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Letter

Association between vitiligo lesions and acute chikungunya infection: is there a causal relationship?

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Dear Editor:

Chikungunya is an arboviral disease caused by the Chikungunya virus (CHIKV). It is commonly characterized by triad of fever, arthralgia / arthritis, and rash. More than 200,000 cases of chikungunya were confirmed in 2016 and 2017 during the Brazilian epidemic[1]. Chikungunya has become a public health problem, mainly because of the ability of CHIKV to cause chronic infection leading to an increase in the morbidity and mortality rates of affected individuals. In addition, CHIKV seems to be responsible for a myriad of atypical manifestations targeting different organs and systems, such as the cardiovascular, ophthalmologic, neurologic, and genitourinary systems, as well as the skin[2-4].

Herein, we report the case of a 53-year-old patient with a previous history of sudden onset of fever, rash, and polyarthralgia in May 2016. The diagnosis could not be made during the acute phase because of the unavailability of ELISA-IgM. Approximately six months later, the patient tested positive for CHIKV infection based on IgG detection by ELISA test results. Serology to other viruses such as Dengue and Zika were negative. Approximately five days after Chikungunya onset, the patient developed hypochromic and achromic lesions throughout the malar region and glabella (**Figure 1A-C**). Physical examination revealed no lesions at the extremities or trauma sites. A cutaneous biopsy revealed vitiligo (**Figure 2**). Currently, the patient is being followed-up and treated solely with topical tacrolimus (0.1%). The patient is in remission, and an improvement in the symptoms caused by achromic lesions has been noted. (**Figure 1D-F**). To the best of our knowledge, this is the first case of vitiligo associated with an acute CHIKV infection.

Although it is not possible to attribute a causal relationship and/or an association between these two entities, the ability of CHIKV to trigger autoimmune diseases and exacerbate previous comorbidities is well described in the literature[3,5]. Though the immunopathological mechanisms through which autoimmune disorders may emerge after a CHIKV infection are not completely understood[5], it is believed that inflammatory biomarkers such as interleukin-6 or particular genes in prone individuals may play a role in triggering autoimmunity.

Currently, the role of CHIKV in causing skin lesions has not been completely elucidated. Vesiculobullous lesions in children with Chikungunya infection have been described in the literature[2]. Other types of skin lesions, such as hyperpigmentation, multiple aphthous ulcers, ecchymosis, subungual hemorrhage, and generalized erythema, may also be present with Chikungunya[4]. The current literature seems to divide the cutaneous involvement in CHIKV infection into six classes: skin rashes, aphthous ulcers, changes in pigmentation, desquamation, exacerbation of the existing dermatoses, and miscellaneous conditions[4].

Manifestations related to Chikungunya appear to involve hyperpigmentation to a greater degree than changes related to hypochromia/achromy. However, Bhat et al.[4], while studying the dermatological effects of chikungunya, reported one patient with hypopigmentation among 75 patients. Exacerbation of

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FIGURE 1: (A-C). Five days after Chikungunya onset. **(D-F)** One year later, after 2 months of 0.1% topical tacrolimus treatment.

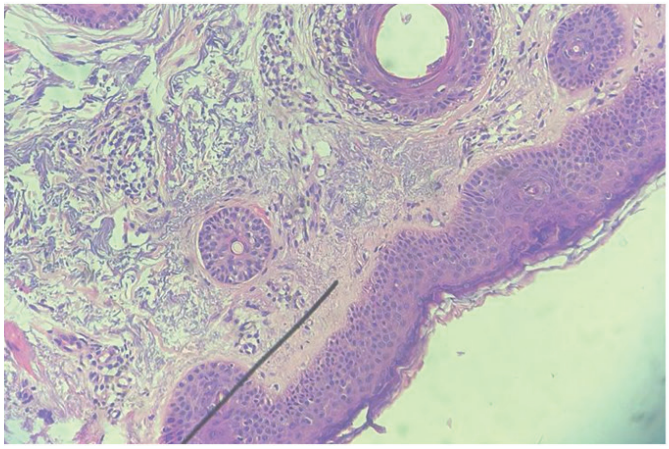

FIGURE 2: Important reduction in the number of melanocytes, which is compatible with vitiligo (10×).

psoriasis was observed in two patients, while the exacerbation of eczema and erythroderma was also observed in another two patients. Vitiligo was not observed in any of the patients.

The current report has some limitations. The diagnosis was based on clinical manifestations, with the classic Chikungunya fever triad, epidemiology, and ELISA IgG serology tests for Chikungunya. ELISA IgM for CHIKV was not available in most of the reference centers in Brazil in early 2016. A case study from Madrid also showcased a patient with the clinical symptoms, ELISA IgG results, and strong epidemiological links typical to Chikungunya[5]. Diagnosis by ELISA IgM for CHIKV during the acute phase would have been interesting to document and useful to exclude other viral infections such as dengue and Zika[6]. Real time-polymerase chain reaction (RT-PCR) is a helpful tool for CHIKV diagnosis and can be useful in regions with a prevalence of similar viruses such as Mayaro virus[7].

Despite these limitations, the case highlights the importance of understanding the association between Chikungunya and the patient's cutaneous manifestations. We hypothesize that the virus may function as a trigger for vitiligo and other autoimmune disorders[8]. However, we cannot confirm if vitiligo is induced by Chikungunya or other infections. More studies are required to understand this association and its implications on public health.

Conflict of Interest

The authors declare that there is no conflict of interest.

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