

## Hand Foot and Mouth Disease

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### Abstract

Hand foot and mouth disease is an acute viral illness caused by the Coxsackie virus. The contagious nature of the disease is threatening as the disease primarily affects the children of school going age. As the name suggests, typical lesions will be seen over the hands, feet and in the oral cavity. The child gets irritated, febrile and lethargic. Oral lesions can add up to the general weakness as the child becomes reluctant to food. Diagnosis can be made based on the clinical features alone. As the disease outbreaks were reported from neighbouring countries like China and other South Eastern countries, awareness amongst the dentists, general physicians and dermatologists usually can play a role in reducing the suffering of the patient. This case report describes about a 3 year old male child presenting with typical ulcerative lesions over the hands, feet and oral mucosa.

**Keywords:** Hand foot; Mouth disease; Coxsackie virus

### Introduction

Viral infections attack the human community very frequently affecting all the age groups. Hand foot and mouth disease (HFMD) is a viral infection caused mainly by Coxsackie virus 16 and sometimes Enterovirus 17. The first case in South East Asia was described in China in the year of 1891 [1]. The first true epidemic of HFMD in India occurred in 2007 [2], although literature had shown a first reported case in Calicut in the year 2004 [1].

The child suffers a period of prodrome of fever, malaise, weakness and irritability followed by papulo-vesicular rash over the hands, feet and the oral cavity. Within the oral cavity, the vesicles rupture to form an ulcer which makes the child weak due to poor nourishment. The disease is self-limiting and the symptoms subside in 7 days. Palliative support and proper counselling can be done on the part of a dentist to reassure the patient.

### Case Report

A 3 year old male child had come to the outpatient department with a chief complaint of discomfort while eating since one week. The patient's mother being the informer during the visit had reported that the child suffered an event of fever 10 days prior to the visit. The child had appeared irritated and lethargic since then (Figure 1). The mother had observed a rash over the hands and feet since a week. His past medical, surgical and dental history was insignificant. The patient had appeared conscious, co-operative and coherent; his vital signs were within the normal limits at the time of examination. No signs of pallor, icterus, cyanosis and pedal oedema were observed. On



Figure 1: Irritable child.

examination, the soles and palms of the patient had shown multiple vesicles of varying diameter from 1-2 mm (Figures 2 and 3). The surface of vesicles was erythematous. Surrounding area appeared normal. On palpation, the vesicles were non tender and no changes were noticed with pressure movements. No discharge was present. No significant extra oral findings were observed in relation to the face and neck. Intraorally, multiple ulcerations were seen over the right and left buccal mucosa and lower labial mucosa varying from 0.1-0.5 mm in diameter covered with yellowish slough and surrounded by an erythematous halo (Figure 4). The ulcerations were tender, the depth of the ulcers was 0.1 mm approximately with a sloping edge and the edge was non-indurated. The ulcer was freely movable over the base and the base was non-indurated. Based on the fore mentioned clinical features like fever, multiple vesicles seen over the hands and feet and multiple oral ulcerations in a child patient, a clinical diagnosis of Hand Foot and Mouth Disease was given. Since the disease is self-limiting, only palliative treatment with 0.1% Diclonium hydrochloride was given.



Figure 2: Characteristic vesicles seen on the palm.

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Figure 3: Multiple vesicles seen on the sole.



Figure 4: Ulcerative lesions on the oral mucosa.

## Discussion

Hand foot and mouth disease was first reported in New Zealand in 1957 [1]. It was first discovered by Daldorf and Sickles [2]. It can be considered as the oldest viral infection as it was mentioned in European hieroglyphs way back in 1,400 BC [2]. It is a disease caused by Coxsackie virus A16. Sporadic cases with Coxsackie virus types A5, A10, B2 and B5 have been reported [3]. Enterovirus 71 virology has also been implicated to be its etiological agent by some researchers [3]. The geno group of Enterovirus which affects the Indian population is genogroup D [1].

Children below the age of 5 years are usually affected. Although cases were reported affecting young adults by Sarma [4]. The disease usually outbreaks in summer but Flett et al. had reported an outbreak in late winter in a Boston community [5]. The incubation period is about 7 days and the disease transmits through horizontal transmission i.e.; from child to child as the disease is contagious and by vertical transmission from mother to foetus [6]. The viral illness spreads from person-to-person by direct contact with nose and throat discharges, saliva, fluid from blisters, or the stool of infected persons. If the child is highly infectious the virus transmits through the upper respiratory tract and affects the buccal and ileac mucosa from where the virus moves to involve the lymph nodes in 24 hours and later spreads to oral mucosa and skin [6]. During this period the child experiences prodromal symptoms like fever, anorexia, malaise and irritability.

A typical macula-papular rash develops over the hands, feet, buttocks and oral cavity of the patient. The cutaneous lesions are elliptical and parallel to skin lines [7]. Palmar and plantar surfaces along with the fingers get involved. Intra orally, the vesicles rupture to form ulcerations over the buccal mucosa, labial mucosa, palate and occasional tongue involvement is also seen. The ulcers in the oral cavity usually average 5-10 at a time with sloping edges, tender, surrounded by an erythematous halo and covered by yellowish slough.

Clinical features alone are sufficient in making diagnosis [1]. Viral cultures can be made from stool, bullae fluid and saliva of the patients [8]. Antibody neutralisation can be made to detect the serotype. Ig M;

ELISA; Reverse Transcriptase Polymerase Chain reaction are the other laboratory investigation for HFMD.

With the typical lesions occurring over the hands feet and mouth and its predilection in the younger age group, the disease can be easily differentiated from others. However, Herpangina, Primary herpetic gingivo-stomatitis and Chickenpox can be considered in the differential diagnosis. Herpangia is also due to Coxsackie virus which causes ulcerations over the soft palate and uvula but in HFMD anterior part of the oral cavity is usually affected. Primary herpetic gingiva-stomatitis caused by human herpes virus1 can be considered as a differential diagnosis with extensive oral involvement but no counterpart over the hands and feet. Chicken pox can be differentiated from HFMD because of its centripetal distribution of lesions and involvement of the trunk and its more generalized nature [9].

Preventive measures include frequent washing of hands with warm water and soap. Avoid close contact with the patient. The disease is usually self-limiting and the lesion heals by 7 days. However, a special note is to be made regarding the hand foot and mouth disease caused by Enterovirus. Typically the infection occurs in 4 stages. Oral and cutaneous manifestations occur in the first stage. In the second stage involvement of CNS is manifested with irritability and headache followed by myoclonic jerk. In the third stage, cardiopulmonary failure with pulmonary oedema occurs. In the fourth stage, it is convalescence from cardiopulmonary damage [6].

No vaccine has been discovered yet for Coxsackie viruses [9]. Treatment can be aimed at reducing the symptoms and the suffering. Palliative treatment can be given to reduce the ulcers and associated fever.

## Conclusion

The oral lesions of Hand foot and mouth disease proceed in time than the cutaneous lesions and the child will be brought to the dental outpatient department first. So a thorough knowledge of the disease by the dentists can be helpful in reducing the parents fear and patient's suffering.

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