

Acute COVID-Related Hip Arthritis. Case Report and Literature Review

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Learning Point of the Article:

Investigations, diagnosis, treatment of acute COVID-related hip arthritis.

Abstract

Introduction: 2 years after the SARS-CoV-2 outbreak which is responsible for the COVID-19 pandemic, the clinical presentations remain unclear and unpredictable. The disease can present with a heterogeneous clinical course and a wide spectrum of clinical manifestations which can cause various complications from different systems, including musculoskeletal.

Case Report: The case of a young, fit, and healthy female patient with severe onset of hip pain which started only shortly after being tested positive for COVID-19 infection is presented in this study. There is no history of rheumatologic disease. Clinical assessment did not show any signs of erythema at the hip region, however, on palpation, there was significant tenderness at the anterior aspect of the left hip joint. The patient was unable to bare weight on this hip and could not straight leg raise, and the rotation of the hip was severely restricted due to underlying pain. The nasopharyngeal swabs for SARS-Vo2 were performed and came back positive. The CRP was 205 and plain anteroposterior radiograph of the pelvis did not show abnormalities. A diagnostic aspiration under sedation in theaters was offered; the culture and enrichment were negative for infection. Since the symptoms were not improving with conservative measures, an open washout of the joint cavity was performed in theatres. The microbiologists guided on the antibiotic treatment and adequate analgesia was prescribed. Symptoms settled very soon after the open procedure and the requirements for analgesics were reduced to minimal use. The following couple of days, the pain, range of movement, and mobility significantly improved, and the patient returned within 2 weeks back to her normal activities. The rheumatologists organized a complete screening which ruled out elements of seronegative disease. In the final, 6-month follow-up, the patient was totally symptom free, and the blood markers were entirely unremarkable.

Conclusion: This is the first case of COVID-19-related, hip arthritis recorded worldwide, in a patient without any predisposing factors. Clinical suspicion is the key for early diagnosis and treatment for every COVID-19-positive patient with musculoskeletal symptoms, even for the patients with no history of autoimmune diseases. Viral-related arthritis remains a diagnosis of exclusion and underlies the importance to perform all the test to rule out other possible inflammatory arthritis. Our experience showed that early irrigation of the joint cavity is related with efficient symptoms relief, less requirement for analgesia, less time in hospital, and quicker return to daily activities.

Keywords: COVID, arthritis, acute, hip.

Introduction

The World Health Organization has reported more than 6.38 million deaths related to the COVID-19 pandemic [1]. The

disease can appear with numerous atypical/uncommon clinical manifestations that can lead to late diagnosis and remain a challenge for the clinician. Various systems, including the

Access this article online

Website:
www.jocr.co.in

DOI:
<https://doi.org/10.13107/jocr.2023.v13.i06.3688>

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Submitted: 19/03/2023; Review: 25/04/2023; Accepted: May 2023; Published: June 2023

DOI: <https://doi.org/10.13107/jocr.2023.v13.i06.3688>

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Figure 1: X-ray pelvis.

musculoskeletal, can be affected and the complications can either settle early or last for a longer period or even become permanent. There is strong correlation between the different variants and the clinical presentation [2]. Crucial role to the clinical presentation of the COVID-19 demonstrates the variant that every time is responsible for the disease. Predominant musculoskeletal symptoms include arthralgia and myalgia. There is also established evidence that the virus can either trigger undiagnosed rheumatologic conditions or be responsible for the exacerbation of a previously controlled disease. Arthralgia is a well-reported side effect of COVID-19 vaccine [3, 4, 5].

The current paper presents the case of a young patient, without background of rheumatologic disease or any comorbidities, with acute, severe onset of hip pain which started only shortly after being tested positive for COVID-19. The diagnostic approach, management, and follow-up are presented followed by a literature review.

Case Report

We present the case of a 20-year-old white female patient, previously fit and healthy with sudden onset of left hip pain. Symptoms started a day before presentation to accident and emergency and 9 days after tested positive for COVID-19. The pain progressively deteriorated and at presentation was unable to weight bear. On assessment, the left hip joint was in 15° of flexion and 20° of external rotation. The area was not warm to the touch and there was no erythema. On palpation and leg roll, the groin was significantly tender and the patient was unable to straight leg raise. There was no focal neurology and the perfusion of the leg was normal. The patient denied any history

of trauma. Nasopharyngeal swabs at admission were performed and the PCR test was positive for SARS-CoV-2. She was entirely asymptomatic from the COVID infection point of view. Her past medical history included an uneventful resection of endometriosis 3 months ago. The general surgeons and the gynecologists reviewed the patient and excluded any sinister pathology. From her past medical history, there were no history of injury and no operation of the hip or rheumatic diseases. Moreover, she mentioned history of endometriosis and resection in November of 2021. The patient is non-smoker, she does not receive any medication, and no allergies mentioned.

The day that her symptoms started, she was on her 9th day after diagnosed with COVID-19 (she was tested positive for COVID-19 in community on January 04, 22). Nasopharyngeal swabs for SARS-Vo2 were performed and persisted positive as RNA of the virus was detected. From her social history, the patient lives with her mother and she is a student. X-ray of the pelvis, bloods, and analgesia was given and the patient referred to the orthopedic team (Fig. 1). The case was discussed with the gynecologists and general surgeons for differential diagnostic reasons (endometriosis recurrence, ovary torsion, hernia, and other conditions). General surgeons' assessment and the negative pregnancy test showed that it was unlikely that the pain was caused by gynecological reasons.

On examination, the patient was not able to weight bear and she was in bed. Inspection showed no erythema or any skin abnormalities, and palpation revealed tenderness of the anterior aspect of the hip joint and tenderness over the greater trochanter. The hip joint was significantly painful, without radiations, exacerbated with hip movements, with reduced range of motion, and the hip slightly flexed. The assessment of the patients' range of motion was difficult due to severe pain. The initial bloods results showed WCC and CRP (enter values) and the MRI scan of the left hip showed a large collection into the hip joint without any other abnormalities (Fig. 2). The observations of the vital signs were within normal range. The provided analgesia did not alleviate the symptoms and an attempt to mobilize the patient with the physiotherapists was unsuccessful.

A diagnostic aspiration under sedation in theatres was offered. 8 mL yellowish fluid was aspirated and two sample pots were used and sent for MC and S. The culture was negative for infection. Post-aspiration, there was not any improvement in the symptoms, so an open incision, drainage, and washout were the next step forward. The hip joint was approached through a direct anterior approach, and the joint capsule identified which



Figure 2: MRI pelvis.

was found distended. Signs of synovitis were noted and following capsulotomy, a large quantity of yellowish joint fluid was evacuated. The joint was irrigated with 3 l of normal saline and a drain was placed deeply into the joint cavity. The capsule was approximated with vicryl dissolvable sutures and the joint was closed. The microbiologists input was asked and antibiotics were administered (flucloxacillin 2 g QDS for 2 weeks). Administration of 80 mg of Depo-Medrone intramuscularly commenced in addition to naproxen 50 mg twice a day for 2 weeks. Before this treatment, no other treat for COVID-19 had received from the patient. The following day the symptoms drastically improved, the pain was reasonably controlled with basic analgesia (paracetamol) and the range of movement of the hip joint increased, causing only minimal discomfort. The drain bottle accumulated 30 mL of synovial color fluid within 24 h from the procedure and was removed.

Further investigations requested by the rheumatologists ruled out juvenile arthritis. The following days, the pain, range of movement of the hip joint, and mobility significantly improved. For the first 2 weeks, partial weight bearing was suggested and the period after she was allowed to weight bear as tolerated. The markers for infection returned within normal range. In the final 6-month follow-up, the patient was symptom free and the blood markers for infection remained normal. She is now discharged having full mobility and returned to her normal activities.

Discussion

The SARS-CoV-2 virus infection is expressed predominantly by respiratory complications, however, can also be responsible for extra-pulmonary symptoms [6].

More than 570 cases have been reported since the outbreak of the pandemic and the continuously raising number causes uncertainty regarding the long-term complications [1]. The complications from the musculoskeletal system may require medical attention and the severity can require some form of intervention. Immunocompromised patients and those suffering from autoimmune disease are considered more

vulnerable when exposed to the virus and can suffer more severe complications. Despite the large number of cases reported globally, only 9 cases of acute monoarthritis in which there is no history of other rheumatic diseases have been reported in the literature. Among those cases, there is not a single case that involves pathology of the hip joint [6, 7, 8, 9]. Therefore, the case presented in the current paper is the first COVID-19-related acute monoarthritis, reported worldwide.

We found the case of a young, fit, and healthy female patient presented in this study, a diagnostic challenge and we would like to share the management that can be of exceptional value to the clinicians that can come across similar situations. Those patients with sudden presentation of monoarthritis should be screened routinely for COVID-19 infection. An updated diagnostic algorithm for acute monoarthritis, taking under consideration, the SARS-CoV-2 virus would lead to earlier diagnosis, more efficient planning of the treatment and would reduce the morbidity and the length of stay in the hospital and therefore minimizing the cost of care providing by the health-care systems. Our experience showed that after the open irrigation of the joint, the symptoms immediately settled and the patient very soon reported excellent recovery and returned her daily activities.

Regarding management, comparing to the other reported cases which have been treated conservatively with IV antibiotics, our approach was surgical with open wash out. Both treatment plans have good outcomes and the patients returned back to their daily activities. However, surgical management seems to help symptoms settle quicker as from the 1st post-operative day, there was a significant improvement of the symptoms and reduced the duration of hospitalization.

Conclusion

Viral-related arthritis remains a diagnosis of exclusion and underlines the importance to perform all the tests to rule out the possibility of serum negative arthritis. Negative joint fluid cultures and negative rheumatologic screening (rheumatoid factor, antinuclear antibody, anti-citrullinated protein antibody, and HLA-B27) are essential [10]. This case argued that clinical suspicion is the key of the early diagnosis and treatment for

Clinical Message

Clinical suspicion and expansion of the differential diagnosis are the keys to diagnose the cause of arthritis to patients without predisposing factors. MDT is a crucial necessity for treatment and diagnosis in additional to surgical intervention.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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Conflict of Interest: Nil

Source of Support: Nil

Consent: The authors confirm that informed consent was obtained from the patient for publication of this case report

How to Cite this Article

Kalavrytinou D, Kosmidis IA. Acute COVID-Related Hip Arthritis. Case Report and Literature Review. *Journal of Orthopaedic Case Reports* 2023 June;13(6): 40-43.

