

Onychomadesis- A Late Manifestation of Hand, Foot and Mouth Disease: A Case Series

MG RAVANAGOMAGAN¹, M SENTHIL KUMAR², AP KRITHIKA³

ABSTRACT

Hand Foot Mouth Disease (HFMD) is one of the most common viral illness that is characterised by fever below 38.3°C, painful oral lesions on the tongue and buccal mucosa and macular, maculopapular or vesicular skin lesions on the soles and palms. Many viruses are implicated in HFMD, such as Coxsackievirus A5, A6, A7, A9, A10, A16 (most common), B1, B2, B3, B5, Echoviruses E3, E4, E9 and Enterovirus 71. The illness is usually mild and self-limiting. HFMD due to enterovirus 71, is associated with a severe illness complicated by aseptic meningitis, acute flaccid paralysis, pulmonary oedema and heart failure. Onychomadesis is a very rare complication of HFMD, typically occurring third to eight week of onset of illness. This is characterised by the detachment of the nail plate from the proximal nail fold by a full thickness sulcus. It is postulated that viral infection causes inflammation around the nail matrix either due to direct effect or due to the deposition of immune complexes secondary to distal thromboembolism. Here, authors report six children of different age groups, who were affected with onychomadesis during an outbreak of HFMD in the month of February to May 2022 in Chennai, Tamil Nadu, India. All these six children developed onychomadesis following HFMD, after a couple of weeks. Both upper and lower limb nails were involved. Other causes of onychomadesis like chronic illness, nutritional deficiencies, drug ingestion, periungual dermatitis, trauma were ruled out. Children were given supportive care and were followed-up. The changes in nails spontaneously regressed after a couple of weeks.

Keywords: Beau's line, Coxsackievirus, Enterovirus, Nail plate, Rash

INTRODUCTION

The HFMD is one of the most common, highly contagious viral illness that affects mainly children younger than five years of age. Common manifestation of this viral illness includes fever below 38.3°C, painful oral enanthems on the tongue and buccal mucosa and macular, maculopapular or vesicular non pruritic, non tender skin lesions, predominantly seen on the soles and palms. This illness is usually self-limiting in majority of children, while complications like meningitis, encephalitis, acute flaccid paralysis have been reported in a very few children [1]. Outbreaks of HFMD is usually caused by Coxsackievirus A16 and Enterovirus 71 [1]. Onychomadesis is a very rare complication of HFMD. It usually occurs after third to eight weeks of onset of illness. This is characterised by spontaneous separation of the nail plate from the proximal nail fold by a full thickness sulcus. The nail changes occurs in a wide variety of systemic illnesses, drug therapy, nutritional disorders and viral infections [2,3].

Here, authors report six children in different age groups, who were affected with onychomadesis during an outbreak of HFMD in the month of February to May 2022 in Chennai, Tamil Nadu, India.

CASE SERIES

Case 1

A 3-year-old boy presented with complaints of lines across toenails (Beau's lines) that were present for past one week [Table/Fig-1]. There was no history of trauma, drug ingestion, chronic illness or periungual dermatitis. On examination, he was a well nourished child with changes consistent with onychomadesis in toe nails. The patient suffered from HFMD four weeks back for which the child was symptomatically treated with antipyretics for fever and calamine lotion for rash of HFMD. The patient was reassured for nail changes and was kept under follow-up. The nail changes recovered completely after two weeks [Table/Fig-2].



[Table/Fig-1]: Showing beau's lines in toe nail.

[Table/Fig-2]: Spontaneous resolution after a few weeks. (Images from left to right)

Case 2

A 4-year-old girl presented with sudden changes in nails involving thumb and ring finger of right hand [Table/Fig-3]. It was not painful. Dermatologist opinion was obtained who gave a provisional diagnosis of onychomadesis. She was investigated for causes of onychomadesis like drugs, trauma, periungual dermatitis and viral infection. She had a past history of HFMD about one month back. This was confirmed by a private practitioner, for which she had symptomatic treatment with antipyretics and calamine lotion and recovered completely. So, the present onychomadesis was attributed to the past viral infection and was followed-up. The index child's nail changes spontaneously recovered completely after three weeks [Table/Fig-4].

Case 3

A 1-year-old infant was brought for vaccination. He was a well nourished child with no complaints. On routine examination, he was



[Table/Fig-3]: Onychomadesis involving thumb and ring finger.
[Table/Fig-4]: Self-resolved after few weeks. (Images from left to right)

found to have Beau's line in the left second great toe [Table/Fig-5]. With history he was found to have suffered from HFMD about six weeks back, for which he was treated symptomatically. Other causes of Beau's line-like trauma, drug intake, chronic infection and dermatitis were ruled out. The baby's nail changes recovered completely after one month [Table/Fig-6].



[Table/Fig-5]: Beau's lines in great toe.
[Table/Fig-6]: Spontaneous resolution after a few weeks. (Image from left to right)

Case 4

A 10-year-old girl, who presented with fever for two days and pustular lesions involving palms, soles and buttock. She also had ulcers in the throat and hard palate. Due to the epidemic she was provisionally diagnosed to be suffering from HFMD and was given symptomatic treatment. She recovered completely in a week's time. After about 20 days she had extensive nail changes involving left hand [Table/Fig-7]. She was a well nourished child who showed nail changes consistent with onychomadesis. Causes of onychomadesis like trauma, periungual dermatitis, chronic infection and drug intake were not present.

The present nail changes were considered to be a late complication of HFMD. She was treated symptomatically by prescribing multivitamins and was kept under follow-up. Her nail changes recovered completely after two weeks [Table/Fig-8].



[Table/Fig-7]: Onychomadesis of finger nails.
[Table/Fig-8]: Healed after a few weeks. (Images from left to right)

Case 5

A 7-year-old boy, came with the complain of changes in great toe nail for past one week. It was not painful. There was no history

of trauma, periungual dermatitis or chronic drug intake. He was found to have suffered from HFMD like illness before one month. He was not treated by any doctors for the same. He was taken care at home. On examination, he was found to have onychomadesis involving the great toe and the second toe nail [Table/Fig-9]. This onychomadesis was attributed to HFMD that he suffered one month back. He was followed-up and his nails became normal in a month's time [Table/Fig-10].



[Table/Fig-9]: Onychomadesis of toe nails.
[Table/Fig-10]: Nails changes healed. (Images left to right)

Case 6

A 8-year-old girl presented to the Paediatric Outpatient Department (OPD) with the chief complaint of cough and cold for past two days. She had no other significant complaints. On examination, she was found to have viral upper respiratory infection. Nails in left hand showed features of onychomadesis [Table/Fig-11]. With thorough history, she was found to have suffered from HFMD one month back. This was treated symptomatically. So, this onychomadesis was due to the viral HFMD as no other causes of onychomadesis like trauma, dermatitis and drug intake was found. She was followed-up meticulously and nail changes regressed spontaneously after about one month [Table/Fig-12].



[Table/Fig-11]: Onychomadesis of 2nd finger nail.
[Table/Fig-12]: Spontaneous resolution after few weeks. (Images from left to right)

DISCUSSION

Onychomadesis occurs in severe systemic illnesses, deficiencies of nutrition like zinc, trauma, dermatitis of nail, use of chemotherapeutic agents, viral fever like herpes simplex, ingestion of drugs [4]. These are implicated in causing inflammation in the periungual matrix, affecting the quality of the nails that are formed [5]. The mechanism of onychomadesis after HFMD is not fully understood. However, viral infection is responsible for onychomadesis, as a temporal latency exists between HFMD and onychomadesis [5]. In reality, onychomadesis cases that occurs after HFMD are not widely reported because they regress spontaneously.

Bettoli V et al., postulated that the viral infection causes inflammation around the nail matrix either due to direct effect or due to the deposition of immune complexes secondary to distal thromboembolism [6]. Cabrerizo M et al., inferred that replication of viruses directly damage the nail matrix, because Coxsackievirus 6 was isolated from the nails that were shed [7]. Kim EJ et al., reported four cases of onychomadesis that occurred after a couple of weeks of HFMD. All children recovered without any specific treatment [8]. Gan XL and Zhang TD reported a 7-year-old boy, who developed onychomadesis involving multiple finger and toe nails after HFMD caused by enterovirus 71 [9]. Alghamdi A et al.,

reported a 7-year-old male child who developed onychomadesis after 35 days of HFMD. He recovered spontaneously [10].

The present case series was presented during an outbreak that occurred in Chennai, Tamil Nadu, India because this is the first of its kind reported from India.

CONCLUSION(S)

Onychomadesis which occurs due to causes like severe systemic illnesses, drug use etc, is often seen after episode of common self-limiting viral illness like HFMD. Although the sight of onychomadesis involving finger and toe nails, can be a cause of concern to parents, it requires no more than masterly inactivity and counselling, and spontaneous resolution occurs within a couple of weeks. All the six cases presented here resolved spontaneously within one month.

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PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of Paediatrics, Sree Balaji Medical College and Hospital, Chennai, Tamil Nadu, India.
2. Associate Professor, Department of Paediatrics, Government Tiruppur Medical College and Hospital, Thiruppur, Tamil Nadu, India.
3. Associate Professor, Department of Paediatrics, Sree Balaji Medical College and Hospital, Chennai, Tamil Nadu, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. AP Krithika,
No. 3a, Rangasamy Street Hasthinapuram, Tamil Nadu, India.
E-mail: dr_krithika80@yahoo.co.in

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