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**Dr. Parth Pandya**  
Department of Public Health  
Dentistry, Government Dental  
College and Hospital,  
Ahmedabad, Gujarat, India

**Dr. Shrey Pandya**  
Specialist Oral and Maxillofacial  
Surgeon, Tajmeel Specialized  
Medical Centre, Abu Dhabi,  
UAE

**Dr. Suruchi Sindwani**  
Reader, Department of  
Prosthodontics, Manav Rachna  
Dental College, Faridabad,  
Haryana, India

**Dr. Suman Sharma**  
Head, Department of Pediatric  
Dentistry, Pihu Dental Hospital,  
Noida, Uttar Pradesh, India

**Meghna Bose**  
Intern, Kalinga institute of  
dental sciences, Bhubaneswar,  
Odisha, India

**Dr. Rohit Narendra Rathod**  
Head and Neck Oncosurgeon,  
Department of Head & Neck  
Oncology, Shakus Medicity,  
Gujarat, India

**Corresponding Author:**  
**Dr. Parth Pandya**  
Department of Public Health  
Dentistry, Government Dental  
College and Hospital,  
Ahmedabad, Gujarat, India

## Chikungunya and Its oral manifestation: A comprehensive review

**Dr. Parth Pandya, Dr. Shrey Pandya, Dr. Suruchi Sindwani, Dr. Suman Sharma, Meghna Bose and Dr. Rohit Narendra Rathod**

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### Abstract

Chikungunya is a viral disease caused by the Chikungunya virus (CHIKV), primarily transmitted to humans by infected mosquitoes. While the disease is well-known for its systemic manifestations, including fever, joint pain, and rash, there have been reports of oral manifestations associated with Chikungunya infection. These may include pathos ulcers, gingivitis, and mucosal ulceration, which can significantly impact the oral health and well-being of affected individuals. In this review article, we explore the oral manifestations of Chikungunya and discuss important dental considerations for healthcare providers. Dental professionals should be mindful of potential oral manifestations, pain management, oral hygiene, immunocompromised patients, dental treatment planning, and symptom management when treating patients affected by Chikungunya. By addressing these considerations, dental professionals can provide optimal care for individuals with Chikungunya infection and contribute to their overall health and well-being.

**Keywords:** Chikungunya, chikungunya virus, oral manifestations

### Introduction

The Chikungunya virus (CHIKV) is the cause of Chikungunya fever, a disease that is spread by mosquitoes to people. An epidemic on the Makonde plateau, which is located on the boundary between Tanganyika and Mozambique, led to the first description of this disease in 1955. The Indian subcontinent is no stranger to the chikungunya virus. Since its first isolation in Kolkata in 1963, reports have come from a variety of Indian locations, including Vellore, Chennai, Nagpur, Barsi, and Nagpur<sup>[1]</sup>.

There have been very few instances of chikungunya virus infection in our nation since the last chikungunya fever pandemic. However, reports of chikungunya infections from many Indian states, including Andhra Pradesh, Maharashtra, Karnataka, Tamil Nadu, and Madhya Pradesh, since December 2005 have raised concerns about the virus's potential resurgence<sup>[2]</sup>.

Although Chikungunya is primarily known for its systemic manifestations, there have been reports of oral manifestations associated with the disease. In this review article, we aim to explore the oral manifestations of Chikungunya and discuss the dental considerations for patients affected by the disease.

**Pathogenesis:** Pathogenesis of Chikungunya has been extensively studied, and it is known to involve the binding of the virus to specific cellular receptors, followed by viral replication and dissemination throughout the body. The virus primarily targets cells of the immune system, leading to the release of pro-inflammatory cytokines and immune-mediated tissue damage. This inflammatory response can result in fever, joint pain, and rash, which are hallmark symptoms of Chikungunya infection. In some cases, the Chikungunya virus may also manifest in the oral cavity, leading to a range of oral manifestations. These may include the development of aphthous ulcers, which are painful round or oval sores that can occur on the inside of the lips, cheeks, or under the tongue. Additionally, individuals with Chikungunya infection may experience gingivitis, which is characterized by inflammation and bleeding of the gums.

Mucosal ulceration, or the formation of ulcers on the mucous membranes of the mouth, has also been reported in association with Chikungunya infection [1-3].

**Oral Manifestations of Chikungunya:** Reports have suggested that Chikungunya virus infection can lead to various oral manifestations. These include:

**Aphthous Ulcers:** Aphthous ulcers, also known as canker sores, are shallow, painful sores that can appear on the inside of the mouth, including the tongue, lips, and cheeks. These ulcers are often reported in patients with Chikungunya infection and can cause significant discomfort [4].

**Gingivitis:** Chikungunya virus infection has been associated with the development of gingivitis, which is characterized by gum inflammation, redness, and tenderness. The presence of gingivitis in Chikungunya patients may be attributed to the systemic inflammatory response associated with the disease [5].

**Mucosal Ulceration:** Mucosal ulceration, or the development of ulcers on the oral mucosa, has been reported in some cases of Chikungunya infection. These ulcers can be painful and may interfere with the patient's ability to eat and speak [6,7].

**Dental Considerations for Chikungunya Patients:** Dental professionals should be aware of the potential oral manifestations of Chikungunya and consider the following dental considerations for patients affected by the disease:

**Pain Management:** Patients with Chikungunya virus infection may experience joint pain, muscle pain, and oral ulceration, which can make dental treatment uncomfortable. Dental professionals should consider the use of appropriate pain management strategies to ensure the patient's comfort during dental procedures [7,8].

**Oral Hygiene:** Patients with Chikungunya infection may experience weakness and fatigue, which can impact their ability to maintain proper oral hygiene. Dental professionals should educate patients about the importance of maintaining good oral hygiene practices, particularly during the acute phase of the disease [8].

**Immunocompromised Patients:** Chikungunya infection can lead to a temporary state of immunosuppression, which may increase the patient's susceptibility to oral infections. Dental professionals should take extra precautions when treating immunocompromised patients to prevent the development of oral infections [1].

**Dental Treatment Planning:** Patients with Chikungunya infection may have limitations in their ability to undergo extensive dental procedures due to systemic symptoms such as joint pain and fatigue. Dental professionals should consider the patient's overall health status and tailor treatment plans to accommodate their specific needs [1].

**Symptom Management:** Dental professionals should be mindful of the potential systemic symptoms associated with Chikungunya infection, such as fever, headache, and fatigue. Patients experiencing these symptoms may require

adjustments to their dental treatment schedule or additional support to manage their systemic symptoms [2].

**Role of Dentist:** Risk for disease transmission and should consider taking precautions to minimize their risk of exposure while providing care to individuals with Chikungunya infection. Given the potential for Chikungunya infection to manifest in the oral cavity, dental professionals should be vigilant in recognizing and addressing oral manifestations associated with the virus. By staying informed about the signs and symptoms of Chikungunya-related oral conditions, dental professionals can contribute to early detection and appropriate management of oral health issues in affected individuals. In addition to clinical care, dental professionals can play a role in educating the public about Chikungunya infection and its potential impact on oral health. By raising awareness about the oral manifestations of the virus and providing guidance on preventive measures, dental professionals can help individuals reduce their risk of developing oral complications related to Chikungunya infection [1,9-11].

## Conclusion

In conclusion, Chikungunya virus infection can be associated with various oral manifestations, including aphthous ulcers, gingivitis, and mucosal ulceration. Dental professionals should be aware of these potential oral manifestations and consider the specific dental considerations for patients affected by the disease. By incorporating these considerations into their practice, dental professionals can provide optimal care for patients with Chikungunya infection and contribute to their overall health and well-being.

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