

# Hand-Foot-and-Mouth Disease: An Epidemiological and Clinical Study About 60 Cases

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## Abstract

### Introduction

Hand-foot-and-mouth disease (HFMD) is a viral disease generally affecting children under the age of 7. It is mainly caused by Enterovirus A or Coxsackie virus. Diagnosis is clinical, based on the occurrence of low-grade fever with a maculopapular or papulovesicular rash on the hands and soles, and painful oral ulcerations. We report a case series of 60 patients with HFMD.

### Methods

This is a retrospective case series, spanning a period of 6 years, from the year 2018 to March 2023, of foot-hand-mouth syndrome in children, identified during the pediatric dermatology consultation.

### Results

A total of 60 children with HFMD were identified. The mean age was 21.7 months. Male predominance was noted, with a sex ratio (M/F) of 1.75. Four patients had atopic dermatitis, sixteen patients had a precessive infectious episode of the upper respiratory tract. Twenty-seven patients had fever. Clinical examination revealed a localized papulovesicular rash on the hands, feet and buttocks, as well as localized erosive and scabby lesions in the perioral region in 34 patients. Lesions were generalized in 26 patients. One patient had purpuric lesions and another had recurrent PMBS. Nail involvement such as onychomadesis and Beau's line was found in 11 patients. Treatment was symptomatic, with antipyretics and emollient creams.

### Discussion

Hand-foot-and-mouth syndrome is a widespread infection in children, although some cases have been described in adults. Transmission is via the feco-oral route and respiratory secretions. Hand-foot-and-mouth syndrome is a clinical diagnosis. Treatment is symptomatic. The course is generally favorable, and complete resolution usually occurs within 10 days.

### Conclusion

Hand, foot, and mouth disease usually involves the hands, feet, mouth, and sometimes the genitals and buttocks. In rare cases, patients may have neurologic or cardiopulmonary complications. The best methods to prevent the spread of hand-foot-and-mouth disease are handwashing and disinfecting potentially contaminated surfaces and fomites.

**Keywords:** Hand-Foot-And-Mouth Syndrome, Children, Viral Dermatitis

## 1. Introduction

Hand-foot-and-mouth disease (HFMD) is a viral illness generally affecting children under the age of 7. It is mainly caused by Enterovirus A or Coxsackie virus. The disease is transmitted by fecal-oral, oral-oral, and respiratory droplet contact [1]. Diagnosis is clinical, patients present with a low-grade fever, a maculopapular or papulovesicular rash on the hands and soles of the feet, and painful oral ulcerations. Lesions usually resolve in seven to 10 days; however, in rare cases, patients may have neurologic or cardiopulmonary complications [2]. Treatment is supportive and directed toward hydration and pain relief as needed with acetaminophen or ibuprofen. Oral lidocaine is not recommended, and antiviral treatment is not available. The best methods to prevent the spread of hand-foot-and-mouth disease are handwashing and disinfecting potentially contaminated surfaces and fomites [3]. We report a case series of 60 patients with hand-foot-and-mouth disease.

## 2. Materials and Methods

This is a retrospective case series, spanning a period of 6 years, from the year 2018 to March 2023, of foot-hand-mouth syndrome in children, identified during the pediatric dermatology consultation in the dermatology department of CHU Ibn Rochd in Casablanca, Morocco. The characteristics of each clinical presentation, and in particular, the type of primary lesion, the topography of the involvement, the nail involvement as well as the

association of general signs were noted. In addition, we collected epidemiological data concerning the age, sex and medical history of each patient.

## 3. Ethical Considerations

Free and informed consent was obtained prior to inclusion in the study, while respecting patient anonymity during data collection. Non-consenting patients were excluded from the study. Approval was obtained from the Ibn Rochd University Hospital Ethics Committee.

## 4. Results

A total of 60 children with SMPB were identified. The mean age was 21.7 months. Male predominance was noted, with a sex ratio (M/F) of 1.75. Four patients (6.66%) had atopic dermatitis, sixteen patients (26.66%) had a previous infectious episode of the upper respiratory tract. Twenty-seven patients (45%) had fever. Clinical examination revealed a localized papulovesicular rash on the hands, feet and buttocks, as well as localized erosive and scabby lesions in the perioral region in 34 patients (56.6%). Lesions were generalized in 26 patients (43.3%). One patient had purpuric lesions (1.66%) and another had recurrent PMBS. Nail involvement such as onychomadesis and Beau's line was found in 11 patients (18.3%). Treatment was symptomatic, with antipyretics and emollient creams.



Figure 1



Figure 3



Figure 4

## 5. Discussion

Hand, foot, and mouth disease (HFMD) is a common viral illness usually affecting infants and children but can affect adults. The infection usually involves the hands, feet, mouth, and sometimes, even the genitals and buttocks [1]. The cause of hand, foot, and mouth disease is coxsackievirus A type 16 in most cases, but the infection can also be caused by many other strains of coxsackieviruses and Enteroviruses. The coxsackievirus is a member of the Picornaviridae family, which includes non-enveloped single-stranded RNA viruses [3]. Humans are the only carrier for hand-foot-and-mouth disease-causing viruses. The disease is spread by fecal-oral, oral-oral, and respiratory droplet contact. The patient is most infectious during the first week of illness; however, an active virus may be present in the stool for up to four to eight weeks. Therefore, the household transmission rate for hand-foot-and-mouth disease enterovirus 71 is 52% to 84%. Incubation range is estimated to be three to six days [4].

Hand-foot-and-mouth syndrome is a clinical diagnosis based on the occurrence of low-grade fever, with a maculopapular or papulovesicular rash on the hands and soles, and painful oral ulcerations [1]. If the diagnosis is unclear, serologic and polymerase chain reaction studies may be obtained to detect enterovirus or coxsackievirus [5]. Skin lesions are typically 2 mm to 6 mm in diameter, have an erythematous halo, and evolve into vesicles that rupture and leave painless shallow ulcers that do not scar. Oral enanthems of painful ulcerations typically affect the posterior oral cavity, including the soft palate. Lesions may also affect the tongue and buccal mucosa, and pain may cause dehydration [1]. Lesions resolve in seven to 10 days. Patients may have atypical skin lesions, including hemorrhagic or purpuric lesions; bullae and pustules; trunk, cheek, or genital involvement; palm and sole of the feet desquamation; and accentuation in areas of atopic dermatitis (eczema coxsackium). The disease may be associated with delayed nail separation or horizontal nail ridges or grooves. Rare neurologic complications can occur such as aseptic meningitis, acute flaccid paralysis, and encephalomyelitis, especially with enterovirus 71. Other rare complications include pulmonary edema, pulmonary hemorrhage, and cardiorespiratory failure. Fortunately, the disease is usually benign and resolves in 7 to 10 days without sequelae [6,7]. The differential diagnosis for childhood rashes and oral enanthems is broad and includes erythema multiforme, herpes, measles, pemphigus vulgaris, Behcet syndrome and varicella [8]. Treatment is symptomatic. Intravenous immunoglobulin should be considered for the treatment of severe/complicated hand, foot, and mouth disease and has been recommended by several national and international guideline committees. Currently, there are no specific antiviral agents approved for the treatment of the disease.

Drugs such as ribavirin, suramin, mulberroside C, aminothiazole analogs, and sertraline have emerged as potential candidates for the treatment of hand, foot, and mouth disease. Vaccination of susceptible individuals in high-risk areas and good personal hygiene are important preventative measures to combat the disease [1, 9].

## 6. Conclusion

Hand, foot, and mouth disease (HFMD) is a common viral illness usually affecting infants and children but can affect adults. The infection usually involves the hands, feet, mouth, and sometimes, even the genitals and buttocks. Lesions usually resolve in seven to 10 days; however, in rare cases, patients may have neurologic or cardiopulmonary complications. The best methods to prevent the spread of hand-foot-and-mouth disease are handwashing and disinfecting potentially contaminated surfaces and fomites.

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