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KNEE DISEASE ARTHRITIS AS A COMPLICATION OF COVID-19

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ANNOTATION

The current COVID-19 pandemic raises several clinical challenges. Cases of COVID-19-associated arthritis have been reported, and inconsistently described as either COVID-19 viral arthritis or COVID-19 reactive arthritis. We aimed to review all the reported cases of 'COVID-19-associated arthritis', which we propose, is a better term to define the entire spectrum of new-onset arthritis believed to be associated with SARS-CoV-2 infection. We performed a systematic literature review using MEDLINE, EMBASE and the Cochrane Database of Systematic Reviews to search for articles published up to 13 December 2021. We included cohort studies, case series and case reports describing patients diagnosed with COVID-19 reactive or viral arthritis by a physician, irrespective of fulfilment of classification criteria. To identify relevant studies, medical subject headings and keywords related to 'COVID-19/SARS-CoV-2 infection' and 'reactive arthritis' were used. Our search retrieved 419 articles, of which 31 were included in the review. A total of 33 cases were reported in these 31 articles, the majority being adults (28/33=85%) with peripheral joint involvement (26/33=79%). Most of the patients responded well to treatment and the disease was self-limiting. These 33 case reports describe a possible causal relationship between exposure to SARS-CoV-2 and the onset of arthritis. However, since these cases were reported during a pandemic, other aetiologies cannot be fully excluded. The exact mechanism through which SARS-CoV-2 might trigger arthritis is not fully understood and robust epidemiological data to support a causal relationship are still lacking.

Key words: COVID-19, arthritis, reactive, arthritis, infectious.

INTRODUCTION

Coronavirus disease 2019 (COVID-19) is an emerging pandemic that is caused by severe acute respiratory distress coronavirus 2 (SARS-CoV-2). The virus mainly affects the respiratory system but has indirect effects on multiple organ systems including the musculoskeletal system [1]. Fatigue, arthralgia, and myalgia have been identified as common COVID-19 symptoms with considerable musculoskeletal dysfunction in some patients, but long-term follow-up and their prevalence have yet not been investigated [1–3].

A very recent study collected data of the past 5 months, from different studies published worldwide, to detect the frequency of musculoskeletal symptoms in COVID-19 patients. It included a total of 54 studies (12,045 patients), mostly from China, and found that, amongst the musculoskeletal symptoms, fatigue and arthralgia/myalgia were the most common symptoms [4]. Eight studies reported having a prevalence of greater than 50% of patients with fatigue [5–12] while three reported higher values of arthralgia/myalgia [13–15]. A retrospective single-center analysis conducted in Wuhan, China, included 84 confirmed cases of SARS-CoV-2 infection. Nearly two-thirds of patients had myalgia or fatigue [5]. Another city in China, Chengdu, evaluated the epidemiological characteristics of 99 test-positive cases who were admitted to the hospital. It was seen that after cough, fatigue (73%) was the most common symptom in these patients [10]. An article published in the New England Journal of Medicine discussed the clinical characteristics of COVID-19 in New York City. According to it, myalgias (23.8%) were not uncommon among 393 patients [11].

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The use of nonsteroidal anti-inflammatory drugs (NSAIDS) is very common in COVID-19. Therefore, the persistence of musculoskeletal complaints is even more worrying because it may indicate that inflammatory reactions can overcome the anti-inflammatory effects of these drugs. We hereby present a case series of 5 patients who presented with inflammatory arthritis (symmetrical/polyarticular) as a sequela of COVID-19 infection. The current literature on inflammatory manifestations, especially symmetrical polyarthritis, is scarce.

DISCUSSION

This is a report of COVID-19 in a patient with septic arthritis. Septic arthritis (also called infectious arthritis) is an uncommon but serious medical emergency with microbial and immunological etiologies [5] and the main causative organism involved is Staphylococcus aureus, which can be isolated from 37 to 56% of cases [6]. It is well-documented that suppression of the immune system whether by immunosuppressant drugs or in autoimmune diseases is the key risk factor for the development of septic arthritis [7]. It has been reported that immunocompromised patients are more susceptible to the generation of septic arthritis [7]. For example, human immunodeficiency virus (HIV)-infected patients exhibit an increased prevalence of musculoskeletal infections [8]. However, in the current case report, the patient had no history of any diseases and had not received immunosuppressive therapy yet. Therefore, the incidence of an uncommon infection in this patient might be associated with COVID-19. Up to now, considerable literature has grown up around the impact of COVID-19 on host immune responses and functions [9], [10]. Recently, Remy et al. investigated the effect of COVID-19 on host immune responses and interaction with different immune cells and found that COVID-19 suppresses host innate and adaptive immune responses [11]. Indeed, the term “immunologic collapse” refers to the suppression of host immune responses by severe acute respiratory syndrome–coronavirus2 (SARS-CoV2) infection [12], [13].

As a consequence of this condition, patients with COVID-19 are more susceptible to opportunistic infectious microorganisms such as Staphylococcus aureus. Interestingly, Zhou et al indicated that 50% of patients with COVID-19 develop secondary hospital-acquired infections [14]. 5 cases of septic arthritis in hip were described after improvement of COVID19 with salmonella and coagulase negative staphylococci [3] and others reported a case of hip septic arthritis 3 month after COVID19 [15]. Furthermore, a case of shoulder septic arthritis was reported 1 week after Pfizer-BioNTech vaccine [16], but in present case, the patients did not receive any vaccine. Also there are case reports of inflammatory arthritis (rheumatoid arthritis, systemic lupus erythematosus, reactive arthritis, crystal-proven arthropathy flare, new-onset psoriatic arthritis and flare of preexisting inflammatory arthritis) after COVID19 [2], [17], [18]. This report describes the simultaneous existence of knee septic arthritis with Staphylococcus aureus and COVID 19. Due to the onset of pulmonary symptoms on the fourth day of hospitalization and as the incubation period COVID19 is about 2 weeks, he may have had COVID 19 at first and showed signs of septic arthritis before the onset of obvious pulmonary symptoms.

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