



Dengue and Chikungunya Fever: Oral Manifestations

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The vector borne diseases of dengue and chikungunya mainly affect the African and South Asian countries. Its prevalence increases in the summer and monsoon seasons due to an increase in breeding sites and External Incubation Period (EIP) of the virus. Primarily caused by an infectious bite of the *Aedes aegypti* female mosquito, this disease has a variety of systemic signs and symptoms. However, the oral manifestatations might be ignored. This review aims to enlightens the healthcare researchers with knowledge regarding the oral manifestatations of dengue and chikungunya.

KEYWORDS: Dengue, Chikungunya, Oral, Manifestations, Ulcer, Gingival Bleeding.

INTRODUCTION

Having being ignored for many years, the incidence of dengue and chikungunya has increased over the years so much so that the disease has become an international public health concern.¹ This can be seen from the fact that while only 9 countries experienced dengue epidemics before the year 1970, dengue in particular is now an endemic in about 100 countries.² The fact increasing the incidence of disease that dengue and chikungunya is that affected countries face multiple public health problems and hence, are unable to completely focus their attention to one specific disease due to a number of constraints (finances, manpower, resources, etc).

In addition to that, the viral diseases of dengue and chikungunya are affected by various Dengue and chikungunya are driven by complex interactions among host, vector and virus that are influenced by climatic factors. It has been reported that environmental factors like temperature, precipitation and rainfall can affect the External Incubation Period(EIP) of the virus and increase the incidence of vector borne diseases.³

India receives approximately 75% of its total rainfall during June to September(southwest monsoon period). This rainfall provides ample breeding habitats for *Ae. Aegypti* (causative agent for the disease), which leads to high vector densities which are difficult to control.⁴ This review paper provides information about the etiogenesis, systemic factors and oral manifestatations of dengue and chikungunya.

ETIOPATHOGENESIS OF DENGUE AND CHIKUNGUNYA


Dengue: This virus is transmitted in humans by female *Aedes* (*Ae.*) mosquitoes which belongs to the subgenus *Stegomyia*. It has been reported that *Ae. aegypti* has been the most important epidemic vector in the tropical and subtropical regions for this disease. Other species such as *Ae. albopictus*, *Ae. polynesiensis*, member of *Ae. scutellaris* complex along with and *Ae. niveus* have been documented to play a role as secondary vectors for dengue. Studies have reported that *Ae. niveus* is considered only as a sylvatic vector.⁵

Chikungunya: This viral disease of the genus *Alphavirus* is transmitted to humans through infected mosquitoes (Primarily *Aedes aegypti* and *Aedes albopictus*).⁶ This virus was first recognized as a human pathogen during the 1950s in Africa, following which cases have been reported in many countries in the African and Asian continent.⁷

CLINICAL SYMPTOMS OF DENGUE AND CHIKUNGUNYA

Dengue: As per the World Health Organization (WHO) 2011 case definition, dengue is suspected in a person with high fever and two of the following signs/symptoms:

- Headache
- Retro-orbital pain
- Myalgia
- Arthralgia/ bone pain

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- Rash
- Bleeding manifestations: petechiae, epistaxis, gum bleeding, hematemesis, melena, or positive tourniquet test.
- Leukopenia ($WBC \leq 5,000$ cells/mm³)
- Platelet count $\leq 150,000$ cell/mm³
- Hematocrit (Hct) rising 5–10%.⁸

Chikungunya: Symptoms start abruptly with fever (temperature usually 138.9 degree Celsius). The fever typically lasts from a few days up to 2 weeks and its nature can be biphasic. After the onset of fever, a majority of infected persons develop severe along with often debilitating polyarthralgias. The joint pain is usually symmetric in nature and mostly occurs in wrists, elbows, fingers, knees, and ankles with the ability to affect more-proximal joints. Arthritis with joint swelling can also occur. Another symptom is rash, which is variable between patients.¹⁰

ORAL MANIFESTATIONS OF DENGUE AND CHIKUNGUNYA

Dengue: Various authors have documented the following oral manifestations of dengue. The list is exhaustive, but not limited to:

1. Rashes
2. Petechiae
3. Bleeding gums
4. Ulcers
5. Dryness of mouth
6. Lips encrusting¹¹
7. Small vesicles on the soft palate¹²
8. Erythema of lips¹²
9. Hemorrhagic plaques on both buccal mucosa¹³
10. Enlarged and inflamed tonsils¹⁴
11. Xerostomia¹⁴

Chikungunya: The clinical manifestations are as follows:

1. Morbilliform eruption¹⁵
2. Rash¹⁶
3. Mild pruritus¹⁶
4. Aphthous ulceration^{17,18}
5. Depigmented macules on lips
6. Crusted lesions on the lips and angle of mouth
7. Oral mucosal pigmentation
8. Depigmented macules on lips
9. Crusted lesions on the lips and angle of mouth
10. Oral mucosal pigmentation¹⁵
11. Multiple aphthae, erosions and cheilitis¹⁴

12. Pain¹⁴
13. Mucopyrosis
14. Bleeding from the gingiva
15. Difficulty in chewing and swallowing
16. Halitosis
17. Trismus
18. Excessive salivation and distaste
19. Mobile teeth¹⁹

CONCLUSION

In light of the above-mentioned oral manifestations of dengue and chikungunya, it is important that attention be paid to its oral manifestations so that a dentist can address those lesions, or at least provide symptomatic relief for the same. An oral checkup of such patients can also help in providing treatment for the same.

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