View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by Elsevier - Publisher Connector

International Journal of Infectious Diseases 53 (2016) 21–22

Contents lists available at ScienceDirect

International Journal of Infectious Diseases

journal homepage: www.elsevier.com/locate/ijid

Medical Imagery

Carpal tunnel syndrome after chikungunya infection

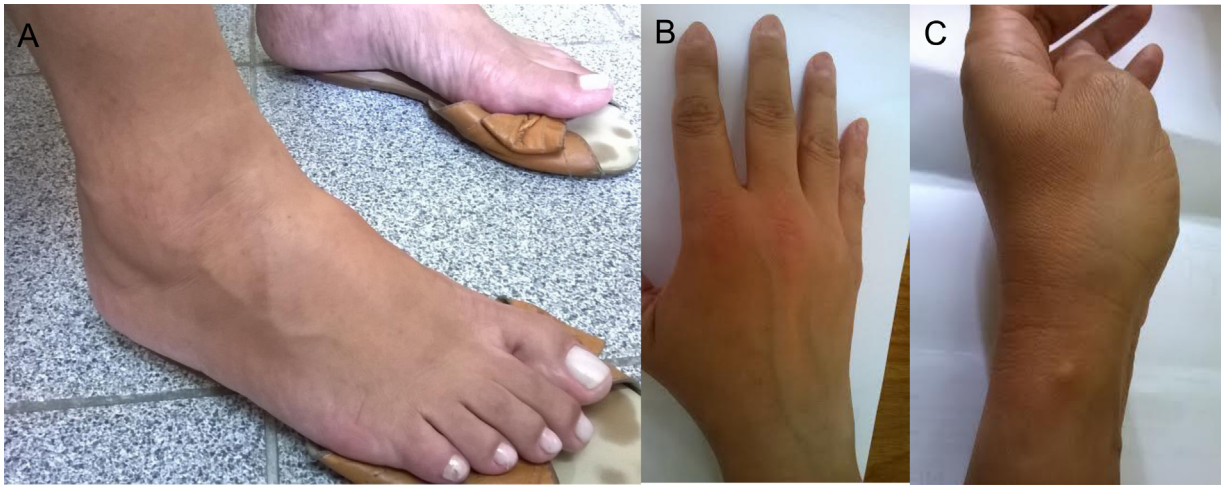

Figure 1. Tenosynovitis associated with chikungunya virus infection. Swelling and hyperemia of the ankle (A) and fingers (B), and a nodule of 0.5 cm in diameter in the left wrist (C) of a 41-year-old woman with post-chikungunya tenosynovitis (45 days after acute infection with chikungunya virus).

Chikungunya virus (CHIKV) is an arbovirus of the *Togaviridae* family, genus *Alphavirus*. It has attracted increasing attention in the last decade for its global spread and large number of epidemics.[1] Infection with CHIKV causes debilitating inflammatory rheumatism. Carpal tunnel syndrome (CTS) is a focal neuropathy frequently associated with compression of the median nerve in the wrist and rheumatic disorders.[2] A case of CHIKV infection with severe arthritis and CTS in a 41-year-old Brazilian woman is reported.

The patient had a history of fever (38.5–40 °C), followed by severe pain and swelling in her right knee, with difficulty performing a flexion movement. The pain intensity increased within 24 h and spread to the knee, wrist, fingers, and feet. One week later, stiffness and constant tingling began in the left hand, which was relieved with movement. The cramp was more frequent at night and was associated with a cold sensation in the tips of the left fingers. At that time, the patient complained of pain in the shoulder joints, with greater intensity on the left side, and stiffness in the neck. She had no history of other comorbidities.

Forty-five days after the onset of symptoms, there was a bilateral decreased tactile sensitivity at the thenar eminence, as well as an inability of both thumb opponency and bending of the last two phalanges of the left index finger (Figure 1).

Routine blood analysis was normal. RT-PCR was negative for Zika virus (ZIKV) and CHIKV in serum and urine, and for dengue viruses (DENV 1–4) in serum. IgM and IgG antibodies against CHIKV were positive in serum by rapid immunochromatographic test (Quick Profile Chikungunya Combo Test; LumiQuick Diagnostics, Inc., USA). IgM/IgG antibodies were negative for DENV and ZIKV.[1]

An ultrasound of the wrists was normal. An ultrasound of the hands revealed increased thickness of the flexor tendons of the third finger of the patient's right hand and fifth finger of the left hand, with fluid in the synovial sheath compatible with tenosynovitis. An ultrasound of the ankles showed bilateral synovitis. Electroneuromyography detected a delay in the sensitive and distal motor response in the left median nerve (wrist), with a delay in the distal sensitive response in the right median nerve (wrist). The patient reported intense relief of the neuropathic and rheumatological symptoms after 1 month of oral prednisone (20 mg/day).

CTS may arise as a result of predisposing clinical conditions such as obesity, rheumatoid arthritis, diabetes mellitus, systemic lupus erythematosus, hypothyroidism, and multiple sclerosis. Musculoskeletal disorders (fractures, luxation, bone spurs, and new bone growth), tumors, and normal aging, leading to wear and tear of the tissues in both the hand and wrist, have also been related to the etiologies of this neuropathy. Furthermore, several socio-occupational factors that require repeated hand and wrist trauma have been associated with CTS. The syndrome occurs

http://dx.doi.org/10.1016/j.ijid.2016.10.019
1201-9712/© 2016 The Author(s). Published by Elsevier Ltd on behalf of International Society for Infectious Diseases. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

predominantly in women between the ages of 40 and 60 years, or in the states of pregnancy, menopause, smoking, and hormone therapy. Chronic infections related to CTS include HIV/AIDS, tuberculosis, and other mycobacterial infections[2].

The present patient did not have any of the above conditions except for multiple tenosynovitis, which was attributed to the CHIKV infection. Hypertrophic tenosynovitis of the anterior wrist has been identified as the most important cause of CTS after virus infection.[1,3] However, the ultrasound of the wrist of the present patient was normal. CHIKV infection is also associated with mononuclear inflammatory infiltrates, not only in synovial tissue, but also in various tissues and organs, such as the nervous system.[1,4,5] Therefore CHIKV infection should be considered in the differential diagnosis of CTS in travelers and inhabitants of endemic areas.

Acknowledgements

We thank Fundação Carlos Chagas de Amparo à Pesquisa do Estado do Rio de Janeiro (FAPERJ) (E-26/201.330/2016) for the support of this study and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), Brazil for the PhD scholarship to C. Rosadas.

Conflict of interest: The authors declare no conflict of interest.

References

1. Weaver SC, Lecuit M. Chikungunya virus infections. *N Engl J Med* 2015;**373**:94–5.
2. Atroshi I, Gummesson C, Johnsson R, Ornstein E, Ranstam J, Rosén I. Prevalence of carpal tunnel syndrome in a general population. *JAMA* 1999;**282**:153–8.
3. Kularatne SA, Weerasinghe SC, Gihan C, Wickramasinghe S, Dharmarathne S, Abeyrathna A, Jayalath T. Epidemiology, clinical manifestations, and long-term outcomes of a major outbreak of chikungunya in a hamlet in Sri Lanka, in 2007: a longitudinal cohort study. *J Trop Med* 2012;**2012**:639178.
4. Parola P, Simon F, Oliver M. Tenosynovitis and vascular disorders associated with chikungunya virus-related rheumatism. *Clin Infect Dis* 2007;**45**:801–2.
5. Das T, Jaffar-Bandjee MC, Hoarau JJ, Krejbich Trotot P, Denizot M, Lee-Pat-Yuen G, et al. Chikungunya fever: CNS infection and pathologies of a re-emerging arbovirus. *Prog Neurobiol* 2010;**91**:121–9.

Marzia Puccioni-Sohler[a,b,*]
Maria Cecília F. Salgado[a]
Isadora Versiani[a]
Carolina Rosadas[b]
Fernando Ferry[a]
Amilcar Tanuri[c]
Orlando da Costa Ferreira Jr[c]

[a]*Hospital Universitário Gaffrèe e Guinle (HUGG), Federal University of the State of Rio de Janeiro (UNIRIO), R. Mariz e Barros, 775, Rio de Janeiro, RJ, CEP 20270-901, Brazil*
[b]*Post-Graduate Program in Infectious and Parasitic Diseases, Medicine Faculty, Federal University of Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil*
[c]*Institute of Biology, Federal University of Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil*

Corresponding Editor: Eskild Petersen, Aarhus, Denmark

[*]Corresponding author. Tel.: +55 21 39382494;
fax: +55 21 39382415.
E-mail address: m_puccioni@yahoo.com.br (M. Puccioni-Sohler).

31 August 2016