

Case series of acute arthritis during COVID-19 admission

The pandemic of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has changed life significantly worldwide. Rheumatologists also had to get used to the new context, prioritising remote over in-person consultations or solving doubts and giving advice to our immunocompromised patients. Besides, international collaborations have provided opinions concerning decisions that may affect people with rheumatic diseases; for instance, a major provision and use of hydroxychloroquine for COVID-19 might lead to a shortage for patients with lupus or rheumatoid arthritis, as Graef and colleagues point out in their recent viewpoint.¹

In areas of higher impact of the outbreak, as occurred in Spain, some of us have collaborated with colleagues from respiratory medicine and infectious diseases within multidisciplinary teams to face COVID-19. A collateral advantage has been the opportunity to evaluate the musculoskeletal manifestations of COVID-19, to date just described as non-specific joint pain,² while no cases of arthritis have been reported at diagnosis or during the infection.

Up to 30 April 2020, in Alicante General University Hospital, 306 patients with proven COVID-19 have been admitted. Eighty-one (26.4%) complained of muscle and joint pain at presentation. No patient had evident arthritis at admission, but four (1.3%) developed acute arthritis during hospitalisation. Here we present their relevant features (table 1).

All patients had a history of recurrent acute arthritis in different locations (knee, first metatarsophalangeal joint or ankle). Three had a previous diagnosis of gout, but presence of crystals was only studied in one (patient 4). Treatment with allopurinol was variable, and none received daily colchicine.

COVID-19 was diagnosed in three of them by reverse transcriptase PCR (RT-PCR) for SARS-CoV-2 in nasopharyngeal aspirates. Patient 4 was repeatedly tested negative in RT-PCR but confirmed by SARS-CoV-2 IgM and IgG detection.³ All patients received hydroxychloroquine; tocilizumab (in three cases) and pulses of methylprednisolone (in two cases) were necessary because of severe pneumonia. Interestingly, all episodes of acute arthritis occurred

despite those treatments. The synovial fluid analysis allowed definitive diagnoses, and flares successfully resolved with our standard approach (corticosteroids and colchicine).

Joint and muscle pain are common in acute viral illnesses. It also seems to occur in COVID-19,² but the occurrence of arthritis has not been confirmed to date. Here we report four cases of acute arthritis developed during COVID-19 admissions, all due to crystal-proven flares (gout and calcium pyrophosphate disease). It remains essential to check every arthritis by polarised microscopy, even during the SARS-CoV-2 pandemic. Viral detection in synovial fluid had not been tested to date, though reported low rates of viraemia make it unlikely.^{4,5} We managed to have synovial fluids tested for SARS-CoV-2 by RT-PCR in the three cases, being all negative.

Rheumatologists, at multiple levels and from different perspectives,¹ may be of great value during the COVID-19 pandemic.

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Table 1 Clinical features and management of four patients with acute arthritis during COVID-19 admission

Patient	1	2	3	4
Age (years)/gender	71/male	61/male	64/male	45/male
Days from COVID-19 symptom onset to arthritis	8	19	8	27
Days from admission to arthritis	3	17	7	21
COVID-19 management	Hydroxychloroquine	Hydroxychloroquine, azithromycin, tocilizumab, pulses of methylprednisolone	Hydroxychloroquine, azithromycin, lopinavir-ritonavir, tocilizumab	Hydroxychloroquine, tocilizumab, pulses of methylprednisolone
Known inflammatory arthritis	Gout, on allopurinol 100 mg/day	Gout, on allopurinol 100 mg/day (irregular)	Previous recurrent arthritis, not studied or treated	Crystal-proven gout, on allopurinol 300 mg/day
Allopurinol stopped during admission	No	No	–	Yes
Involved joints	First MTP	Ankle	Both knees	Knee and ankle
SF characteristics	ND	Glucose: 38 mg/dL Leucocytes: 137 534/μL (95% PMN)	Glucose: 94 mg/dL Leucocytes: 1362/μL (77% PMN)	Glucose: 38 mg/dL Leucocytes: 39 065/μL (96% PMN)
Polarised light microscopy	MSU crystals	MSU crystals	CPP crystals	MSU crystals
SF culture	ND	Negative	Negative	Negative
SF RT-PCR for SARS-CoV-2	ND	Negative	Negative	Negative
Acute arthritis management	▶ Intra-articular triamcinolone plus mepivacaine. ▶ Colchicine.	▶ Oral prednisone. ▶ Colchicine.	▶ Intra-articular triamcinolone plus mepivacaine.	▶ Colchicine.

CPP, calcium pyrophosphate; MSU, monosodium urate; MTP, metatarsophalangeal; ND, not done (insufficient amount of fluid was obtained); PMN, polymorphonuclear; RT-PCR, reverse transcriptase PCR; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2; SF, synovial fluid.

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