

Onychomadesis and *Staphylococcus aureus* Infection of the Nail after Hand-Food-Mouth Disease

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ABSTRACT: Hand-foot-mouth disease is a viral disease that occurs mostly in children, but sometimes affects adults as well. It is most often caused by Coxsackie virus A16 or Enterovirus 71. Other strains of these viruses can also be an etiological factor for the development of the disease. It usually starts with an increase in body temperature and fatigue. Subsequently, papulo-vesicular rashes appear on the oral mucosa, palms and soles. Over time, some of them form small erosions or ulcers. Although rare, few weeks after an infection has passed, nail changes can be seen. Some are associated with falling off the nail plate, others with onychomadesis or the development of a bacterial and/or fungal infection. In this report, we present a clinical case of a 22-year-old woman who in the month of September 2022 had hand-foot-mouth disease and two months later developed nail changes associated with a change in the integrity and color of the nail plate.

KEY WORDS: Hand-food mouth disease, coxsackievirus A16, enterovirus 71, onychomadesis, *S. aureus*.

INTRODUCTION

Foot-and-mouth disease is a disease most commonly caused by a virus of the Picornaviridae family - Coxsackie A16 and second most frequently by Enterovirus 71 (1, 2). Other strains can also cause the disease (1, 2). Hand-foot-mouth disease is highly contagious and occurs through contact with an infected patient or through the fecal-oral route. Virus particles are found in nasopharyngeal secretions or saliva (3). It mainly affects children up to 10 years of age, most often up to 5 years of age, assuming that the reason for this is the children's frequent pawing of their hands. Adults get sick less often (4, 5, 6). As complications of the virus, the loss of nail plates, onychomadesis, infections with fungal or bacterial microorganisms have been described. Onychomadesis is a delamination of the nail plate at its proximal end, which can lead to its loss. Beau's lines indicate the interruption in the growth of the nail plate due to the disease (7). As the nail plate grows, Beau's lines shift distally and nail renewal occurs. We found several articles on nail involvement after hand-foot-mouth disease that presented clinical cases mostly in children.

Case presentation

A clinical case of a 22-year-old young woman without accompanying diseases with nail changes, which she found 3-4 days before the dermatological examination, is presented. In September 2022, the patient's temperature rose to 38.8 ° C, she felt weak, and a runny nose appeared. After the temperature dropped, red spots started to appear, initially on the hands, and later on the throat, oral cavity and legs, accompanied by mild pain and burning. In a short time, the entire palms were covered with similar changes, and some of them began to form vesicles filled with a transparent liquid. After a few more days, shallow sores appeared in the described areas, which wept slightly. The skin on her hands began to swell and redden even more. She visited a dermatologist, who prescribed an antibiotic cream with gentamicin and an antihistamine. Antibacterial mouthwash and indomethacin oral gel were administered orally by dentist. For the five-day therapy, the condition of the skin improved significantly. Two months later, the patient found that her nails began to split at their proximal end, and some of them turned a yellow-greenish color. Objectively, onychomadesis was found at different levels in the nails of the 2nd and 3rd fingers of the right hand, accompanied by greenish-yellow coloring. On few nails were observed miliary white macules. The skin and visible mucous membranes were completely intact. From the tests performed - mycological testing for *Candida spp.* and mycelia were negative, microbiological testing found *S. aureus*. Antibiogram of the isolate showed sensitivity to amoxicillin/clavulanic acid, clindamycin, ceftriaxone, mupirocin, fusidic acid. Amoxicillin/clavulanic acid therapy 2 g/day for 7 days was started, topical treatment continued with fusidic acid cream until a healthy nail grew



Fig. 1. Onychomadesis and *S. aureus* infection after HFMD in 22-year old woman.

DISCUSSION

Hand-foot-mouth disease is a viral disease that occurs mostly in childhood, but recently cases have also been reported in adult patients. If Coxsackie A16 and Enterovirus 71 are more often isolated in children, Coxsackievirus B1-B6 is found in adults (8, 9, 10). The infection occurs due to the close contact of parents with children (11). The diagnosis is made on the basis of clinical symptoms or by laboratory identification of the virus. Differential diagnosis of mouth-hand-foot in adults is made with chickenpox, drug-induced reactions, palmo-plantar pustulosis, secondary syphilis.

The presented patient suffered from hand-foot-mouth disease at the end of summer and two months later developed nail changes - Beau's lines, onychomadesis, changed nail color. The patient denies that she had intense desquamation after the complaints resolved. Literature review shows conflicting data regarding the correlation between clinical course and nail involvement (12, 13). It is believed that pathophysiologically, nail lesions are due to viral replication in the nail bed, inflammation of the nail matrix, interruption in the nutrition of the nail plate.

Regarding nail changes, in terms of differential diagnosis, diseases such as psoriasis, pemphigus vulgaris, Kawasaki disease, trauma or the use of valproates, carbamazepines, retinoids, tetracyclines should be considered (14, 15, 16). Changes to the nail plates are not permanent, but require time until the damaged nail is completely renewed.

CONCLUSIONS

An increased frequency of cases of foot-and-mouth disease has been found among elderly patients in recent years (17), and the rich palette of skin-nail symptoms of this disease should always be considered when making a differential diagnosis of conditions associated with nail changes.

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