

TITLE: Oral lesions are frequent in patients with Chikungunya infection

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After 50 years of restriction to areas of Asia and Africa, Chikungunya outbreaks emerged in all continents in the past 20 years becoming part of the CDC list of traveler related infections. As Chikungunya outbreaks increase in frequency, a wide variety of clinical manifestations related to this infection have been reported. This study aimed to characterize the oral lesions related to Chikungunya infection in a multicenter cohort in northeastern Brazil. The study was approved by the Research Ethics Committee of the Faculdade de Medicina da Bahia, Universidade Federal da Bahia (approval number: 1.657.324). Written informed consent was obtained from all participants or legal guardians.

In total, 105 individuals with acute (<10 days of disease onset) mono-CHIKV infection were evaluated by an otolaryngologist and dentist. Chikungunya infection was confirmed by PCR (n=61) and/or specific IgM (n=63). Approximately 59 individuals tested positive for CHIKV by RT-PCR in serum specimens, 14 in saliva and 12 in urine specimens. Oral lesions were detected in 21 out of 105 cases (20%) with acute CHIKV infection. Five of these individuals tested positive for CHIKV in saliva samples. Oral lesions occurred 2-6 days after disease onset. Odynophagia and/or dysphagia were reported by 20 patients. Most cases (n=15, 71.4%) presented isolated painful ulcers with well-circumscribed margins and erythematous halo (Figure 1). Gingival bleeding (n=7, 33.3%) and vesicles (n=3, 14.3%) were also observed, as well as edema (n=1, 4.8%) in marginal vestibular gum in the absence of plaque and dental caries (Figure 1). Lesions mainly affected the following locations: gingiva (43%), lips (52.4%), tongue (43%), and jugal mucosa (28.6%).

During acute infection, presence of an oral lesion was strongly associated with maculopapular rash and retroocular pain (85.7%, p=0.025 and 81%, p=0.036, respectively), suggesting a polysymptomatic profile associated with oral involvement. However, presence of oral lesion in the acute stage of infection was not related to persistent arthralgia in a follow up period of 12 months.

In our study, 20% of the CHIKV-infected individuals presented with oral lesions early after disease onset, comparable to the 2.3% to 54.3% rate previously reported for oral lesions during acute CHIKV infection¹⁻⁴. Due to intense arthralgia and myalgia, patients may not spontaneously report oral complaints. The relative high incidence of painful oral lesions adversely affecting eating and drinking underpins the need for routine intrabuccal exam in patients with acute CHIKV illness⁵. Symptomatic relief medications may help mitigate morbidity during acute CHIKV infection.

Among the oral lesions found in the present series (n=21), 86% were characterized as ulcers and vesicles. Painful oral ulcers in the form of aphthae-like erosions seems to be the most common oral manifestation, observed in 13.6% to 16% of CHIKV infected patients and lasting 3-10 days without any sequelae^{6,7,8}. Detection of oral ulcer in the context of an arbovirus infection, while not a specific sign, may be suggestive of Chikungunya etiology.

Gingivorrhagia associated with gingivitis was previously described in a range of 1.4% to 54.4% of Chikungunya cases^{1,3}, even despite normal platelet counts⁹. Of note, others hemorrhagic manifestations, such as skin and mucosal bleeding, were considered positive predictor of Chikungunya infection among patients with suspected arbovirus infection¹⁰.

We detected CHIKV in saliva of 27% of patients with oral involvement suggesting that lesions may result from direct viral activity. Further studies are needed to confirm this hypothesis. Additional research exploring pathological and immunological features of oral lesion may also provide insights into the pathogenesis of Chikungunya-mediated tissue damage.

In conclusion, the presence of oral ulcers was found to be relatively common during acute CHIKV infection, resulting in pain and dysphagia that potentially increases the morbidity of this arbovirus infection.

AUTHOR STATEMENTS

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AUTHORS' CONTRIBUTION

PMMC, KA, VB, VN, ESN performed clinical evaluation. PMMC, LEPM, CO, LC, LAS AB and RK were responsible for diagnostic tests. PMMC, KA, and VB wrote the manuscript with contributions of LPC, AB and MB. TCS performed statistical analysis MB, AB, VSB and RK supervised the Project. All authors provided critical feedback and helped shape the manuscript.

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FIGURE LEGEND

Figure 1. Clinical aspect and localization of oral lesions in patients with CHIKV infection. A-D) Rounded ulcerated lesions, with circumscribed margins and halo-erythematous, in regions of hard palate (A), at the vestibular mucosa of the marginal gingiva (B and C) and at the tip of the tongue (D). E) Vesicular-bullous lesion on the lower lip. F) Edematous and bleeding regions in vestibular mucosa of gingiva margin of the upper central incisors.

