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Concomitant Onychomadesis and Skin Rash in a 3-Year-Old Child Affected by Hand, Foot, and Mouth Disease

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## Concomitant onychomadesis and skin rash in a 3-year-old child affected by hand, foot, and mouth disease

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## Full Text

Sir,

Hand-foot-mouth disease (HFMD) is a seasonal infectious disease commonly caused by Coxsackie A virus and Enterovirus 71 that predominately affect children. The infection has a self-limited course with the resolution of skin rash occurring within a week, together with the regression of symptoms and fever.[1] Onychomadesis of multiple fingernails and toenails may represent a delayed cutaneous finding that occurs up to 4 months after the regression of symptoms, and is caused by a temporary arrest of nail matrix mitotic activity.[1],[2]

We herein report the case of a 3-year-old Caucasian boy referred to our Pediatric Dermatology Outpatient Service for a vesicular eruption spread to the perioral cavity and the extensor surface of the upper and lower extremities. A week before the patient had low-grade fever and sore throat with associated intraoral blisters and erosions. The patient did not present any relevant cutaneous or systemic diseases in the past history, nor did he have family members with atopic diathesis.

Examination of the first right fingernail revealed the signs of acute paronychia with lack of cuticle, and swelling of the proximal and lateral nail folds. Lateral onychomadesis and horizontal ridging of the nail plate were observed, whereas the underlying bed exhibited the signs of inflammation with congested capillaries [Figure 1].{Figure 1}

A diagnosis of HFMD was confirmed by Coxsackievirus A6 (CVA6) DNA identification in the blistering cutaneous lesions through PCR analysis. Complete resolution was achieved within 2 months after proximal shedding of the affected nail.

Atypical wide-ranging cutaneous features of HFMD have been recently reported in association with CVA6 infection, including the acrofacial distribution known as Giannotti-Crosti-like eruption, which was observed in our patient.[1] In this case, the single-digit paronychia resulted from the viral colonization of the periungueal skin, favored by occasional thumb sucking, which is very common at this age.[3] This habit, even if moderate in strength, is able to damage the nail apparatus: repeated mechanical injuries caused by finger sucking has been reported to cause multiple Beau's line on the nail plate over time, resulting from a temporary decrease in the ventral matrix mitotic activity.[2] In the case reported, non-inflammatory abnormalities including the Beau's line were present on the nail plate before the HFMD onset. When HFMD occurred, several harmful factors have acted in synergy on the nail matrix. Turning to details, the onychomadesis resulted from two different combined injuries: the ongoing mechanical trauma exerted on the ventral matrix by the thumb sucking, and the superimposed CVA6 damage to the distal matrix, facilitated by viral spreading from nearby cutaneous lesions. The reason why the proximal-lateral onychomadesis and skin manifestations have occurred on the same time is the high nail growth rate, which is typical during childhood.[3] The greater the nail rate of growth, the earlier the onychomadesis.

There is only one report in literature of proximal onycholysis occurring shortly after the resolution of cutaneous rash in HFMD, but simultaneous alterations in both skin and nails have not yet been described. [4]

This finding provides new evidence regarding the postulated 4–10 weeks time-gap necessary for onychomadesis to occur as a self-limiting late manifestation of HFMD.[2] In our case, the 7-day duration of the cutaneous rash was long enough to show the loss of continuity of the nail plate from the injured matrix.

Moreover, the direct involvement of the nail matrix by viral colonization from periungueal skin could be postulated as no delayed onychomadesis was detected in the remaining fingernails during the 6-month follow-up. This supported the hypothesis made by Shikuma et al., who reported the onset of delayed onychomadesis only on the nails with preceding cutaneous lesions.[5]

We also rule out that the reported nail abnormalities could be the direct consequence of thumb sucking because no inflammatory changes were detected prior to the viral eruptions.

In conclusion, this is the first report of concomitant nail plate changes in combination with HFMD related rash, whose exact pathogenesis is still to be defined.

#### 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.

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#### Conflicts of interest

There are no conflicts of interest.

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