DOI: 10.1002/jmv.27229

LETTER TO THE EDITOR

JOURNAL OF MEDICAL VIROLOGY WILEY

# SARS-CoV2-triggered acute arthritis: Viral arthritis rather than reactive arthritis

Dear Editor,

We read, with interest, a case report titled "The first reactive arthritis (ReA) case associated with COVID-19" by Saricaoglu et al.[1] published in a recent Journal of Medical Virology issue. This report describes a 73-year-old male patient who developed polyarthritis in his feet 8 days after completing COVID-19 treatment. We think that this case should be diagnosed as "COVID-19-related arthritis"; in other words, "viral arthritis". As Jovani et al.[2] have indicated, the differential diagnosis in acute inflammatory arthritis and an appropriate understanding of reactive arthritis should be considered.

In 1969, Ahvonen et al.[3] proposed defining ReA as aseptic or nonsuppurative arthritis following microbial infection of sites other than the joints. This definition is the essential, well-known, and widely spread concept of ReA based on pathogenic mechanisms; however, in 1999, definition and diagnostic criteria were proposed at the 4th International Workshop on Reactive Arthritis, where ReA was classified as a spondyloarthropathy and the term "ReA" could be used only if the clinical picture and the microbes involved are associated with human leukocyte antigen (HLA)-B27 and spondyloarthritis.[4]

It is noted that bacterial, immunological, and genetic factors, including HLA-B27, play an important role in the pathogenesis of ReA; therefore, ReA is not only a pattern of acute inflammatory arthritis following infection outside the joint but also the disease formerly called Reiter's syndrome.[4–7]

Although many microorganisms have been reported associated with postinfectious arthritis,[8] viral infection-related arthritis, poststreptococcal reactive arthritis (PSRA), and Lyme arthritis (*Borreliosis*) are not strictly classified as ReA.[4] Namely, postinfectious arthritis is categorized as classic ReA (Reiter's syndrome), infection-related arthritis, and post-infectious viral arthritis[9]; therefore, microorganisms that trigger ReA are well-known bacteria described in the literature and textbooks but not viruses.[4–7] Among virus-induced arthritides,[10] ReA associated with human immunodeficiency virus (HIV) infection is often reported and discussed in the literature; however, ReA has occurred in HLA-B27-positive Caucasian patients with HIV infection. Furthermore, it has been concluded that ReA is related to bacterial infections that patients with HIV contract, not to HIV infection itself.[11,12]

In conclusion, it is necessary to understand the fundamental knowledge of ReA,[4–7] viral arthritis,[10] and other acute inflammatory arthritis. The differential diagnosis of these diseases is very important as it influences not only the subsequent management of patients in clinical practice[9,10] but also knowledge in the new literature.

## ACKNOWLEDGMENT

The authors would like to thank MARUZEN-YUSHODO Co., Ltd. (https://kw.maruzen.co.jp/kousei-honyaku/) for the English language editing.

## CONFLICT OF INTERESTS

S. Kobayashi receives personal fees from Kyowa Kirin, Novartis Pharma K.K., Eli Lilly Japan K.K., Chugai Pharma, Asahi Kasei Pharma, Gilead Sciences, and Janssen Pharma K.K. outside the submitted work. Taniguchi has received speaker and/or consulting fees from AbbVie, Eli Lilly, Janssen, Kyowa Kirin, Mitsubishi Tanabe, and Novartis. N. Tamura has received speaker and/or consulting fees from AbbVie, Astellas, Bristol-Myers Squibb, Eisai, Eli Lilly, Janssen, Kyowa Kirin, Mitsubishi Tanabe, and Novartis. I. Kida has no conflict of interest to declare.

## AUTHOR CONTRIBUTIONS

All authors have discussed the questions in the manuscript and agree to the content. All the authors played a significant role in the paper.

## DATA AVAILABILITY STATEMENT

We understand and agree with the "Expects Data" data sharing policy and a Data Availability Statement (DAS).

Shigeto Kobayashi[1]
Yoshinori Taniguchi[2]
Issei Kida[1]
Naoto Tamura[3]

[1]*Department of Rheumatology and Internal Medicine, Juntendo University Koshigaya Hospital, Saitama, Japan*
[2]*Department of Endocrinology, Metabolism, and Nephrology, School of Medicine, Kochi University, Nankoku, Japan*
[3]*Department of Internal Medicine and Rheumatology, Juntendo University, Tokyo, Japan*

**Correspondence**
Shigeto Kobayashi, Department of Rheumatology and Internal Medicine, Juntendo University Koshigaya Hospital, 560 Fukuroyama, Koshigaya-shi, Saitama 3430032 Japan.
Email: shigeto@juntendo.ac.jp

  

## ORCID

*Shigeto Kobayashi* https://orcid.org/0000-0002-1939-3380
*Yoshinori Taniguchi* https://orcid.org/0000-0002-8621-7790
*Issei Kida* https://orcid.org/0000-0002-5477-0911
*Naoto Tamura* https://orcid.org/0000-0003-1729-2954


## REFERENCES


1. Saricaoglu EM, Hasanoglu I, Guner R. The first reactive arthritis case associated with COVID-19. *J Med Virol*. 2021;93:192-193. https://doi.org/10.1002/jmv.26296
2. Jovani V, Pascual E, Vela P, Andrés M. Acute arthritis following SARS-CoV-2 infection. *J Med Virol*. 2021;93:661. https://doi.org/10.1002/jmv.26440
3. Ahvonen P, Sievers K, Aho K. Arthritis associated with Yersinia enterocolitica infection. *Acta Rheumatol Scand*. 1969;15(3):232-253. https://doi.org/10.3109/rhe1.1969.15.issue-1-4.32
4. Braun J, Kingsley G, van der Heijde D, Sieper J. On the difficulties of establishing a consensus on the definition of and diagnostic investigations for reactive arthritis. Results and discussion of a questionnaire prepared for the 4th International Workshop on Reactive Arthritis, Berlin, Germany. *J Rheumatol*. 2000;27(9):2185-2192.
5. Taniguchi Y, Nishikawa H, Yoshida T, et al. Expanding the spectrum of reactive arthritis (ReA): classic ReA and infection-related arthritis including poststreptococcal ReA, Poncet's disease, and iBCG-induced ReA. *Rheumatol Int*. 2021;41:1387-1398. https://doi.org/10.1007/s00296-021-04879-3
6. Selmi C, Gershwin ME. Diagnosis and classification of reactive arthritis. *Autoimmun Rev*. 2014;13:546-549. https://doi.org/10.1016/j.autrev.2014.01.005
7. Schmitt SK. Reactive arthritis. *Infect Dis Clin North Am*. 2017;31(2):265-277. https://doi.org/10.1016/j.idc.2017.01.002
8. Henning Zeidler AP. Reactive arthritis update: Spotlight on new and rare infectious agents implicated as pathogens. *Curr Rheumatol Rep*. 2021;23(7):53. https://doi.org/10.1007/s11926-021-01018-6
9. Plesca DA, Luminos M, Spatariu L, Stefansecu M, Cinteza E, Balgradean M. Postinfectious arthritis in pediatric practice. *Maedica (Bucur)*. 2013;8:164-169.
10. Marks M, Marks JL. Viral arthritis. *Clin Med*. 2016;16(3):129-134. https://doi.org/10.7861/clinmedicine.16-2-129
11. Cuellar ML, Espinoza LR. Rheumatic manifestations of HIV-AIDS. *Best Pract Res Clin Rheumatol*. 2000;14(Sept 3):579-593. https://doi.org/10.1053/berh.2000.0094
12. Clark MR, Solinger AM, Hochberg MC. Human immunodeficiency virus infection is not associated with Reiter's syndrome: data from three large cohort studies. *Rheum Dis Clin North Am*. 1992;18:267-276.