Arthralgia and Soft Tissue Swelling Post Covid-19

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Received: March 2023. Accepted: April 2023; Published: May 1, 2023.
Citation: Juwairia Hashmi, Kader Mutluer. Arthralgia and Soft Tissue Swelling Post Covid-19. World Family Medicine. May 2023; 21(4): 26-31 DOI: 10.5742/MEWFM.2023.95256087

Abstract

A middle aged 50-year man contracted severe Covid 19 pneumonia. Post discharge he complained of multiple joint pains and heel pain on walking. The pain was waking him up at night and regular paracetamol wasn't effective. Full thorough workup was done to exclude any possible causes and ultrasound was performed.

It was concluded that he had post covid arthralgia and soft tissue swelling. He was prescribed paracetamol and amitryptiline with escalating dose and was referred to rehabilitation and exercise which showed significant improvement and he made a good recovery. The aim of this article is to explore the possible reasons behind these symptoms and the management in primary care setting.

Key words: arthralgia, soft tissue swelling, Covid-19

Background

One of the commonest complaints received in primary care after contracting Covid -19 has been joint pain and swelling around the joints which is thought to be synovitis related to postviral inflammatory arthritis or other rheumatologic conditions such as psoriatic arthritis, rheumatoid arthritis, and systemic lupus erythematosus.

This arthritis is thought to be aseptic inflammatory arthropathy likely related to immune response. Typically, patients present 1–3 weeks post the onset of infection with symptoms extending into the recovery phase. These symptoms have responded well to anti inflammatories. The underlying pathology is thought to be reactive arthritis, which is monoarticular or oligoarticular or inflammatory arthritis occurring with other viral infections usually manifests during the acute viraemic phase of infection and is usually polyarticular.

The most common mechanism is molecular mimicry due to viral epitopes on the spike protein causing production of autoantibodies. Other mechanisms, such as bystander activation, an antigen-independent stimulation of T cells and/or B cells at sites of inflammation. Direct viral injury to the joints is unlikely and has been 15% of Covid-19 patients and no detectable viral particles have been detected in polymerase chain reaction (PCR) testing of arthrocentesis samples of patients. Association of human leukocyte antigen B27 (HLA-B27) with seronegative spondyloarthropathies that follow Covid-19 remains unclear.

Cases of seropositive RA have usually been reported several weeks after moderate to severe pulmonary symptoms. There have been reports of active sacroiliitis as well related to activation or exacerbation of seronegative spondyloarthropathies like psoriatic arthritis, or post–Covid-19 reactive sacroiliitis.

Clinical and imaging features established by the Assessment of Spondylarthritis International Society (ASAS) can help confirm the diagnosis of seronegative spondyloarthropathy.

Case Presentation

A gentleman in his 50s contracted initially flu like symptoms that subsequently progressed to severe Covid pneumonia. He later developed Type 1 respiratory failure requiring intubation and ICU admission and a hospital stay for 2 months. Renal failure requiring renal replacement therapy, persistent atrial fibrillation and flutter. Anaemia requiring multiple transfusions and hypercoagulable – causing multiple clots, EBV viremia, sick euthyroid syndrome and critical illness myopathy.

Past medical history consisted of High BMI, Hypertension, Bronchitis, Post traumatic stress disorder.

His social history revealed that he was an ex-Smoker and was on long term sick leave. After the discharge from hospital, he started to report widespread joint pain, particularly to the periarticular area, most noticeable around metacarpophalangeal knuckle joints, both wrists and elbows and shoulders. When walking he was also reporting heel pain. He was seen by the pain team consultant and started on amitryptiline 10 mg at night with minimal relief.

There was no previous history of arthritis, gout, or psoriasis. There was no reported family history of inflammatory arthritis. Alcohol intake is more than 8 units per day. On examination, there was tenderness at distal metacarpophalangeal joint without any evidence of synovitis in metacarpophalangeal and proximal interphalangeal joint. The wrists were restricted to flexion primarily only to 70 degrees. Extension was normal. There was no evidence of carpal tunnel syndrome. There was evidence of psoriasis. There was no evidence of bursa or rheumatoid nodule. Shoulders were restricted to active abduction on extremes but no tenderness on palpation and Achilles tendon was not thickened but slightly tender to touch. The knee, hip and spine examination were unremarkable.

Investigations

A thorough work up of his bloods was done and his full blood count came back as normal, immunology screening including CCP antibodies 1 U/ml CRP of 3 mg/L complement C3 -1.36 g/L, double stranded DNA antibodies 2IU/mL, rheumatoid factor 11IU/mL, Albumin 43, Alkaline Phosphatase 51IU/L, Aspartate Transaminase 21IU/L, Total Bilirubin 5 umol/L, Gamma Glutamyl Transferase 41 IU/l.

The ultrasound scan of joints involved was performed to rule out any synovitis came back as normal. Nerve conduction studies were normal.

Treatment

Regular pain relief, preferably a combination along with a good rehabilitation and exercise.

Regular occupational assessment to assess the re-ability with exercise and disability with the condition caused.

Regular review of GAD and PHQ-9 is also paramount in holistic management of patient.

Outcome and follow-up

He was followed up in family medicine clinic at regular intervals and a marked improvement was reported after a year and the soft tissue swelling was resolved after 1 year.

Simple analgesics like paracetamol and ibuprofen have been effective in relieving the pain. The rehabilitation therapy with muscle strengthening and increased in mobility also has significantly helped in management.

He managed to get back to his baseline level of activity and walking.

Discussion

Arthralgia has been reported as a symptom of Covid-19, occurring in 2.5% of patients according to a single study that separated arthralgia from myalgia as an independent symptom [29]. To date, there have been several cases of acute clinical arthritis secondary to Covid-19 reported in the literature, showing features of reactive arthritis or crystalline arthritis rather than viral arthritis making investigations necessary to confirm the diagnosis. [29–34].

Virus-induced arthritis can be tricky to confirm.
There are no current imaging findings pathognomic of Covid-19. As discussed serological tests and fluid sampling are important to exclude other differential diagnosis like rheumatoid arthritis, psoriatic arthritis, septic arthritis, crystalline arthritis, Lyme disease, systemic lupus erythematous, and reactive arthritis secondary to other infections such as chlamydia/gonorrhea [30, 31].

SARS-CoV-2 can cause inflammatory arthropathy even in patients with mild or no respiratory symptoms thereby making the testing for Covid necessary [40]. Imaging findings of SARS-CoV-2-related arthritis are non-specific and include synovitis with power Doppler signal on ultrasound and synovial enhancement on MR imaging (Figure 1).

Virus-induced bleeding coagulopathy can happen due to anticoagulant therapy given for treatment or prevention of the thrombotic events [41]. Hematomas may develop in subcutaneous soft tissues or within muscles which can further cause compressive neuropathy, increased compartment pressure, and superimposed infection. Ultrasound, CT or MR imaging can be useful for diagnosis and follow up of hematomas, including diagnosis and follow-up imaging until resolution.

MRI demonstrates monoarticular or oligoarticular synovial thickening and edema of the affected joints, and there may be tenosynovitis, with variable degrees of contrast enhancement [55].

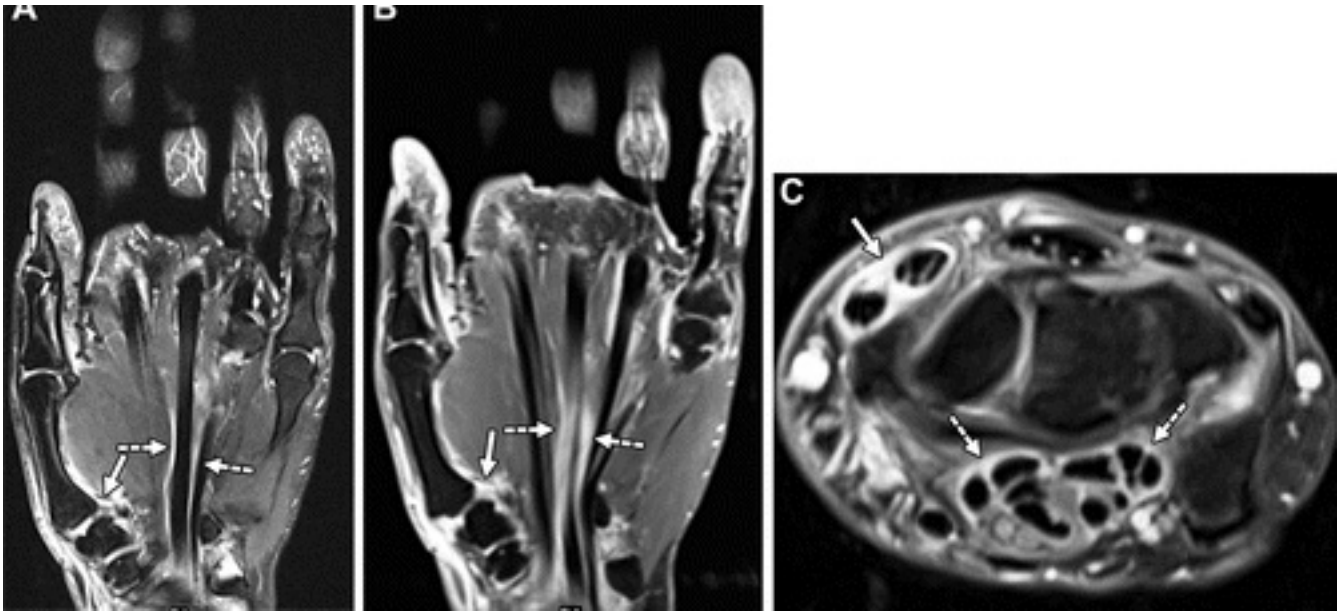

Figure 1. Inflammatory arthritis in a 53-year-old woman who had recovered from COVID-19 2 weeks earlier and presented with intermittent arthralgias and swelling. (A) Coronal T2-weighted fat-suppressed MR image of the palm of the hand shows oligoarticular arthritis of the first carpometacarpal joint with periarticular soft-tissue edema (solid arrow in A and B), along with flexor bursal synovial edema (between dashed arrows in A and B). Note mild fifth metacarpophalangeal radial pericapsular edema without associated erosions or bone marrow edema. (B) Coronal T1-weighted fat-suppressed postcontrast MR image of the same area shows enhancement of the affected regions, indicating active inflammation and synovitis. (C) Axial T1-weighted fat-suppressed postcontrast MR image of the wrist through the proximal carpal row shows synovial enhancement in the second extensor compartment (solid arrow) and the flexor tendon bursae (dashed arrows), consistent with active synovitis/

Reference article[55]

Learning Points / Take home messages

Patients presenting with multiple joint pains after contracting Covid-19 virus irrespective of the severity should have full rheumatological screening done including auto immune profile and non-inflammatory profile and Ultrasound scan.

Patients should be referred to rheumatology for full work up and assessment.

Regular pain relief and exercise rehabilitation is the main stay of the treatment, patients to be assessed for GAD and PHQ-9 during the recovery phase also help in holistic management.

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