

Hand, foot and mouth disease (HFMD): A case report

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Abstract

Hand, foot and mouth disease (HFMD) is a viral highly contagious disease affecting mostly infants and children and occasionally adults. It has become a significant public health problem because of frequent outbreaks and rise in its incidence, severity and fatal complications in Southeast Asian countries in the last few decades. India had experienced a sudden resurgence of HFMD recently in the year 2022. The clinical course of HFMD is mainly mild and self-limiting with recovery within 1–2 weeks, but in few patient's, severe form of infection has been reported. In this report, we present the case of a 4-year-old boy presenting with HFMD.

Keywords: Blisters, enterovirus, foot and mouth disease, hand, tomato fever

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INTRODUCTION

Hand, foot and mouth disease (HFMD) is an acute viral infection occurring mostly in infants and children. Its name is derived from the typical presence of lesions on the hands, feet and oral mucosa. The major etiological agents for HFMD are viruses of Human Enterovirus group A, most commonly, Coxsackievirus A16 (CVA16) and Enterovirus 71 (EV71).^[1,2] The disease occurs worldwide in epidemic or sporadic form. There have been reports of outbreaks of HFMD from several parts of India in the year 2022. HFMD starts with prodromal features of fever, malaise and upper respiratory symptoms, followed by mucocutaneous lesions distributed over hands, feet and oral cavity.^[3,4] Its clinical course is mainly mild and self-limiting, but in few patient's, severe form of infection and systemic complications have been reported.^[4]

CASE REPORT

On August 22, a 4-year-old male child visited (with his mother) the college with the complaint (given by mother)

of discomfort in eating. History (given by mother) revealed the presence of fever some 3–4 days back, associated with malaise, weakness and headache. She had not given any medication to the child, and there was no history of any allergies in the past. Mother had noticed rashes on palms of her child which then spread to knees, feet and mouth. In the beginning, she noticed papules over hand, foot and knees which were followed by blisters.

On examination, the patient was afebrile. Many vesicular lesions were present on palms, knees and foot [Figure 1]. In the oral cavity, ulcers were present on the palate and buccal mucosa of recently ruptured vesicles. The ulcers were around 2 mm in diameter, irregular in shape, covered with a reddish halo. Multiple reddish vesicles and thick walled bulla's measuring approximately 2 to 5 mm in diameter were present on skin. The diagnosis of HFMD was made based on the clinical features and history.

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Figure 1: Lesions were present on palms, knees and foot

The patient was given symptomatic treatment. He was prescribed analgesic and topical local anaesthetic gel for intraoral application.

Follow-up visit after 7 days showed vesicles forming crustations. Complete healing of the lesions without scar was noted at the 1-month follow-up.

DISCUSSION

HFMD is a self-limiting viral infection affecting mostly infants and children and occasionally adults. It is highly contagious and spreads in the community in close contacts.^[5] The term HFMD derives from typical maculopapular or vesicular lesions involving the skin of the hands, feet and oral mucosa.^[6]

Over the past few decades, HFMD outbreaks (involving children's) were reported frequently around the world.^[1] It has become a significant public health problem because of rise in its incidence, severity and fatal complications in Asia Pacific region, including India.^[4,7] In summer 2022, an outbreak of HFMD (as tomato flu/fever) was reported affecting children in Kerala, and then, cases across almost all Indian states/union territories were reported. The name "tomato flu/fever" comes from the symptoms of rash that develop into small tomato-like blisters.^[7]

Generally, HFMD is a self-limiting infectious disease, and most patients with mild symptoms recover within 1–2 weeks. However, some cases with serious complications are also reported. Large-scale observational studies showed that there are 5 different outcomes of HFMD: asymptomatic (12.7%), mild (86.2%), severe and critical (1.1%) and death (0.03%).^[1]

HFMD is caused by human enteroviruses (EVs) that are members of the Enterovirus genus of the Picornaviridae

family. The main etiological agents are the coxsackievirus A16 and A6 (CA16, CVA6) and Enterovirus 71 (EV71) from the Enterovirus A species. Other viruses such as coxsackie CVA2, CVA4–6, CVA8–10, CVA12, CVA24, CVB1, CVB3–CVB6, CVB10, CVB12, Echo3, Echo4, Echo6, Echo9, Echo18, Echo19, Echo25 and Echo30 have also been reported to cause the disease.^[7,8]

Humans are the only reservoir of human EVs and both cases, and asymptomatic infections are the sources of HFMD infection.^[1] Transmission is primarily through direct contact from person-to-person through oral–pharyngeal secretions or fluid from blisters or scabs. Other modes of transmission are via contaminated water or via fecal–oral route or via contaminated objects.^[9,10]

The incubation period is short, ranging from 2 to 7 days. It shows nonspecific symptoms, but there may be mild fever. The initial viral implantation is in the oral cavity and ileum, spreading to the regional lymph nodes within 24 hrs. Viremia occurs after 72 hrs, followed by secondary infection and viral seeding in areas such as the oral mucosa, hands and feet. On the seventh day, there is an increase in antibody levels and the disease begins to disappear.^[9]

In the prodromal phase low-grade fever, malaise and sore throat are commonly observed for 1–2 days followed by appearance of erythematous papulo vesicular eruptions. Vesicles are round or oval. Generally, they appear in crops and persist in groups over some specific areas like hand, feet, perioral area, knees, buttocks and intraorally.^[6] Nail change, mainly presenting as onychomadesis involving toenails or fingernails, is observed in some patients.^[1,7] The disease usually improves spontaneously after 7–10 days without any complication. Less frequently, HFMD develops into more serious complications, including encephalitis, aseptic meningitis, acute flaccid paralysis and cardiopulmonary failure. EV71 virus is mostly responsible for serious manifestations of HFMD, and children under 2–4 years are the main group at risk of such complications.^[11,12]

The diagnosis is by observing the clinical signs of the disease, such as fever and the characteristic lesions on the hands, feet and mouth. Confirmation of diagnosis is carried out by isolating the virus by polymerase chain reaction assays or by identifying virus-neutralizing antibodies in patient serum.^[5,7,13]

Currently, there are no specific antiviral agents approved for the treatment of the disease. For mild cases, general symptomatic and supportive treatment is usually used.^[14] Topical application of anaesthetics and viscous lidocaine

or diphenhydramine for painful oral ulcers and analgesics and antipyretics may be used to manage fever.^[13]

Patient and parental education is paramount in reducing the transmission of this disease. HFMD patient is potentially contagious for the duration of the initial symptoms, until the vesiculo bullous skin lesions disappear. Furthermore, the virus is known to be shed in the feces for several weeks. It is therefore important to isolate patients to avoid cross-infection.^[9] Proper oral and skin care should be taken to avoid contamination. Washing hands regularly is emphasized to prevent the spread of infection.^[13]

Differential diagnosis

The differential diagnosis for HFMD should include conditions that present with maculopapular or vesicular rashes with or without oral lesions.^[13] These conditions include:

- Erythema multiforme
- Herpangina
- Herpes simplex
- Herpes zoster
- Kawasaki disease
- Toxic epidermal necrolysis (TEN)
- Viral pharyngitis
- Rocky Mountain spotted fever
- Varicella zoster infection (chickenpox)
- Steven-Johnson syndrome
- Monkeypox.^[13]

CONCLUSION

HFMD is a childhood exanthematous disease causing outbreaks that have become a major public health threat in recent years. Most of the cases have uncomplicated course, but few cases develop complications. Hence, it is important to be aware of the clinical features of this disease for correct diagnosis and appropriate treatment. The risk of an outbreak can be decreased by following the preventive measures protocol.

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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