Dermoscopy of Hand, Foot, and Mouth Disease

Dear Editor,

Hand, foot, and mouth disease (HFMD) is a viral infection caused by single-stranded RNA viruses of the enterovirus species, Coxsackievirus A16 and Enterovirus 71, and affects children younger than five years of age. Coxsackievirus A6 has increasingly been reported as a causative organism around the world since 2008 and is responsible for atypical manifestations such as extensive lesions involving proximal limbs, trunk, and perioral region. A surge in the number of cases has been recorded in India recently, with the disease affecting older children, adolescents, and adults.[1] Several atypical manifestations have been reported, including widespread symmetrical exanthem resembling viral illnesses such as varicella, disseminated herpes, and Gianotti-Crosti disease. Dermoscopy can be a valuable tool and give subtle clues to corroborate the diagnosis of HFMD. We describe the dermoscopic features of fifteen PCR-confirmed cases of HFMD.

Clinical records of 15 patients with a confirmed diagnosis of HFMD were reviewed. The mean age of patients was 4.98 ± 4.58 years (8 months–17 years), with a male-to-female ratio of 8:7. The mean duration of mucocutaneous lesions at the time of presentation was 3 ± 1.36 days (1–6 days). Low-grade fever was associated in nine patients (60%) and malaise in seven patients (46.6%). Importantly, symmetrical involvement of palms and soles was seen in all patients, a finding that points towards a diagnosis of HFMD in appropriate clinical settings. An associated enanthem was present in 12 patients (75%). Other cutaneous sites involved were knees (n = 5), elbows (n = 4), dorsa of hands and feet (n = 6), buttocks (n = 5), face (n = 2), and scalp (n = 1). Three patients gave a history of a prior HFMD episode in the preceding three months. Atypical clinical features were noted in several cases and included eczema coxsackium [Figure 1a], targetoid lesions resembling erythema multiforme [Figure 1b], clear-fluid-filled grayish vesicles [Figure 1c], and extensive involvement of hard and soft palate [Figure 1d].

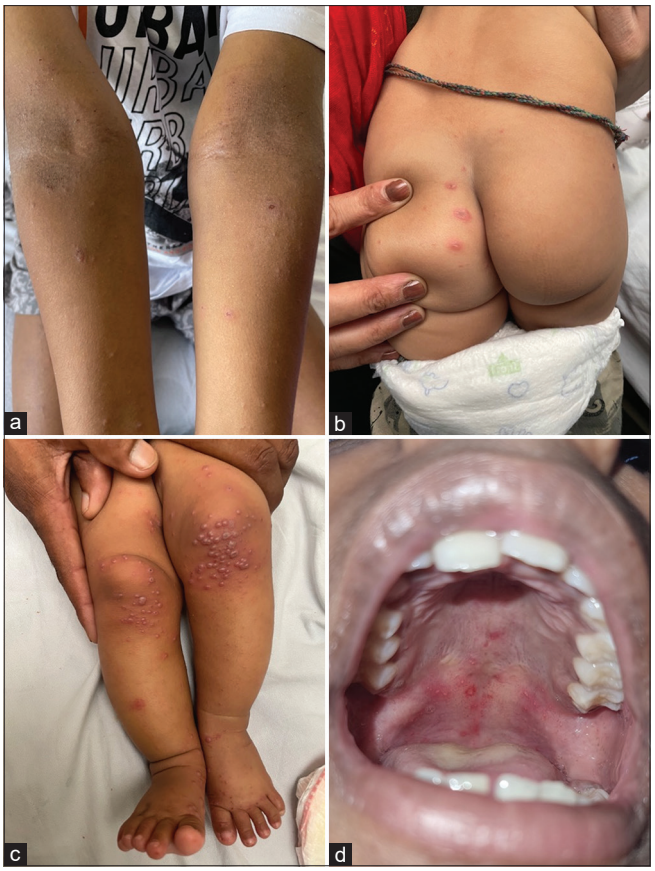

Figure 1: Atypical clinical features including (a) eczema coxsackium; (b) targetoid lesions resembling erythema multiforme; (c) clear-fluid filled grayish vesicles; (d) involvement of hard and soft palate

Dermoscopy findings were available for lesions at various stages of evolution. Dermoscopic evaluation of evolving early macular lesions showed ill-defined orange-red erythema, extending longitudinally along the dermatoglyphics on palms [Figure 2a]. Fully developed lesions revealed elongated pale-yellow structureless areas surrounded by a prominent erythematous halo. Interestingly, the pale-yellow structureless areas were also extending longitudinally along the dermatoglyphics over palms and soles [Figure 2b and c]. A prominence of eccrine openings in the form of white dots and retained dermatoglyphics in the form of thin white lines was also noted in established blisters [Figure 2d]. Dermoscopy of established lesions on body sites other than palms and soles revealed circular grey-white areas surrounded by a broad rim of erythema. Additionally, pinkish-red dots and globules were visible which were coalescing to form a honeycomb pattern on the periphery of established blisters [Figure 2e]. Some older lesions also showed dusky-grey to reddish-brown globules in the center suggestive of necrosis [Figure 2e]. Scalp involvement was observed in a 17-year-old female patient, and a dermoscopy of the lesion revealed circumscribed, folliculocentric pale-yellow structureless areas with surrounding red dots and globules arranged neatly on the periphery [Figure 2f]. Resolving lesions showed predominant reddish brown structureless areas arranged longitudinally along the dermatoglyphics on palms [Figure 2g] with some showing central brown dots/globules [Figure 2h]. Coxsackievirus A16 was detected from skin swabs in all cases and from throat swabs in 13 cases (86.67%). Patients were managed symptomatically with antipyretics and antihistamines.

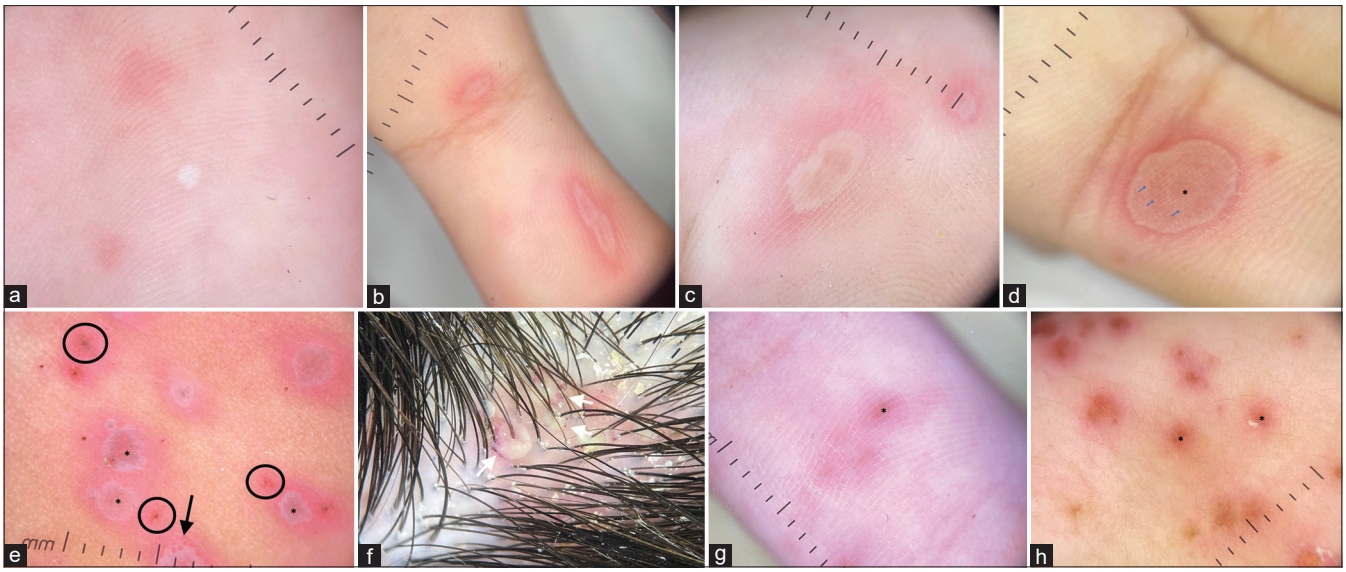

Figure 2: Dermoscopy of cutaneous lesions depicting (a) evolving early macular lesions showing ill-defined orange-red erythema, extending longitudinally along the dermatoglyphics on palms; (b and c) fully *developed lesions* revealing oblong pale-yellow structureless areas extending longitudinally along the dermatoglyphics and surrounded by a prominent erythematous halo; (d) an established lesion showing prominent eccrine openings manifesting as white dots (blue arrows), retained dermatoglyphics manifesting as thin white lines and a greyish center (asterisk); (e) a fully *developed* lesion on buttock revealing circular grey-white areas (asterisks) surrounded by a broad rim of erythema. Additionally, pinkish-red dots and globules are visible which are coalescing to form a honeycomb pattern on the periphery of the blister (arrow). Some of the lesions show central dusky-grey to red-brown dots/globules in the center (circle). (f) Scalp lesion demonstrating circumscribed, folliculocentric pale-yellow structureless areas with pinkish-red dots arranged linearly on the periphery of the main lesion (white arrows). (g) Resolving lesions showed predominant reddish brown structureless areas (asterisks) arranged longitudinally along the dermatoglyphics on palms. (h) An older lesion with reddish brown amorphous areas with brownish dots/globules (asterisks) in the center (DermLite IV, hybrid M, 10x, polarized)

Classical HFMD is an acute febrile viral illness characterized by vesicular exanthem involving hands, feet, and oral mucosa.[2] Co-localization with atopic dermatitis has been well-documented in the literature, termed eczema coxsackium. Erythema multiforme-like presentation has been described in both adult and pediatric patients with atypical HFMD.[3]

Histopathological analysis of HFMD shows vesicles present in the upper stratum spinosum and stratum granulosum, with sparing of stratum corneum.[4] This explains the sparing of dermatoglyphics observed in the present series. This pattern is however not unique to HFMD; and similar observations have been made in dermoscopy of herpetic whitlow, another viral infection characterized by intraepidermal blistering.[5] Grey-white areas and honeycombing may be explained by spongiosis and intraepidermal neutrophilic collections. Halo/rim of erythema, peripheral red dots/globules, and dusky-grey to reddish-brown areas in the center of the established lesions could be explained by reactive vasodilation, extravasated erythrocytes, and epidermal necrosis respectively.[6]

The lack of histopathological examination seems to be a limitation of this study. However, skin biopsy did not seem justified in this benign and self-limiting infection where we were able to establish the diagnosis via PCR. Additionally, we were able to correlate the dermoscopic features with previously described histopathologic features of HFMD. To conclude, we report several atypical clinical manifestations of HFMD and dermoscopic features thereof during an outbreak in India in 2022. Dermoscopy, importantly that of palms and soles, may aid in establishing the diagnosis in atypical cases, especially in suggestive epidemiological settings.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Acknowledgment

Informed consent was given by the parents/guardians for publication of the images and clinical details after reading the manuscript.

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Nil.

Conflicts of Interest

There are no conflicts of interest.

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