Isolated Nail Pigmentation Associated with Chikungunya: A Hitherto Unreported Manifestation

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Established Facts

- A host of mucocutaneous manifestations are known to occur in approximately 30–50% of patients with chikungunya infection. Skin pigmentation is one of the most commonly encountered lesions.
- Coexisting nail involvement has been reported by few authors in the form of black lunula, melanonychia, onychomadesis, and subungual hemorrhage.

Novel Insights

- Isolated nail pigmentation/melanonychia without skin lesions has not been reported previously with chikungunya.

Keywords

Nail disorder · Pigmentation · Chikungunya · Melanonychia

Abstract

Chikungunya (CHK) fever is a re-emerging RNA viral infection caused by the bite of infected *Aedes* mosquitoes which presents with a multitude of mucocutaneous manifestations, including a characteristic morbilliform rash, centropalpebral pigmentation, aphthae-like lesions, and vesiculobullous lesions sparing mucosae. The majority of these lesions resolve spontaneously and do not require specific therapy. With regular and cyclical outbreaks in many countries for many decades, it is obligatory for dermatologists to be aware of the different skin lesions in the wake of early diagnosis and the need for conservative management. We report 2 cases from India developing isolated melanonychia with CHK fever.

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Introduction

Chikungunya virus (CHKV) is a re-emerging viral infection prevalent in Asia, Africa, and the Indian subcontinent. It is caused by a RNA virus that belongs to the *alphavirus* genus of the family *Togaviridae*. The disease is transmitted to humans by the bite of infected *Aedes* mosquitoes; 2 species, namely *Aedes aegypti* and *Aedes albopictus*, are the responsible vectors in Asia [1]. India has been witnessing periodic outbreaks of CHKV infection in different geographic regions since 2005 after a quiescent period of almost 3 decades. CHKV infection is characterized by sudden onset of high-grade fever, disabling muscle and joint pain, and skin rash. Diagnosis is often clinical and can be confirmed by serological tests, such as enzyme-linked immunosorbent assay that shows the presence of IgM and IgG anti-CHK antibodies. The diag-

Fig. 1. Greyish brown pigmentation of the fingernails in patient 1.

Fig. 2. Greyish black diffuse pigmentation in patient 2.

nosis can be established early in the acute phase of infection, within the first week, by reverse-transcription polymerase chain reaction.

Mucocutaneous manifestations have been reported to be significant and predominant findings in CHKV infection seen in about 35–50% of the patients [2–5]. There has been a number of studies from India detailing the nature of various mucocutaneous manifestations in CHKV infection [2–5]. Few skin lesions, like centropalmar or nose pigmentation, are very characteristic and specific and, thus, help in distinguishing the infection from its close differential of dengue fever as well as in the retrospective diagnosis of CHKV infection. All lesions resolve spontaneously, except pigmentary changes that may take months to resolve. We report 2 serologically confirmed cases of

CHKV presenting with isolated diffuse nail pigmentation in the absence of any mucocutaneous involvement.

Case Reports

A 48-year-old man presented with asymptomatic diffuse pigmentation of all finger nails of approximately 2 weeks' duration. Examination revealed an otherwise healthy, well-built man with a greyish brown discoloration involving all fingernails. The pigmentation was accentuated along the longitudinal ridges that had been present in all nails for the past 3–4 years (Fig. 1). The skin overlying the distal digit of all fingers and the interphalangeal joints were also pigmented. The toenails showed diffuse pigmentation too, but it was less perceptible. The patient had a history of sudden-onset high-grade fever with severe joint and muscle pain that was diagnosed as CHKV 2 weeks before the onset of nail pigmentation.

A week later, a 56-year-old female patient was referred from the medicine department for sudden onset of greyish black diffuse pigmentation of all fingernails appearing within 2 weeks of the subsidence of CHKV infection. The pigmentation was more marked over the proximal half of the nail plates (Fig. 2).

There was no evidence of facial pigmentation or any other mucocutaneous involvement in either of the 2 patients. Both denied drug intake within the past 3 months except for acetaminophen for the CHK for about 3–4 weeks. Serology for IgM antibodies to CHKV infection was positive in both. Hematological and biochemical investigations, including serum vitamin B₁₂ levels, were undertaken and were found to be normal in both patients. The course of CHKV infection was not debilitating with almost complete recovery within 2 weeks with minimal morbidity in the form of residual mild joint pain. The patients were counselled about the benign nature of nail pigmentation and the possibility of spontaneous recovery akin to that observed with the pigmented skin lesions associated with CHKV infection. Follow-up of both patients at 1 month did not reveal any change in the nail pigmentation.

Discussion

Protean mucocutaneous manifestations have been reported with CHKV infection. The commonest cutaneous manifestation is a maculopapular rash starting from the face and neck and subsequently becoming generalized [2]. It appears in 3–5 days and fades or resolves with desquamation in about 1 week. Other reported lesions include leg ulcers, purpuric lesions, targetoid lesions, confluent hemorrhagic vesiculobullous lesions, and peeling of skin resembling toxic epidermal necrolysis [2–4]. In addition, desquamation of the palms and soles, lichenoid lesions, and photosensitivity have also been described [2]. Mucosal lesions that resolve spontaneously after 7–10 days have been reported in 15–18% of the patients [4]. Characteristic pigmentation of the nose termed “chik sign” has been observed in most series appearing within 7–10 days of disease onset. The pigmentation tends to

persist for 3–6 months and gradually resolves spontaneously [2, 4, 5]. The etiopathogenesis of pigmentation remains speculative. Hematoxylin and eosin-stained sections of pigmentary lesions have revealed diffuse hypermelanosis of the entire epidermis, intact basal layer with absent pigmentary incontinence, and mild perivascular infiltrate suggesting increased intra-epidermal melanin dispersion triggered by the virus [2]. Nail involvement is rare and has been described in a single case series [4]. Black lunula, subungual hemorrhage, and onychomadesis have been reported to coexist with other skin lesions [4]. The onset of diffuse melanonychia immediately following febrile illnesses of CHK in both patients and the established association of CHKV infection with pigmentary mucocutaneous changes suggest that the observed pigmentary nail changes can be attributed to CHKV infection. A similar pathogenetic mechanism as suggested for skin pigmentation may be extrapolated to melanonychia.

To the best of our knowledge, isolated nail pigmentation/melanonychia associated with CHK has not been described so far. Awareness of the possibility of this benign presentation shall obviate the employment of invasive diagnostic tests and aggressive treatment.

Statement of Ethics

Written informed consent has been obtained from both patients.

Disclosure Statement

The authors hereby declare to have no conflicts of interest regarding this paper.

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