

## Study of Varied Cutaneous Manifestations of Chikungunya Fever at Around Patna District, Bihar

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### Abstract:

**Background:** An arboviral illness called chikungunya fever is spread by infected *Aedes* mosquitos. It is typified by a sudden, intense fever that is accompanied by incapacitating arthralgia. About 50% of these patients experience mucocutaneous symptoms. The purpose of this study is to examine mucocutaneous symptoms in individuals who may have chikungunya in the Patna area of Bihar.

**Methods:** Chikungunya screening was performed on patients with fever and rash who were seen in the dermatology outpatient department. There was a clinical assessment, and any mucocutaneous symptoms were noted. Serological testing verified the diagnosis. The study involved the enrollment of fifty patients in total.

**Results:** Among cutaneous manifestations, generalized erythematous maculopapular rash was the most prevalent. The second most prevalent presentation in males was many ulcers with erythema over the vaginal region. Additional findings were urticarial rash, crusted lesions near the angle of the lips, erythema/edema throughout the hands and feet, and centro facial pigmentation and isolated hyperpigmented macules across the trunk and face. Two patients also had lesions resembling generalized erythema multiforme. In our study, vesiculobullous eruptions—which are often only documented in infants—were discovered in one adult patient. In our investigation, we did not observe the exacerbation of pre-existing skin lesions or lesions resembling Erythema nodosum as reported in the literature.

**Conclusion:** It has been noted that vesiculobullous lesions are a typical cutaneous sign of infantile chikungunya fever. To the best of our knowledge, however, no prior reports of vesiculobullous lesions in adults have been made.

**Keywords:** Chikungunya, Cutaneous manifestations, Vesiculobullous lesions.

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### Introduction

Chikungunya is a virus that is spread by mosquitoes and is caused by the Chikungunya virus, an Arbovirus. Clinically, chikungunya manifests as a self-limiting sickness with severe headache, myalgia, arthralgia, and different mucocutaneous symptoms along with an abrupt start of high-grade fever. [1] The term comes from the Tanzanian Makonde language, which means "that which bends up" in allusion to the twisted position caused by the illness's extreme joint discomfort. [2]

In the United Republic of Tanzania, Makonde saw the first recorded Chikungunya outbreak in 1952. [2,3] The disease has mostly been documented from Africa and other Asian countries on a cyclical basis, with years to decades elapsing between epidemics. [4] Despite evidence of the virus's low-level survival in the community, the typical epidemiologic pattern is sudden breakouts following

protracted periods of quiescence. [5]. Numerous variables, including virus mutation, loss of herd immunity, globalization, and the advent of new vectors like *Aedes albopictus* and *A. aegyptii*, have been implicated in this. [6,7] In Calcutta, India, an outbreak of Chikungunya fever (CF) was first documented in 1963.5. Following 32 years of inactivity, India had a major outbreak in 2005 that is still present in various regions of the nation. [6]

Chikungunya fever affects people of both sexes and all age groups equally. Following a period of 3 to 12 days of incubation, there is often a quick onset of fever and joint pain. In addition, the patient can have rash, nausea, headaches, muscle aches, and exhaustion. Joint pain is frequently quite painful and incapacitating, although it normally goes away in a few days or weeks. However, in certain situations, the arthralgia may last for a few months or

even a few years. On rare occasions, the patient may also experience gastrointestinal issues; in a small number of cases, disorders related to the eyes, brain, and heart have been documented. [8,9] Numerous different types of mucocutaneous manifestations have also been reported to happen in a sizable number of cases.

Xerosis with scaling, desquamation of the palms, hyperpigmentation, Morbilliform eruption, and other cutaneous symptoms has been documented in the literature. Papules excoriated, Penoscrotal and perineal ulcers, Vesiculobullous lesions, Ecchymoses, Lymphedema, Vasculitic lesions, Lichenoid eruptions, Generalized erythema, Transient nasal erythema, Exacerbation of underlying dermatoses, peripheral cyanosis, erythema nodosum, and erythema multiforme-like lesions, among other conditions. Phthous ulcers, crusted lesions on the lips and mouth angles, pigmentation, and nail abnormalities such subungual bleeding have all been linked to cystic fibrosis. [10]

In addition to reporting some unusual findings, we have examined several of the normal mucocutaneous symptoms linked to chikungunya fever.

#### Material and Methods

This prospective study was conducted during the recent CF outbreaks that were observed in and around the Patna region of Bihar. Patients with CF symptoms according to the chikungunya "case definition" who visited the dermatology OPD at ESCI Medical College and Hospital, Bihta, Patna between February 2023 and January 2024 were included in the study. The requirements were an acute disease with a sudden start of fever and accompanying symptoms such as headache, backache, photophobia, joint discomfort, and skin eruptions.

For the trial, 50 participants were enrolled. All patients received symptomatic treatment for joint pain and fever, and recommendations for vector control were made. Treatment for mucocutaneous symptoms was appropriate. Topical emollients for scaling or xerosis, oral antihistamines and calming medicines for itching, topical and/or systemic antibiotics for ulcerative lesions, and hypopigmenting drugs for hypermelanosis were administered.

#### Results

Twenty-six male and twenty-four female patients total were enrolled in the study. These patients' observed cutaneous lesions were noted. (Table 1)

**Table 1: Cutaneous Manifestations In Chikungunya fever**

Manifestation type	Number of patients affected	Percentage
Maculopapular rash	20	40%
Genital area ulcers	15	30%
Centro facial pigmentation and discrete hyperpigmented macules trunk, face	14	28%
Erythema/edema of hands and feet	13	26%
Erythemanodosum	00	0
Targetoid lesions	01	2%
Urticarial rash	01	2%
Flareup of preexisting skin disease	00	0
Lichenoid lesions	01	2%
Hemorrhagic lesions	01	2%
Crusted lesionsnear angle of mouth	01	2%
Erythema multiforme like lesion	01	2%
Vesiculobullous lesions	01	2%

The most frequent cutaneous feature in our subjects (40%) was morbilliform eruptions (Fig. 1).The next most common appearance (30%) was many painful ulcers, particularly over the scrotum and medial thighs in males (Fig. 2).



**Figure 1: Morbilliform eruptions**



**Figure 2: Scrotal ulceration**

Hyperpigmented macular lesions, commonly found on the nose and cheeks, accounted for the third most common observation (28%). (Fig. 3). Edema and erythema of the palms and soles, observed in 26% of patients, came next. Two individuals had widespread hemorrhagic lesions (Fig. 4).



**Figure 3: Pigmentation over nose**



**Figure 4: Generalized hemorrhagic lesions**

One of the patients had crusted lesions around the mouth's angle (Fig. 5). One patient had lesions resembling erythema multiforme.

In our investigation, we did not observe the exacerbation of pre-existing skin lesions or lesions resembling Erythema nodosum as reported in the literature. Vesiculobullous lesions on an adult

male's wrist and forearm were one potentially novel discovery in a case of chikungunya fever (Fig. 6). The patient did not take any medicine and did not have diabetes or hypertension.

Based on gram staining and culture, the fluid was sterile. It began two days after the fever and went away two weeks later.



**Figure 5: Crusted lesions near angle of mouth**



**Figure 6: Vesiculobullous lesions seen on hand of adult patient**

### Discussion

Males were slightly more influenced than females in the current study. Other research also found a similar profile of male gender inclination. [11,12] but a different study found that the effects were similar for both sexes. [13] Following a three to twelve-day incubation period, the disease manifests as a high fever accompanied by severe myalgia, arthralgia, and a rash on the skin. During the course of the fever, other clinical symptoms such as photophobia, headaches, vomiting, and conjunctivitis may appear. About 40–50% of CF sufferers have cutaneous symptoms. [14]

The predominant cutaneous characteristic linked to cystic fibrosis is a widespread erythematous maculopapular rash that primarily affects the face, trunk, and limbs. [15] In our investigation, similar conclusions were drawn. After the fever starts, the rash usually shows three to five days later and goes away in another three to four days. In the majority of our patients, the rash did not cause any symptoms; nevertheless, in 80.8% of cases, it was linked to a slight pruritus. [16] Usually, the lesions start on the upper limbs and then spread to the face and trunk. [13] Intermittent episodes of viremia may result in recurrent lesions growing. [14]

Other observations in CF include ulcers in the intertriginous areas. In our study, the second most prevalent manifestation was many painful ulcers, particularly over the medial region of the thighs

and scrotum in males. After the fever, these ulcers began to form three to four days later, and they improved in one to two weeks. Typically, the ulcers are deep, with punched-out borders and undermined edges that display healthy granulation tissue in the floor along with surrounding erythema. The ulcers range in diameter from 0.5 to 1 cm and have a round, oval, or asymmetrical shape. There have been reports of several aphthous-like ulcers on the tongue, palate, axillae, and other oral mucosa regions. [16] However, our research did not turn up any of these. In contrast to this, oral aphthae were seen to be commoner than the genital ulcers in other studies by Bandyopadhyay and Ghosh, Riyaz et al. [11,13]

Discrete hyperpigmented macules over the trunk and central face pigmentation were very frequently observed in our patients. As shown in earlier investigations, the cheeks and nose were the most common places. [18,19] The lesions were noticed a few days after the fever and arthralgia started, and most patients had improvement in 3–4 weeks, but in some, the lesions lingered for up to 3 months. In some research by Seetharam et al. and Inamadhar et al., [12,20] the pigmentary alterations were thought to be the most prevalent cutaneous lesions; however, this was not the case in our investigation. Chikungunya fever has been linked to a variety of hyperpigmentation patterns, including diffuse, irregular, and flagellate patterns over the trunk and limbs; freckle-like and central facial patterns; tiny

confetti-like macules; and melasma-like patches over the face. The pigmentation associated with cystic fibrosis may have a post-inflammatory mechanism. [15] Our study's findings that exposed areas have a tendency toward pigmentation can be linked to this UV exposure. The idea that an enhanced intraepidermal retention or dispersion of melanin is caused by a virus has been proposed by Inamadar et al. [12]

Another observation we made of our patients was the presence of erythema and edema, primarily over the acral distribution, which persisted for three to four weeks.

Vasculitic and erythematous nodosum-like lesions can also be observed in CF patients. [18] These weren't observed in our research. deterioration of pre-existing dermatological conditions, such as revealing lepra responses, aggravating melasma and lichen planus lesions, or resurfacing of pre-existing psoriasis lesions, etc. [12,19]

However, our investigation did not find these properties. In addition to the cutaneous signs already stated, our investigation also found hemorrhagic lesions, targetoid lesions, lichenoid eruptions, and crusted lesions on the lips and angle of the mouth.

Infants with flaccid vesiculobullous lesions have been reported in the past. [15] To the best of our knowledge, however, no reports of such lesions in adults have been found thus far. This appears to be a potentially novel cutaneous observation made on one of the research subjects. An adult male had vesiculobullous lesions on his wrist and forearm. They showed up two days after the fever and got better two weeks later. The patient did not take any medicine and did not have diabetes or hypertension. Based on gram staining and culture, the fluid was sterile.

### Conclusion

Numerous cutaneous manifestations have been documented in the literature in the past, however it appears that with each new epidemic, more diverse and fresh manifestations are reported. To the best of our knowledge, this study is the first to report on an uncommon finding in CF patients, namely vesiculobullous lesions in the adult age range.

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