Journal of Pakistan Association of Dermatologists. 2020; **30(1)**: 58-63.

Original Article

Mucocutaneous manifestations of chikungunya fever

Syeda Summaya Jamal, Muhammad Irfan Anwar, Naveed Akhtar Malik, Naseema Kapadia

Department of Dermatology, Sindh Government Hospital New Karachi, Pakistan.

Abstract

Objective To study the mucocutaneous manifestations of chikungunya fever (CHK) during acute and convalescent phase.

Methods We enrolled a total of 103 patients in this descriptive study from May 2017 to Oct 2017. Pateints were enrolled by purposive sampling technique. Data analysis was done by SPSS 16.

Results Cutaneous hyperpigmentation was found to be the most frequent (64.7%) change observed in both acute and convalescent phase. The predominant area of involvement was face (71%) and most common pattern was melasma like pigmentation (54.5%). Morbilliform rash was next common presentation (61.76%). Rash started cephalocaudally and later spread to chest and trunk.

Conclusion Morbilliform rash was the most common cutaneous presentation in acute CHK and hyperpigmentation was the most common sequela in convalescent phase.

Key words
Chikangunya fever, hyperpigmentation, morbilliform rash.

Introduction

Chikungunya infection is caused by Chikangunya virus (family togaviridae, genus alpha virus) transmitted by bite of infected mosquito Aedes Aegypti and Aedes albopicus.[1,2] The word Chikangunya means "THAT WHICH BENDS UP" in mankode (Bantu) language, spoken in South east Tanzania named probably because of severe, incapacitating arthritis making a hunched posture in patients of chikangunya fever.[1,5]

There was an outbreak of Chikangunya Fever in Karachi, Pakistan from Jan 2017 to Dec 2017. Its peak was noticed during the months of May-Oct 2017. Cutaneous manifestations are usually most common symptoms in a viral illness during acute or convalescent phase of illness. Recognition of these skin rashes often help in the early diagnosis of a disease during an epidemic. There are no serious morbidities linked with skin eruptions in a viral illness. The post inflammatory rashes like hyperpigmented spots can bring substantial volume of anxiety and distress in sufferers. We strived to describe the mucocutaneous manifestations of CHK illness during acute and convalescent phases in this recent epidemic.

Address for correspondence
Dr. Syeda Summaya Jamal
Department of Dermatology,
Sindh Government Hospital New Karachi,
Pakistan.
Email: pacebird@hotmail.com

Methods

A descriptive study was conducted in department of dermatology, Sind government hospital, New Karachi, Pakistan. The duration of study was 06 months from May 2017 to Oct 2017. Patients diagnosed as having Chikangunya fever according to National institute of Health criteria (Acute Fever with joint pains, myalgia, headache, nausea, vomiting and rash) were

Figure 1a

Figure 1b

Figure 1a & 1b Maculopapular rash in acute chikungunya fever

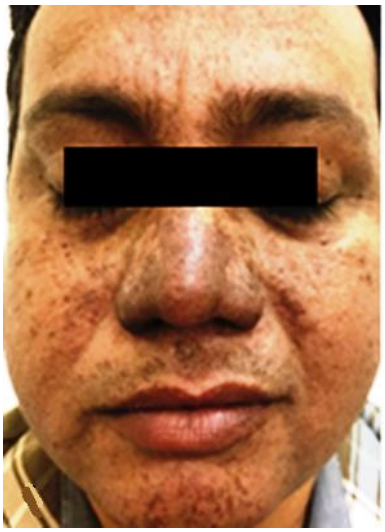

Figure 2a

Figure 2b

Figure 2a &2b Post inflammatory hyperpigmentation over face and neck

included in study. Exclusion criteria entailed other fevers like malaria, dengue, typhoid excluded by serology and relevant investigations. A total of 103 patients with mucocutaneous disease were studied from May 2017 to Dec 2017. A detailed history and thorough physical examination was done to record findings in each individual case and to exclude other viral rashes with importance given to skin lesions with relevance to CHK fever. In our study we categorized the manifestations broadly into cutaneous and mucosal. They were further categorized into rashes, photosensitivity, pigmentary disorders, edema hands and feet, palmoplantar peeling and pruritus, exacerbation of preexisting dermatosis and development of new cutaneous disease. Among mucosal manifestations, oral, nasal and intertriginous ulcers, were presenting complaints.

Results

A total of 103 cases with cutaneous lesions were included in our study. Out of 103/6 were

Table

No		*Cutaneous Manifestation*	*No of patients*	*Average Duration*
1.		Pigmentary disorders	66 (64.7%)	
	a	Melasma like	36 (54.54%)	3 weeks
		Nasal	15 (22.72%)	
		Centrofacial	02 (3.03%)	
		Periocular	01 (1.51%)	
		Malar	10 (15.15%)	
		Diffuse	08 (12.12%)	
	b	Other Patterns of Hyperpigmentation (widespread)		2-6 months
		Macular	2 (0.030%)	
		Irregular/flagellate	7 (0.106%)	
		Postinflammatory hyperpigmentation	3 (0.045%)	
		Addisonian like palmar pigmentation	3 (0.045%)	
2		Morbilliform eruption	63 (61.76%)	2-4 weeks
3		Pruritus	56 (54.90%)	1-4 months
4		Generalized (excoriated papules)	45 (44.11%)	
5		Photosensitivity	36 (35.29%)	1-2 weeks
6		Desquamation palms and soles	22 (21.56%)	Variable
7		Generalized icthyosis	17 (16.66%)	Variable
8		Flare up of pre existing dermatosis	21 (20.58%)	Variable
	a	Psoriasis	6 (5.88%)	
	b	Lichen planus (Severe and New)	3 (2.94%)	
	c	Eczema	8 (7.84%)	Variable
	d	Erythroderma	3 (2.94%)	
		tinea	1 (0.98%)	
		Eczema/ Acquired ichthyosis	2 (1.96%)	
9		Edema Hands and feet	10 (9.8%)	Recurrent
10		Urticarial lesions /Angioedema	2 (1.96%)	2-5 days
11		Vasculitis	1 (0.98%)	9 days
12		Axillary pustules and ulcers	1 (0.98%)	2 weeks

children of age 6-10 years while rest were adults with age 12-70 years. Patients presented with either a single dermatological complaint or multiple. Youngest one was 6 years old and eldest was 70 years. Only 8 patients were males and all others were females. The age group predominantly affected was 21-30 years.

Most common cutaneous complaint was hyperpigmentation. Face was commonly affected along with other sun exposed areas. Common pattern was melasma like pigmentation and nasal type was commonest and specific,other types were irregular and flagellate. These postinflammatory patterns appeared within few days of onset of fever. Most of patients got cleared within few months with no treatment but few cases persisted indefinitely.

Second commonest lesion was morbilliform rash seen during acute phase of the disease, starting 1-3 days of onset of fever. In almost all patients, rash started cephalocaudal, starting from face and neck and progressively involving limbs and spreading to chest and trunk. Only 2 cases showed rash starting from hands (palms) and then spreading to face, neck and trunk **(Figure 1 a & b)**.

Rash was pruritic and photosensitivity was reported in almost all cases. Moreover rash was healed in 5-7 days leaving hyperpigmentation in most of the cases. Photosensitivity was intense especially during acute phase. Third common complaint was pruritus and was seen in 56 (54.9%) patients. Itchy excoriated papules were seen in 45 (44.11%) patients. Edema hands and feet occurred especially during acute phase of the disease, however it was recurrent. 10 patients (9.8%) came with edema hands and feet which were noticeably swollen. Rest of the patients gave history of edema hands and feet during course of the illness but clinical examination at the time they came did not show any change. Flare of dermatological diseases, psoriasis, lichen planus and tinea were interesting findings. One patient complained of blurring in vision after the illness and the other had significant reduction in hearing. Other cutaneous findings are described below in table.

Discussion

First epidemic of Chikangunya viral fever was reported in Tanzania in 1952.[7]Since then; numerous epidemics of CF have been reported. More outbreaks are reported post monsoon season because of high vector density, however poor vector control is the major factor contributing towards the illness. The recent outbreak in Pakistan compelled us to study varied mucocutaneous presentation during and after the illness. Many patients presented with immediate skin changes while many after the recovery presented with delayed cutaneous features. Among Immediate mucocutaneous manifestations, morbilliform rash was one of the major manifestations. Edema hands and feet, palmoplantar desquamation and exacerbation of preexisting dermatosis are other common presentations. Oral ulcers were also noticed in many patients that lead to feeding difficulty .Many patients presented with chelitis and coated tongue along with altered sensation of taste. Morbilliform Rash is described as the commonest manifestation in previous literature[1,2,8] but in our study, it was second most common manifestation after pigmentary changes. Rash is usually seen during acute phase of the disease, usually morbilliform, urticarial, and at times hemorrhagic in morphology. However, hemorrhagic rashes are less commonly seen as compared to dengue fever.

Pigmentary changes were seen in both acute and chronic phase of the disease. Pigmentary presentation were melasma like, addisonian type and palmoplantar hyperpigmentation .Among several of the delayed cutaneous features, complaints were pruritus, tanning and pigmentary disorders including post inflammatory hyperpigmentation and melasma. Although pigmentation subsided in many but was found to be persistent in few of them. Nasal type melasma was commonest in our study. No other illness has been described with this particular nasal type of melasma. Therefore, it can be postulated as specific to chikangunya fever. Melasma like patterns most commonly involved centrofacial area. It was macular to diffuse, brown to black patchy pigmentation. Inamadar et al described rash starting from trunk then spreading centrifugally.[6] Prashant et al described predominant involvement of trunk and limbs but few cases showed additional involvement of face, palms and soles.[8]

In our study six patients developed psoriais with variable patterns during the course of disease. Three patients developed guttate psoriasis (2.94%) with no previous evidence of disease and no evidence of sore throat. Two patients (1.96%) developed typical plaque psoriasis, two patients (1.96%) presented atypically with flexural distribution and they both were belonging to pediatric age group. Lichen planus has been described in literature with HCV, EBV,

CMV, VZV, HHV, HPV, HIV infections. Among them HCV was the frequent cause.[11]In our study, three cases developed lichen planus. Both were acute and severe. One was of erosive pattern involving oral mucosa and the other was generalized. Pruritus was also one of major complaint, even many patients were treated for scabies several times by their GPs but problem did not subside, that pointed towards association with the disease. Literature mentioned hearing loss in chikungunya fever (sensorineural type).[13] In our study, one patient complained of hearing loss after chikangunya infection. Three patients came to our OPD with herpes zoster, which they developed soon after infection. Surprisingly all three developed herpes zoster ophthalmicus as compared to most common thoracic type herpes zoster.

Limitations

Due to financial constraints, serological confirmation of diagnosis was not done in patients. However, they all fulfilled the clinical criteria for diagnosis of Chikungunya Infection.

Conclusion

Cutaneous hyperpigmentation is the most common cutaneous manifestation of chikungunya fever after the resolution of acute viral illness of which melasma like hyperpigmentation was found to be common and specific. During acute fever, morbilliform rash is the most common cutaneous finding. Females were predominantly affected in this epidemic. This may point towards a sex predilection, although no such predisposition has been found in literature earlier.

References

1. Ramesh M Bhat, Yashaswi Rai, Amitha Ramesh, B Nandakishore, D Sukumar, Jacintha Martis, and Ganesh H Kamath. Mucocutaneous manifestations of chikungunya fever: a study from an epidemic in coastal karnataka. Indian J Dermatol 2011; 56(3): 290-94.
2. Ramesh Kumar, Manoj K. Sharma, Suresh K. Jain, Sumit K. Yadav, and Anil K. Singhal. Cutaneous Manifestations of Chikungunya Fever: Observations from an Outbreak at a Tertiary Care Hospital in Southeast Rajasthan. India. Indian Dermatol Online J 2017; 8(5): 336–42.
3. Ravindranth B. Chavan, AartiS. Sakunke, Vasudha A. Belgaumkar, Neelima M. Bansal, Sweta S. Tharewal. Varied cutaneous manifestation of chikungunya fever: acase series. Int J Res Dermatol 2017; 3(2): 289-92.
4. Debabrata B and Sudip KG. Mucocutaneous manifestations of chikungunya fever. Indian J Dermatol 2010; 55(1): 64–67.
5. Jacquelene G, Christopher D, Stephen T. Mucocutaneous manifestations of Chikangunya fever. J Am Acad Dermatol 2015; 72(5): AB140.
6. Inamadar AC, Palit A, Sampagavi VV, Raghunath S, Deshmukh NS. Cutaneous manifestations of chikangunya fever: Observation made during a recent outbreak in South India. Int J Dermatol 2008; 47: 154- 9.
7. Leao JC, Marques C, Duarte A, de Almeida OP, Porter S, Gueiros LA. Chikangunya fever: General and oral healthcare implications. Oral Dis 2018; 24(1-2): 233-37.
8. Soma P, AS Kumar. Cutaneous manifestations in patients suspected of chikangunya fever. Indian J Dermatol 2009; 54(2): 128-131.
9. A Mohan, DHN Kiran, I Chiranjeevi M, D Prabath Kumar. Epidemiology, clinical manifestations and diagnosis of chikangunya fever: lessons learned from the re-emerging epidemic. Indian J Dermatol 2010; 55(1): 54–63.
10. SeetharamKA ,Sridevi K, Vidyasagar P. Cutaneous Manifestations of Chikungunya Fever. Indian Pediatr 2012; 49(1): 51-3.
11. Nima M , Farzaneh Agha H , Kamran BL. Hepatitis C virus and Lichen planus: The real association. Hepat Mon. 2010 Summer; 10(3): 161–64.
12. Kandhari R, Khunger N, Singh A, Flagellate pigmentation and exacerbation of melasma following chikangunya fever: A less

frequently reported finding. Indian J Dermatol Venerol Leprol 2012; 78(6): 744.
13. Bhavana K, Tyagi I, Kapila RK. Chikangunya virus induced sudden sensorineural hearing loss. Int J Pediatr Otorhinolaryngol 2008; 72(2): 257-9.