered within a week.

Subject 3

Another family member was a 70 year old female (wife of the patient). She was asymptomatic. RT-PCR for coronavirus was negative with nasopharyngeal specimen. Earlier, patient and subject 3 both had 2 doses of covishield vaccine 4 days prior to onset of present illness.

Discussion

Most important feature of the patient was the atypical presentation of COVID-19 virus infection. In spite of vaccination with both the doses, the patient developed severe pain in calf muscles 4 days after the injection of second dose of covishield vaccine. Though vaccine failed to protect the patient from contracting COVID-19 infection, yet it succeeded in reducing the severity of infection. Later, another case was reported who had developed hyperpyrexia, dyspnoea and severe myalgia. Further, he was found to have acute myositis associated with rhabdomyolysis due to COVID-19 infection^[5]. Coronavirus induced myositis is a recently reported disease. However, the patient may have varied clinical expression varying from dermatomyositis to rhabdomyolysis with paraspinal infection and back pain^[6]. Clinically, rhabdomyolysis is characterized by myalgia, fatigue, myoglobinuria and may manifest as tea-colored urine.

Myalgia might have developed in the patient following coronavirus-induced myositis. Present case was diagnosed as coronavirus infection due to positive RT-PCR test (the test was done with nasopharyngeal sample of the patient) 5 days after onset of myalgia. Rarely, myalgia has been described in coronavirus infection^[2,3,7].

In the current case, myalgia was initial prominent symptom. Virus may localize in skeletal muscles and produce rhabdomyolysis and inflammation along with serum CPK positivity^[8]. Coronavirus may either produce dermatomyositis or rhabdomyolysis due to direct myocyte-invasion and paraspinal affliction with back pain^[6]. Necrosis may result in raised serum CPK levels and inflammation may result from release of angiotensin converting enzyme. In addition, intramuscular edema involving paraspinal muscles may result in severe immune reaction and cytokine storm which may lead to extensive necrosis. Two important features of dermatomyositis are (a) inflammatory cell infiltration in perimysium and (b) alkaline phosphate positivity in endomysium^[9].

Another important feature was the age of the patient; the patient was aged 77 years. He recovered completely in 7 days. Moreover, mild fever (99°F to 100 ° F) developed late following infection. Poor hypothalamic thermoregulation and diminished Interleukin-1 (IL-1) and Interleukin-6(IL-6) production might have resulted in absence of fever during early period^[10]. Both IL-1 and IL-6 are known to induce inflammation and promote acute -phase response^[11].

Infection also occurred in son of the patient who had high fever (104°F) alone. Interesting feature of coronavirus infection is its severity which may be greater in old age (>65 years) due to diminished immunity^[12]. Coronavirus is known to produce lymphopenia and leucopenia^[13]. In the current case, respiratory symptoms did not develop and complete recovery occurred within 7 days.

Recently, Myalgic encephalomyelitis/Chronic fatigue syndrome has been reported with multiple organ failure. Similar overlapping dysfunction may also develop in long COVID-19 patients^[14].

Conclusion

A case with coronavirus (COVID-19) induced myalgia is described. The patient developed severe myalgia involving gastrocnemius muscle alone and case was clinically confused with sciatica. Subsequently, he developed severe pain in gluteal and abdominal muscles in step ladder-like pattern. Mild fever developed late on 7th day post-infection. In addition, RT-PCR test for coronavirus was positive. Atypical presentation with myalgia alone as initial symptom is presented.

Financial support and sponsorship: Nil

Conflicts of interest: There are no conflicts of interest.

References

1. Abobaker A, Raba AA, Alzwi A. Extrapulmonary and atypical clinical presentations of COVID-19. *J Med Virol* 2020; 92:2458-64.
2. Wang D, Hu B, Hu C, Liu X, Zhu F, Zhang J, et al. Clinical characteristics of 138 hospitalized patients with 2019 novel Coronavirus-infected pneumonia in Wuhan, China. *JAMA* 2020;323:1061-9.
3. Nalbandian A, Sehgal K, Gupta A, Madhavan MV, McGroder C, Stevens JS. Post acute COVID-19 syndrome. *Nature Med* 2021; 27:601-15.
4. Joob B, Wiwanitkit V. Atypical presentation of COVID-19. *Am J Emerg Med* 2021; 39; 237.
5. Muacevic A, Alder J, R Zhang, Shan KS, Minalyam A, Sullivan Co: A rare Presentation of coronavirus disease 2019 (COVID -19) induced viral myositis with rhabdomyolysis. *Cureus* 2020;12:e8074.
6. Saud A, Naveen R, Aggarwal R, Gupta Latika. COVID 19 and myositis : What we know so far. *Curr Rheumatol Rep* 2021;23:63.
7. Guan W, Ni Z, Hu Y, Liang w, Ou C, He J et al. Clinical characteristics of coronavirus disease 2019 in China. *N Eng J Med* 2020;382:1708-20.
8. Saleh NY, Aboelghar HM, Salem SS, Ibrahim RA, Khalil FO, Abdelgawad AS. The severity and atypical presentations of COVID-19 infection in pediatrics. *BMC pediatrics* 2021; 21: 144.
9. Hays AP, Armbrustmarcher VW, skeletal muscle. In 'pathology' Rubin ER, Farber JL (editors), Lippincott-Raven, Philadelphia (publishers) p1414-1440,1999.
10. Gan JM, Kho J, Akhumbay-Fudge M, Choo HM, Wright M, Batt F et al. Atypical presentation of COVID-19 in hospitalised older adults. *Ir J Med Sci* 2021; 190: 409-74.
11. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y et al. Clinical features of patients infected with 2019 novel coronavirus in

Wuhan, China, Lancet 2020, 395: 497-506.

12. Vorman DC. Fever in the elderly. Clin Infect Dis 2020; 3:148-51.
13. Oppenheim JJ, Ruscetti FW. Cytokines. In Parslow TG, slites DP, Terr AI, Inbodem JB eds. 'Medical immunology' 10thed. New York Lange medical books/McGraw-Hill publishing division 2001, p148-166.
14. Marshall-Gradisnik S, Eaton-Fitch N. Understanding myalgic encephalomyelitis. Science 2022; 377:6611.