



Bilateral Gouty Arthritis Developing After COVID-19 Infection: A Case Report

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ABSTRACT

Background: SARS-CoV-2 virus started in Wuhan, China in 2019 and caused the COVID-19 pandemic by affecting the whole world in a short time. Arthralgia is one of the symptoms that can be seen after Covid-19 infection and can be seen in 14.9% of the cases. However, data on rheumatic and inflammatory symptoms such as arthritis are scarce. Viral infections are known causes of acute arthralgia and arthritis. In the literature, there are many examples of reactive arthritis cases developing after Covid-19 infection. Gouty arthritis is the most common form of inflammatory arthritis. Acute gouty arthritis most often affects the first metatarsophalangeal joint in the foot.

Case Presentation: A 76-year-old male patient with chronic kidney disease, hypertension, and a history of coronary artery bypass using both leg saphenous 12 years ago was admitted to the emergency service with chest pain and increasing fatigue. Since the Covid-19 PCR result was positive, he was hospitalized for further examination and treatment. On the 14th day of hospitalization, the patient complained about pain around both big toes that started suddenly at night and worsened in the morning. In the patient's history, he stated that he had completely similar complaints several times with an interval of one year in the last 3 years and he recovered spontaneously in 10-15 days.

Conclusion: Although developing gouty arthritis etiology is not clear for our patient in this case, it is thought to be a secondary condition due to the development of the disease after Covid-19 infection. It was considered that our patient has bilateral gouty arthritis triggered primarily by COVID-19. Due to the limited number of studies, more case reports should be added to the literature on this subject.

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Introduction

The SARS-CoV-2 virus started in Wuhan, China, in 2019 and caused the COVID-19 pandemic by affecting the whole world in a short time. It usually causes pneumonia, along with diseases in many systems.^{1,2} Arthralgia is one of the symptoms seen after COVID-19 infection and can be seen in 14.9% of the cases. However, data on rheumatic and inflammatory symptoms such as arthritis are scarce.³ Herein, we presented a case of gouty arthritis, possibly associated with COVID-19 infection.

Case Report

A 76-year-old male patient with chronic kidney disease, hypertension and a history of coronary artery bypass using saphenous veins in both legs 12 years ago was admitted to the emergency department with chest pain and increasing fatigue. The patient's medications regularly were isosorbide mononitrate 50 mg/day, metoprolol tartrate 25 mg/day, valsartan 80 mg/day, acetylsalicylic acid 300 mg/day, and trimetazidine dihydrochloride 35 mg/day. The cardiologist evaluated the patient who did not have other symptoms due to chest pain with blood results and electrocardiography and was not considered prominent cardiological pathology. Thoracic computerised tomography of the patient revealed patchy infiltration areas in the appearance of ground glass-cobblestones, predominantly in the upper lobes and subpleural peripheral areas in both lungs, and were radiologically reported as highly suspicious for COVID-19 pneumonia. We were hospitalized after the COVID-19 PCR result was positive. At his admission to the service, his vitals were measured as a body temperature of 36.2 °C, blood oxygen saturation (SpO₂) of 97%, blood pressure as 130/80 mmHg and heart rate of 85/min with 4 L nasal oxygen support. In the hospitalized blood of the patient, urea 98 mg/dL, serum creatinine 1.84 mg/dL (baseline serum creatinine 1.52 mg/dL), D-dimer 0.44 mg/L, procalcitonin 0.03 µg/L, ferritin normal, white blood cell 4,710, hemoglobin 14.5 g/dL, C-reactive protein (CRP) 0.0515 g/L. We started methylprednisolone (80 mg/day), favipiravir, and enoxaparin sodium treatment at admission

and tapered off methylprednisolone dose over 12 days. The patient's need for oxygen support decreased over time, and SpO₂ remained 92% and above without oxygen support. On the 14th day of hospitalization, the patient complained of pain around both toes that started suddenly at night and intensified in the morning (*Picture 1*). In his history, the patient stated that he had completely similar complaints several times with an interval of one year in the last three years and that it resolved spontaneously in 10-15 days.

On his physical examination, there is little redness, swelling and tenderness in the bilateral foot metatarsophalangeal joints, and bilateral distal pulses are palpated clearly. There is a graft scar on the bilateral leg, and the foot skin is dry. It is not accompanied by hematuria, malar rash, Raynaud's history, mouth-nose sores, and hemoptysis. In the blood tests of the patient, uric acid 9.8 mg/dL, serum creatinine 1.67 mg/dL, D-dimer 0.33 mg/dL, procalcitonin 0.13 µg/L, ferritin 342 µg/L, white blood cell 12,460, neutrophil count 81.9%, sedimentation rate 26 mm /h., CRP was determined as 0.086 g/L. The patient who was not considered to have cellulitis was evaluated as having bilateral gouty arthritis according to the 2015 gout classification criteria (ACR/EULAR). We started colchicine (3x0.5 mg) with methylprednisolone treatment. Non-steroidal anti-inflammatory drugs were not given due to chronic kidney disease, and paracetamol was preferred for pain relief. At the end of the 6th day of the treatment, the findings in his physical examination started to improve, and the complaint decreased. At the end of the 14th day, a complete recovery was achieved.

Discussion

Viral infections (hepatitis B virus, hepatitis C virus, parvovirus, Epstein-Barr virus, HIV, alphavirus) are known causes of acute arthralgia and arthritis.⁴ In the literature, there are many examples of reactive arthritis cases developing after COVID-19 infection.⁵⁻⁸ One of the side effects of favipiravir, one of the active substances used to treat COVID-19, is to increase the uric acid level in the blood.⁹ The blood uric acid level rises only temporarily after favipiravir treatment, and the



Picture 1. Appearance and direct x-ray of the left foot with arthritis were taken with the patient's consent on the 13th day of hospitalization.

probability of a gout attack is considered low. In the literature, cases of gout attacks during favipiravir are rare.¹⁰ Gouty arthritis, the most common form of inflammatory arthritis, is characterized by elevated blood uric acid levels and monosodium urate accumulation in synovial fluid and other tissues.¹¹ Acute gouty arthritis most often affects the first metatarsophalangeal joint in the foot. Although the involvement in gouty arthritis is monoarticular, the first finding is polyarticular in approximately 20% of the cases, and this rate increases in later attacks and hospitalized patients.^{12,13} The final diagnosis is made by arthrocentesis of the affected joint and seeing intracellular monosodium urate (MSU) crystals under a polarized light microscope. However, if this is impossible, a clinical diagnosis can also be made.¹³

The patient was evaluated according to 2015 gout classification criteria (ACR/EULAR); he got 2 points for MTP joint involvement (during mono- or oligoarticular arthritis episodes), 1 point for having erythema on the affected joint, 1 point for inability to withstand the pain for touch and pressure on the affected joint, 1 point for difficulty in using the joint, 1 point for the maximum amount of pain lasting less than 24 hours, the attack passing

within 14 days and returning to the normal state between attacks, 3 points for the uric acid value. He exceeded 8 points with a total of 9 points and he was diagnosed with gout arthritis.¹⁴ Secondary hyperuricemia is an expected finding in chronic kidney disease. Since arthritis in our patient developed after the COVID-19 infection, it is likely secondary to the illness and/or treatment. However, since there were similar complaints in the history of this case, COVID-19 and/or favipiravir may also have triggered bilateral gouty arthritis. Similar case reports are needed to clarify the relationship between COVID-19 and gouty arthritis.

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Conflict of interest

The authors declared that there are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Authors' Contribution

Study Conception: SHA, DTG; Study Design: SHA, DTG; Supervision: SHA, DTG; Materials: SHA, DTG; Data Collection and/or Processing: SHA; Statistical Analysis and/or Data Interpretation: SK; Literature Review: SHA; Manuscript Preparation: SHA, DTG; Critical Review: SHA, DTG.

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