Hand, foot, and mouth disease: An emerging disease in immunocompetent adults

Abraham T. Yacoub, Sowmya Nanjappa, Ganesh Gajanan, Chandrashekar Bohra, John N. Greene

ABSTRACT

Introduction: Hand, foot, and mouth disease (HFMD) is an acute viral illness and a highly contagious infectious disease that usually occurs during summer months with a distinct clinical presentation of oral and cutaneous lesions. It is predominantly a childhood or immunodeficiency-associated disease and very few cases have been reported so far in immunocompetent adults.

Case Report: We report a case of 50-year-old female with known exposure presented with low-grade fever and painful lesions on her hands and feet. The diagnosis of HFMD was made upon clinical grounds and history of contact with a case of HFMD.

Discussion: It is important for physicians to be aware that HFMD can occur even in immunocompetent adults and be familiar with the signs and symptoms of this contagious disease that is predominantly found in children. Adults caring for children with HFMD should be educated that they are not immune to the disease and should be instructed to take appropriate preventive measures by maintaining proper hygiene and hand washing.
ABSTRACT

Introduction: Hand, foot, and mouth disease (HFMD) is an acute viral illness and a highly contagious infectious disease that usually occurs during summer months with a distinct clinical presentation of oral and cutaneous lesions. It is predominantly a childhood or immunodeficiency-associated disease and very few cases have been reported so far in immunocompetent adults. Case Report: We report a case of 50-year-old female with known exposure presented with low-grade fever and painful lesions on her hands and feet. The diagnosis of HFMD was made upon clinical grounds and history of contact with a case of HFMD. Discussion: It is important for physicians to be aware that HFMD can occur even in immunocompetent adults and be familiar with the signs and symptoms of this contagious disease that is predominantly found in children. Adults caring for children with HFMD should be educated that they are not immune to the disease and should be instructed to take appropriate preventive measures by maintaining proper hygiene and hand washing.

Keywords: Adults, Hand washing, Hand, Foot and mouth disease (HFMD), Rash

INTRODUCTION

Hand, foot, and mouth disease (HFMD) is an acute, self-limited, highly contagious viral illness that commonly affects children younger than five years [1]. It is usually caused by coxsackie A virus and less commonly by coxsackie B and enterovirus 71, and results in an asymptomatic infection or mild disease [1, 2]. It typically presents with fever, painful papules and blisters over the extremities and genitalia, and an enanthem involving ulceration of the mouth, palate, and pharynx [3]. The HFMD is mainly seen in children and the immunocompromised host [4, 5]. It is very rare in immunocompetent adults [5]. We report an interesting case of HFMD in an immunocompetent adult with a known history of exposure.
CASE REPORT

A 50-year-old white female with no significant past medical history or any new recent medications presented in November with a two-day history of non-itchy, painful erythematous papular skin lesions and vesicular oral lesions. She reported a history of fever and sore throat three days before the onset of cutaneous symptoms. The lesions on her feet (Figure 1) were so painful that she could not ambulate or apply pressure on her foot. She reported close contact while caring for her four-year-old granddaughter who was diagnosed with HFMD one week ago. An outbreak of HFMD was reported in the community. She denied any similar lesions in the past.

Physical examination of the patient revealed tender, erythematous, 0.5 to 1 cm papular lesions on bilateral palms, soles, elbows and vesicular lesions on the tongue. No biopsy or cultures were taken and a diagnosis of HFMD was made based on the characteristic history, exposure and clinical manifestations. She was treated symptomatically and no complications were observed during follow-up. Her lesions resolved in two weeks with no scarring.

DISCUSSION

Hand, foot, and mouth disease (HFMD) is caused by members of the family Picornaviridae (small RNA viruses) in the genus Enterovirus, most commonly coxsackievirus A16 and enterovirus 71 [6, 7]. Enteroviruses are positive-sense single stranded RNA viruses. HFMD has also been reported to be caused by coxsackievirus A5, A6, A7, A9, A10, B2 and B5 strains [7–10]. Incubation period ranges from 3–6 days. By means of saliva, feces, vesicular fluid, respiratory secretions, and respiratory droplets, the virus spreads to other people [11]. Close contact with HFMD patients and poor personal hygiene are risk factors for adult HFMD [12]. Ruan et al. concluded that hand-washing by preschool-aged children and their caregivers had a significant protective effect against community-acquired HFMD and herpangina from the human enterovirus 71 infection [13]. HFMD occurs during the summer in temperate regions but at any time in tropical countries [14]. Interestingly, our patient presented in November. The HFMD is highly contagious, and is mainly characterized by fever, malaise, and rash appearing at the sites of hand, foot and mouth, with most cases presenting with mild symptoms [15, 16]. Of note, our patient presented with severe pain over the soles of the feet. Usually symptoms resolve in 7–10 days [5]. However, it can present with atypical features such as vesicles or papules on the face or bullae on the trunk, and resemble eczema herpeticum or chickenpox [17–20]. Onychomadesis can occur 1–2 months following infection [21].

Oral lesions usually appear simultaneously with or precede cutaneous lesions, but the simultaneous occurrence of lesions on the hands, feet and in the oral cavity in adults is very infrequent [22]. Our patient had simultaneous occurrence of lesions on the hands, feet and oral cavity.

The HFMD can be complicated by acute flaccid paralysis [23], brainstem encephalitis [24], neurogenic pulmonary edema [25], rhadomyolysis and renal failure [26], nail matrix arrest [27], glucose-6-phosphate dehydrogenase (G6PD) deficiency [28], monofocal outer retinitis [29], spontaneous abortion [30], Guillain–Barre syndrome [31], and nephrotic syndrome [32]. The HFMD outbreaks have been reported worldwide in countries such as Vietnam [33], Singapore [34–36], Cambodia [37], Japan [38], Australia [39], Malaysia [40], Taiwan [41], China [42], Finland [6], Spain [43], and Thailand [44].

The diagnosis of HFMD is typically based on clinical grounds and laboratory studies are usually unnecessary. If diagnosis is unclear, then a multiplex reverse transcriptase–polymerase chain reaction (RT-PCR) assay can be used as a rapid and cost-effective diagnostic tool to detect the presence of HFMD [45, 46]. Differential diagnosis of HFMD must include consideration of varicella, herpes simplex, syphilis, erythema multiforme, recurrent aphthae [47–49], drug eruptions, vasculitis, dermatitis, bacterial infections [50] and Stevens-Johnson syndrome [51].

The treatment of HFMD is supportive. The use of acyclovir has been shown to be effective in one series [52]. In a randomized, multi-centered, double-blind, placebo-controlled clinical trial, Jinzhen oral liquid, a Chinese patent herbal medicine approved by CFDA-China Food and Drug Administration has been shown to treat HFMD [53]. Another interesting study conducted by Cao et al. postulated that the Chinese herbal medicine, Jinzhen oral liquid benefited patients with HFMD [54]. Ribavirin aerosol shortens the duration of oropharyngeal and skin lesions and lowers the number and time of viral release [55].
CONCLUSION

Hand, foot, and mouth disease (HFMD) is commonly seen in children and immunocompromised adults. It is rarely seen in immunocompetent adults. It is important for physicians to be aware that HFMD can occur even in immunocompetent adults and be familiar with the signs and symptoms of this contagious disease that is predominantly found in children. The diagnosis is based on clinical grounds and treatment is mainly supportive. Adults caring for children with HFMD should be educated that they are not immune to the disease and should be instructed to take appropriate preventive measures by maintaining proper hygiene and hand washing.

*******

Author Contributions
Abraham T. Yacoub – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Sowmya Nanjappa – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published
Ganesh Gajanan – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published
Chandrashekar Bohra – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published
John N. Greene – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor
The corresponding author is the guarantor of submission.

Conflict of Interest
Manuscript title Hand-Foot-and-Mouth Disease - An Emerging Disease in Immunocompetent Adults - A Case Report and Review of Literature.
The authors whose names are listed immediately below certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers’ bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

Copyright
© 2016 Abraham T. Yacoub et al. This article is distributed under the terms of Creative Commons Attribution License which permits unrestricted use, distribution and reproduction in any medium provided the original author(s) and original publisher are properly credited. Please see the copyright policy on the journal website for more information.

REFERENCES


Edorium Journals: An introduction

Edorium Journals Team

About Edorium Journals
Edorium Journals is a publisher of high-quality, open-access, international scholarly journals covering subjects in basic sciences and clinical specialties and subspecialties.

Invitation for article submission
We sincerely invite you to submit your valuable research for publication to Edorium Journals.

But why should you publish with Edorium Journals?
In less than 10 words - we give you what no one does.

Vision of being the best
We have the vision of making our journals the best and the most authoritative journals in their respective specialties. We are working towards this goal every day of every week of every month of every year.

Exceptional services
We care for you, your work and your time. Our efficient, personalized and courteous services are a testimony to this.

Editorial Review
All manuscripts submitted to Edorium Journals undergo pre-processing review, first editorial review, peer review, second editorial review and finally third editorial review.

Peer Review
All manuscripts submitted to Edorium Journals undergo anonymous, double-blind, external peer review.

Early View version
Early View version of your manuscript will be published in the journal within 72 hours of final acceptance.

Manuscript status
From submission to publication of your article you will get regular updates (minimum six times) about status of your manuscripts directly in your email.

Our Commitment

Six weeks
You will get first decision on your manuscript within six weeks (42 days) of submission. If we fail to honor this by even one day, we will publish your manuscript free of charge.*

Four weeks
After we receive page proofs, your manuscript will be published in the journal within four weeks (31 days). If we fail to honor this by even one day, we will publish your manuscript free of charge and refund you the full article publication charges you paid for your manuscript.*

Favored Author program
One email is all it takes to become our favored author. You will not only get fee waivers but also get information and insights about scholarly publishing.

Institutional Membership program
Join our Institutional Memberships program and help scholars from your institute make their research accessible to all and save thousands of dollars in fees make their research accessible to all.

Our presence
We have some of the best designed publication formats. Our websites are very user friendly and enable you to do your work very easily with no hassle.

Something more...
We request you to have a look at our website to know more about us and our services.

We welcome you to interact with us, share with us, join us and of course publish with us.

Invitation for article submission
We sincerely invite you to submit your valuable research for publication to Edorium Journals.

* Terms and condition apply. Please see Edorium Journals website for more information.

We welcome you to interact with us, share with us, join us and of course publish with us.