

## COMMENTARY

# Dengue: Another viral infection with mucocutaneous manifestations

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Dengue, or break-bone fever, is a mosquito-borne viral disease transmitted to humans by infected, with any one of four closely related (called serotypes) dengue viruses (DENV), female mosquitoes, primarily the *Aedes aegypti*, and, to a lesser extent, *Aedes albopictus* or other *Aedes* species. It is commonly endemic in tropical and sub-tropical climates globally, predominantly in urban and semi-urban areas. In 2009, the World Health Organization (WHO) released comprehensive guidelines for diagnosis, treatment, prevention and control of the disease introducing a new classification into non-severe dengue, dengue with warning signs and severe dengue, the latter being associated by major plasma leakage, severe bleeding or organ failure and can be fatal.<sup>1</sup> Interestingly, and unknown to many dermatologists, over 50% of symptomatic patients, regardless of their disease classification, exhibit mucocutaneous manifestations, presenting various dermatological signs and symptoms such as widespread erythematous rashes, pruritus, oedema, mucosal damage and mucocutaneous haemorrhagic symptoms, among others.<sup>2</sup>

Since 2019, the WHO has identified dengue as one of 10 potential threats for severe regional outbreaks, and within that year alone, with 5.2 million cases and six outbreaks reported by WHO, resulting in 106 confirmed deaths related to DENV infections (Jamaica, France La Réunion Island, Pakistan, Republic of Sudan, Spain, and Afghanistan).<sup>3</sup> The work of Fera et al.<sup>4</sup> assessed mucocutaneous manifestations and disease outcomes in 163 PCR-confirmed dengue fever subjects during the France La Réunion Island outbreak between January 1 and April 30. The prevalence of mucocutaneous symptoms was notably

high (80% including dysgeusia due to its direct association with inflammation of the oral mucosa), with dysgeusia being the most frequent (49%), followed by pruritus (34%), mouth involvement (31%) and an erythematous rash (29%). Most symptoms emerged within the first 3–5 days of fever onset, persisting up to 3–4 weeks in some patients. Only ecchymotic purpura and clinical symptoms of mucous membrane dehydration were associated with severe dengue fever disease ( $p = 0.03$ ). Their findings are aligned with what has been reported in other studies, with dengue-related skin and mucous membrane symptoms commonly affecting 47%–84% of patients.

The WHO highlights that many dengue cases are misdiagnosed as other febrile illnesses. Estimates account 3.9 billion people being at risk of Dengue virus (DENV) infections, and a modelling study estimated that 390 million dengue virus infections accrued per year, of which 96 million manifest clinically.<sup>5</sup> This year, WHO reported another large outbreak in Bangladesh, with 69,483 laboratory-confirmed DENV infections and 327 related deaths.<sup>6</sup> For disease advocacy, in tropical and sub-tropical countries, dermatologists should consider the possibility of dengue virus infections. Laboratory confirmation, preferably using molecular PCR-based methods, should be sought along with a comprehensive clinical examination to accurately characterize skin and mucous symptoms and clinical signs. Fera's results, as presented here, could provide valuable insights for such purposes. Additionally, preventive measures, including vaccination for individuals with a history of dengue infection, are available, along with public health intervention strategies to reduce vector-mediated transmissions.

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## CONFLICT OF INTEREST STATEMENT

The author declares no conflicts of interest.

## DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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