Case Report

Progress in Drug Discovery & Biomedical Science

HH PUBLISHER

# Hand, foot and mouth disease in late 3rd trimester of pregnancy: A case report

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**Abstract:** We present a case of a 28-year-old primigravida who was diagnosed with hand, foot and mouth disease (HFMD) at 39 weeks gestation. Patient had the classical rash over her hands and feet but was otherwise well. The baby was delivered at 40 weeks via Caesarean section and was well after delivery. We discuss the literature associated with hand, foot and mouth disease in pregnancy as well as briefly discuss complications associated with the causative organisms of HFMD.

***Keywords:*** *hand; foot and mouth disease; HFMD; coxsackie; pregnancy; caesarian; rash*

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**Received:** 3rd February 2020
**Accepted:** 5th March 2020
**Published Online:** 12th March 2020

***Citation:*** Pusparajah P, Goh JXH, Lee L-H, *et al*. Hand, foot and mouth disease in late 3rd trimester of pregnancy: A case report. Prog Drug Discov Biomed Sci 2020; 3(1): a0000056. https://doi.org/10.3687/pddbs.a0000056

## Introduction

Hand, foot and mouth disease is a viral illness characterised by fever and vesicles in the mouth and on distal extremities; it typically affects infants and children but can also affect adults, especially those with compromised immunity. The typical rash of this disease is seen on the hands and feet, and occasionally on the genitals and buttocks[1]. The rash begins as flat, red spots that appear a few days after the initial symptoms, malaise and may turn into blisters. There are also often painful spots in the mouth and throat. The disease is generally self-limiting with the symptoms clearing up within 7 to 10 days. However, neurologic and systemic complications, such as encephalomyelitis, aseptic meningitis, acute flaccid paralysis, and even brainstem encephalitis, can develop rapidly in a minority of cases. In critically severe HFMD cases, autonomic dysregulation, pulmonary oedema and myocardial impairment may occur and can lead to death[2].

HFMD is usually caused by coxsackie A virus and less commonly by coxsackie B and enterovirus 71[1] with the main etiologic agents being enterovirus 71 (EV71) and coxsackie A16[2].

At present, the literature around HFMD in pregnancy is very limited. It is known that perinatal transmission of enterovirus of mother to infant is relatively common, but there is no conclusive data regarding vertical transmission and the correlation between fetal infection and fetal-neonatal outcomes are still unknown. Placental infection has rarely been demonstrated[3]. We present a case of HFMD in late 3rd trimester with no specific treatment instituted and normal fetal outcome.

## Case History

A 28-year-old primigravida at 39 weeks gestation presented with an erythematous, non-pruritic rash over the hands (Figure 1), palms (Figure 2), feet (Figure 3) and soles (Figure 4) of 1 day duration. Prior to the appear-

ance of the rash, patient had noted a burning sensation over her fingers and her sole. Aside from the rash, patient was afebrile and otherwise well. The rash progressed to extend slightly over the forearms and ankles but did not spread any further. There were no oral lesions and no lesions on any other parts of the body.

Patient had been on regular follow-ups with an obstetrician since 10 weeks gestation. The pregnancy had so far been uncomplicated apart from a triple test result which was high risk. In view of this, patient had opted for an amniocentesis at 14 weeks which revealed a normal karyotype. Baby's growth was normal throughout the pregnancy, and detailed scan at 20 weeks was normal. Patient had no underlying medical conditions prior to this presentation and was not on any medications. While there was no direct history of contact with a case of HFMD, patient worked as a Medical Officer in a busy paediatric unit of a tertiary referral center and was likely to have been exposed at work.

Patient was reviewed by an infectious diseases specialist who diagnosed the rash as hand, foot and mouth disease (HFMD). Diagnosis was purely based on clinical appearance, no virology tests were performed. A full blood count was done which was normal apart from a mild lymphocytosis consistent with a viral infection.

At 40 weeks gestation, patient was still not in spontaneous labour, and a decision was made to proceed with an elective lower section Caesarean section (LSCS). Decision to proceed with delivery was done in view of concerns by the attending obstetrician that there may be placental compromise as a result of HFMD. Patient's lesions had dried up by this time and she was not considered likely to be infectious to the baby.

LSCS was performed successfully and a baby girl was born well with Apgar score of 8/9 and a birth weight of 3.01 kg. Baby was well, screening examination was normal, and baby was feeding well. Baby and mother were discharged home well on day 3 post LSCS.

Postnatally, baby remained well apart from having mild jaundice but does not require phototheraphy. Patient was contacted and it was noted the baby's growth and development were normal after birth.

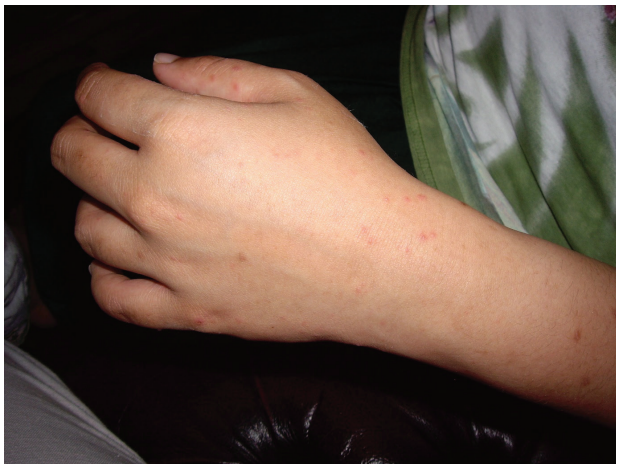

**Figure 1.** Lesions on hand of the patient.

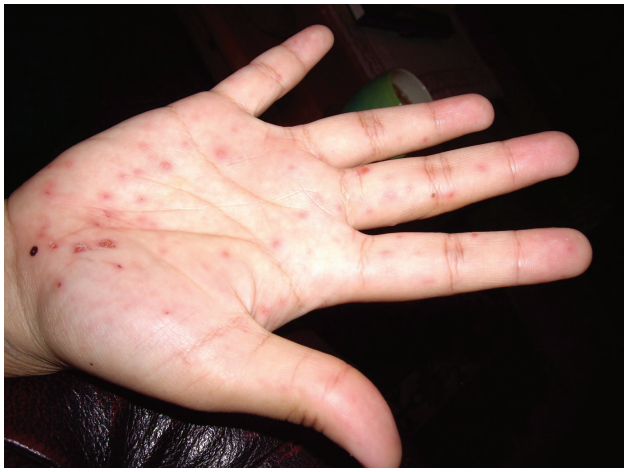

**Figure 2.** Lesions on palm of patient.

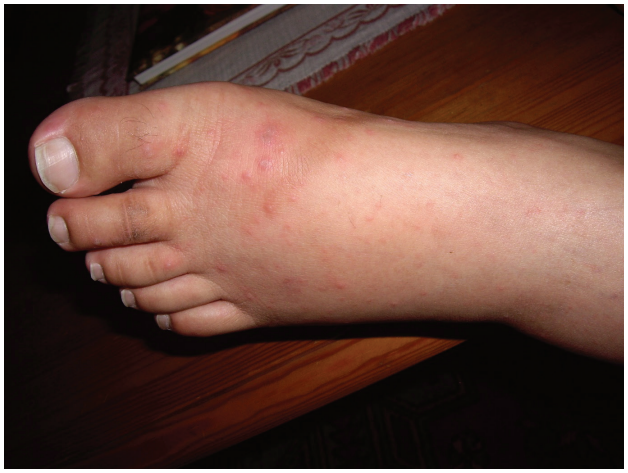

**Figure 3.** Lesions on foot of the patient.

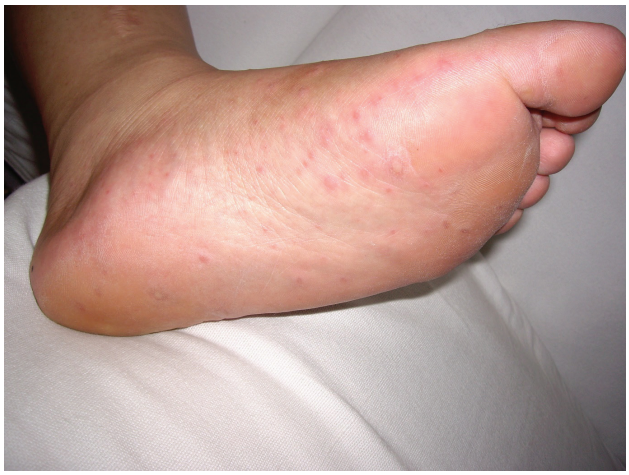

**Figure 4.** Lesions on sole of patient.

## Discussion

Hand, foot and mouth disease is characterised by fever and vesicles in the mouth and on distal extremities. It is usually caused by coxsackie A virus and less commonly by coxsackie B and enterovirus 71[4]. HFMD is endemic in Asia, with an incidence rate of around 500,000 to 1,000,000 cases per year; the main etiologic agents are enterovirus 71 (EV71) and coxsackie A16[5].

While infections are much more common among children than adults, the number of adult cases of HFMD being

reported in recent years seems to be increasing[6]. Adults in a state of immunosuppression are more vulnerable to infection, this includes pregnant mothers in the late stages of pregnancy when the immune system is suppressed in order to prevent rejection of the fetus.

There is limited literature specifically linked to HFMD in pregnancy though there is a recent paper by Giache et al. describing a 7-year experience with HFMD in pregnancy in Tuscany. They analysed data for 53 women with HFMD out of whom 22 were infected in the first trimester, 21 in the second trimester and 10 in the third trimester. Out of these, there were 3 cases of fetal loss, one occurring at 10 weeks and the other two at 11 weeks. At birth, four of the babies required phototherapy, there was one case of hip dysplasia, one case of right hand malformation, one case of ventricular septal defect which spontaneously recovered during the first year of life and one case of renal pelvis dilatation[3].

Enterovirus infections are very common in the population though there are sparse reports on their effect during pregnancy. Work by Khediri *et al*. suggests that enterovirus infection during pregnancy can potentially be a cause of miscarriage and fetal death. Specific adverse outcomes within the authors' experience included cases of hydrops and myocarditis resulting in fetal death[7].

Coxsackie viruses, the other common etiological agent for HFMD, have also been associated with adverse outcomes when there is a maternal infection during pregnancy. A case of a 31-year-old mother with HFMD due to Coxsackie at 35 weeks gestation resulted in intrauterine fetal demise at 36 weeks. The placental examination revealed massive perivillous fibrin deposition involving 80% of the parenchyma[8]. Euscher et al. found that in utero coxsackie virus infection of the placenta is associated with the development of severe respiratory failure and central nervous system sequelae in the newborn[9].

## Conclusion

Overall, based on the existing literature, there are very few reports of serious adverse outcomes in the fetus in cases of maternal HFMD. This case presented illustrates that there can be normal fetal outcomes, however, the literature is sparse and given that severe complications have been reported in both coxsackie and enterovirus infections, both of which are a common cause of HFMD, it would be prudent to monitor patients more closely and possibly consider expediting delivery where feasible. This is particularly so since the authors of all the papers referenced also mentioned that it is likely that a large number of fetal complications of indeterminate cause may be due to undiagnosed viral infections.

## Ethics Statement

Patient provided consent for the case and photographs to be used in a deidentified manner.

## Conflict of Interest

The authors declare that there is no conflict of interest in this work.

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