

## Original Research Article

# Myriad cutaneous presentation of chikungunya fever during recent epidemic in Gujarat: a case study of 124 cases

Neela Bhuptani, Priyanka Sondarva\*, Dipti Patel, Tejashwani

Department of DVL, P.D.U. Govt. Medical College, Rajkot, Gujarat, India

**Received:** 10 February 2018

**Revised:** 21 March 2018

**Accepted:** 22 March 2018

**\*Correspondence:**

Dr. Priyanka Sondarva,

E-mail: [sondarvapiya26@gmail.com](mailto:sondarvapiya26@gmail.com)

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

### ABSTRACT

**Background:** Chikungunya fever (CKG) epidemic had been recently re-emerged in Gujarat affecting large population. It is an acute viral infection caused by Togavirus, transmitted by *Aedes* mosquitos, can present with abrupt onset of fever, severe arthralgia, constitutional symptoms and cutaneous manifestations. We have reviewed cutaneous manifestations of CKG during recent epidemic (July-October 2017). The object of the study was to determine incidence of various cutaneous manifestations of Chikungunya fever.

**Methods:** A total of 124 patients (56 males and 68 females) with cutaneous manifestations of CKG were enrolled in the study and serological confirmation was done.

**Results:** Cutaneous manifestations were found more in females. Generalized erythematous maculo-papular rash was the most common finding (62.9%). Vesiculo-bullous eruption (7.25%) and toxic epidermal necrolysis-like lesions sparing mucosa (4.03%) were the other interesting findings. Different types of pigmentation were observed with striking nasal pigmentation in 7.25% patients. Aphthous like ulcers in intertriginous area were seen in 8.87%. There was flare up of existing conditions like Still's disease and psoriasis.

**Conclusions:** A wide variety of cutaneous manifestations of CKG with an unusual presentation was encountered with confirmed serological evidence.

**Keywords:** Chikungunya, Cutaneous manifestations, Toxic epidermalnecrolysis like peeling, Maculo-papular rash

### INTRODUCTION

Chikungunya literally means "that which bends up" in the Makonde language of Tanzania, due to severe incapacitating arthritis associated with the disease. Chikungunya fever (CF) is caused by *Chikungunya* virus (CHIK V) (Family- *Togaviridae*, Genus- *Alphavirus*) which is transmitted by the bite of infected *Aedes aegypti* and *Aedes albopictus* mosquitoes.<sup>1</sup> The first epidemic in the world occurred in Tanzania in 1952-53.<sup>2</sup> In India, the first outbreak occurred in Kolkata in 1963.<sup>3</sup> Since then, it periodically re-emerged in India in the states of Andhra

Pradesh, Karnataka, Maharashtra, Madhya Pradesh, Tamil Nadu, Rajasthan, Kerala and Gujarat.

Incubation period of chikungunya is 2-4 days, with range of 1-12 days.<sup>1</sup> It presents with abrupt onset of fever as high as 39- 40C with chills. The temperature may remit and recur after a gap of 4-10 days, resulting in "biphasic or saddle back" fever. Constitutional features like headache, retrobulbar pain, sore throat and malaise can be there. The arthralgia is polyarticular, migratory and predominantly affects small joints of hands, wrists, ankle and feet with lesser involvement of large joints. Patients with mild arthralgia become symptom free within few

weeks but more severe cases may develop chronic rheumatoid form. Hematologic manifestations consist of leukopenia, thrombocytopenia and lymphocytosis or lymphopenia.

Cutaneous manifestations may range from maculopopular rash, pigmentary changes, palmo-planter desquamation, vesiculobullous lesions, aphthous like ulcers in intertriginous areas, vasculitis lesions, ecchymosis/purpura, pruritus, erythema multiforme like lesions to exacerbation of pre-existing dermatoses. We conducted this study to determine incidence of various cutaneous manifestations of chikungunya fever during recent epidemic.

## METHODS

We included 124 patients who presented to our outpatient department, department of DVL, P.D.U. Govt. Medical College and Hospital, Rajkot, voluntarily due to their skin problems or referred patients from other department during recent epidemic from July- October 2017. Patients

presented with abrupt onset of fever, arthralgia or other constitutional symptoms and cutaneous manifestations were included. A detailed history with a special emphasis on the nature of fever, joint pain and appearance of the skin lesion was taken. Clinical examination was performed and the findings were recorded. Drug reactions and other viral exanthema were ruled out by careful history, clinical examination and investigations. Serology (ELISA test) for chikungunya was done in all the cases. Laboratory investigations like complete blood counts, renal function test, S. Electrolytes, liver function test and urinalysis were done as and when required.

## RESULTS

A total 124 cases of chikungunya with cutaneous manifestations were enrolled. Females 68 (54.83%) outnumbered males 56 (45.16%). Maximum number of cases 41 (33.06%) were in 21- 30 years of age group followed by 27 (21.77%) in 31-40 years of age group (Table 1). Youngest patient was of 4 months and oldest was of 70 years.

**Table 1: Age wise distribution.**

Age- group (in years)	Total	Male	Female
0-10	9	4	5
11-20	12	7	5
21-30	41	14	27
31-40	27	10	17
41-50	19	10	9
51-60	9	7	2
61-70	7	4	3
<b>Total</b>	<b>124</b>	<b>56</b>	<b>68</b>

**Table 2: Cutaneous manifestations.**

Cutaneous manifestations	Total (%)	Male	Female
Morbilliform rash	78 (62.90)	30	48
Hyperpigmentation due to chikungunya	11 (8.87)	5	6
Aphthous like ulceration in groin/axilla	11 (8.87)	10	1
Vesicular and purpuric eruption	9 (7.25)	5	4
Toxic epidermal necrolysis like peeling	5 (4.03)	2	3
Generalised pruritus	4 (3.22)	1	3
Palmar/planter desquamation	2 (1.61)	0	2
Urticaria	1 (0.8)	1	0
Palmar erythema	1 (0.8)	0	1
Aggravation of pre-existing condition	2 (1.61)	2	0
<b>Total</b>	<b>124</b>	<b>56</b>	<b>68</b>

Cutaneous manifestations are shown in Table 2. The most common cutaneous presentation was morbilliform rash (Figure 1) observed in 78 (62.9%) cases which predominated in females (61.53%). All the patients had morbilliform eruption during acute illness and subsided without sequale. Pigmentary changes were seen in 11 cases (8.87%) of which 9 patients had characteristic nasal hyperpigmentation (Figure 2). Aphthous like ulcers were

seen in groin/ axilla in 11 patients (8.87%), 90.9% of them were males and 1 female patient had similar presentation (Figure 3) which is not reported in other studies.<sup>1</sup> Vesicular and purpuric eruption was found in 9 (7.25%) cases of which 2 were infants. Toxic epidermal necrolysis like peeling without mucosal involvement was observed in 5 (4.03%) adult patients (Figure 4). These findings are not reported in adults. Other manifestations

noted were generalised pruritus in 4 (3.22%), palmar/plantar desquamation in 2 (1.61%), urticaria in 1 (0.8%) and palmar erythema in 1 (0.8%) cases. Exacerbations of existing dermatoses were documented. One patient of chronic plaque psoriasis presented with erythroderma. Other one of Still's disease had aggravation of arthritis and maculo-papular rash after chikungunya fever.



**Figure 1: Maculo-papular rash.**



**Figure 2: Nasal hyperpigmentation.**



**Figure 3: Aphthe like ulcers.**



**Figure 4: Toxic epidermal necrolysis like peeling.**

## DISCUSSION

Chikungunya is a re-emerging viral infection clinically characterized by an acute febrile illness with incapacitating polyarthralgia, headache, vomiting, sore throat, conjunctivitis and varied cutaneous manifestations. The disease is usually self-limiting, sometimes can be fatal. Supportive care and rest is sufficient in most of the cases.

Chikungunya can affect all age group as seen in our study with youngest patient of 4 months of age to oldest of 70 years of age. Females were outnumbered males (M: F- 1: 1.21) similar to study carried out by Riyaz et al while both sexes were equally affected in study carried out by Bandopadhyay et al.<sup>4,5</sup>

The most common cutaneous manifestation described in chikungunya is erythematous maculo-papular rash affecting the trunk, limbs and face. Erythematous macules were the most common presentation in our study observed in 62.9% which developed abruptly during acute illness after 2- 3 days of fever involving mainly trunk and limbs with islands of normal skin. In most of the cases, skin lesions subsided without any sequelae but some cases it lead to palmo-planter desquamation. Pruritus can be associated. Similar observations were made by studies done by Riyaz et al and Bhat et al.<sup>4,6</sup>

Different types of pigmentation have been reported in chikungunya. It was the most common presentation in study done by Inamdar et al and the second most common in our study.<sup>7</sup> Nasal hyperpigmentation was characteristically seen in 7.25%. This is specific for chikungunya fever, usually not observed in other viral exanthems. Retrospective diagnosis of chikungunya can also be made by observation of nasal hyperpigmentation. Other patterns of pigmentation were melasma-like over the face and generalised pigmentation. Pigmentary changes could be post inflammatory or due to increase adrenocortical activity secondary to infection.<sup>7</sup> An increased melanin disruption triggered by virus has also been postulated.

Multiple aphthae-like lesions affecting intertriginous areas, axillae and scrotum were seen in 8.87%. These aphthae like ulcers were not reported in women in other studies.<sup>1</sup> In our study we reported similar presentation in one female patient. These ulcers are usually multiple, tender, punched out and can be associated with inguinal lymphadenopathy. We reported inguinal lymphadenopathy in two patients.

Vesicular eruption can occur probably by viral replication in the epidermis causing focal necrosis, ballooning degeneration or nuclear disruption. These vesiculobullous eruptions are mostly seen in infants according to other studies.<sup>8,9</sup> In our study, we reported vesiculobullous eruption in 7 adults and 2 infants.

Flaccid bullae with superficial peeling resembling TEN (Figure 4) with striking mucosal sparing was observed in 5 adult patients. Confluent pattern was observed in 2 patients and rest had spotty pattern. There was no history of drug intake prior to such lesions. Riyaz et al noted TEN like peeling in infants but no study has reported similar findings in adult patients.<sup>4</sup>

Other manifestations reported were generalised pruritus observed in 4 (3.22%) cases and urticaria in 1 (0.8%) case. Isolated palmer/planter desquamation was seen in 2 (1.61%) cases, which was mild and had occurred after subsidence of acute illness. Palmar erythema was noted in 1 (0.8%) case.

Exacerbation of existing dermatoses has been well documented in chikungunya fever.<sup>4,7,10</sup> One psoriatic patient who was in remission developed erythroderma after chikungunya fever, while another patient of Still's disease had aggravation of symptoms like arthritis and maculo-papular rash following chikungunya fever in our study.

## CONCLUSION

Wide variety of cutaneous manifestations can occur in chikungunya fever, so it should be suspected in patients presented with fever, arthralgia and various cutaneous changes. Usually it runs a benign course but can have significant morbidity due to persistent arthritis or can be proven fatal due to acute renal failure. Vesicular eruption and TEN like peeling can contribute to significant morbidity. Morbilliform rash is the most common manifestation of chikungunya we encountered in our study. Nasal hyperpigmentation can be considered as specific clinical marker of chikungunya which can even help to diagnose chikungunya retrospectively. Vesicular eruption and TEN like peeling can occur in adult patients, which was unreported entity. Female patients too can have aphthae like ulcers in intertriginous areas.

As there is no specific treatment available against chikungunya virus, vector control measures like elimination of breeding places and use of insect repellents, mosquito nets, full sleeved clothes may help in minimizing the transmission and reduce disease burden in the community.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the institutional ethics committee*

## REFERENCES

1. Seetharam KA. viral infections. In: S. Sacchidanand, Chetan Oberoi, Inamadar A. editors. IADVL Textbook of Dermatology. 4th ed. Mumbai; Bhalani Publishing House; 2015;17:607-12.
2. World Health Organisation Fact sheet. Available at <http://www.who.int/mediacentre/factsheets/fs327/en/index/html>. Accessed on 6 March 2018.
3. Shah KV, Gibbs CJ Jr, Banerjee G. Virological investigation of epidemic of hemorrhagic fever in Calcutta. Isolation of three strains of Chikungunya virus. *Ind J Med Res.* 1964;52:676-83.
4. Riyaz N, Riyaz A, Rahima, Abdul Latheef EN, Anitha PM, Aravindan KP, et al. Cutaneous manifestations of chikungunya during a recent epidemic in Calicut, north Kerala, south India. *Indian J Dermatol Venereol Leprol* 2010;76:671-6.
5. Bandyopadhyay D, Ghosh SK. Mucocutaneous features of Chikungunya fever: A study from an outbreak in West Bengal India. *Int J Dermatol.* 2008;47:1148-52.
6. Bhat RM, Rai Y, Ramesh A, Nandakishore B, Sukumar D, Martis J, et al. Mucocutaneous manifestations of chikungunya fever: A study from an epidemic in coastal Karnataka. *Indian J Dermatol.* 2011;56:290-4.
7. Inamdar AC, Palit A, Sampagavi NV, Raghunath S, Deshmukh NS. Cutaneous manifestations of Chikungunya fever. Observations made during a recent outbreak in South India. *Int J Dermatol.* 2008;47:154-9.
8. Seetharam KA, Shridevi K, Vidyasagar P. Cutaneous manifestations of Chikungunya fever. *Ind Paediatr.* 2012;49:51-3.
9. Sebastian MR, Lodha R, Kabra SK. Chikungunya infection in children. *Indian J Pediatr.* 2009;169:67-72.
10. Seetharam KA, Shridevi K. Chikungunya infection, a new trigger for psoriasis. *J Dermatol.* 2011;38:1033-4.

**Cite this article as:** Bhuptani N, Sondarva P, Patel D, Tejashwani. Myriad cutaneous presentation of chikungunya fever during recent epidemic in Gujarat: a case study of 124 cases. *Int J Res Dermatol* 2018;4:215-8.