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CASE REPORT

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Severe Adult-Onset Hand, Foot, and Mouth Disease in a Patient with Metabolic Dysfunction-Associated Steatohepatitis: A Case Report of a Family Cluster

Hsin-Fu Chen[1]*, Yin-Chia Chen[2], Kuan-Lin Huang[1] and Hsin-Yu Chen[3]

[1]Department of Anesthesiology, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Chiayi City, Taiwan.
[2]Division of Cardiovascular Surgery, Department of Surgery, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Chiayi City 60002, Taiwan.
[3]Division of Oral and Maxillofacial Surgery, Department of Dentistry, National Taiwan University Hospital, Taipei, Taiwan.

ABSTRACT

Hand, foot, and mouth disease (HFMD) is a common viral disease in children. However, adult cases are less frequently seen. We report a family cluster of HFMD involving two children and their father, a patient with history of metabolic dysfunction-associated steatohepatitis proven by liver biopsy. The index case was a 6-year-old girl who developed fever, oral ulcers and blisters, and palm and sole rashes. The infectious cascade turned to her 1-year-old brother with similar symptoms. The father subsequently developed severe adult-onset HFMD characterized by hemorrhagic blisters on both hands and feet, painful oral ulcers, high fever, sore throat, drowsiness, extreme fatigue, shortness of breaths, and elevated liver enzymes. This case highlights the potential for atypical and severe HFMD presentations in adults.

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KEYWORDS

Hand, foot, and mouth disease, Family cluster, Metabolic Dysfunction-Associated Steatohepatitis.

Background

Hand, foot, and mouth disease (HFMD) is a common viral disease primarily affecting children, most frequently caused by coxsackievirus A16, enterovirus 71, and sometimes echovirus. Transmission occurs through close personal contact, respiratory droplets, and contact with contaminated objects. Adult cases are uncommon, but several case reports exist. We present a family cluster of HFMD.

Case Presentation

A family consisting of two adults and two children was affected. The mother, a 34-year-old bank employee, had no underlying disease and no travel history within the previous six months. She remained asymptomatic throughout the course. The father, a 33-year-old anesthesiologist with a history of metabolic dysfunction-associated steatohepatitis (MASH) and baseline alanine aminotransferase (ALT) around 100 U/L, had traveled to Japan and South Korea within the past six months.

The index case was the 6-year-old daughter, who developed low-grade fever on August 23, 2025, in the early morning, progressing to high fever (39 degrees Celsius) by noon. She was brought to the emergency department (ED) at a tertiary medical center in Tainan City, and she was diagnosed with upper respiratory tract infection. On August 24, she developed rashes around the right knee (Figure 1), painful tongue ulcers, and buccal white spots, along with anorexia and high fever again. She was subsequently diagnosed with HFMD.

Figure 1: The initial rashes on the right knee of the 6-year-old daughter.

The second case was the 1-year-old son, who developed low-grade fever (37.5 degrees Celsius) on the evening of August 25, with rashes on the palms, soles, knees and buttocks (Figures 2-4), accompanied by ulcers and blisters on the lips and tongue. He was also diagnosed with HFMD.

Contact: Hsin-Fu Chen, Department of Anesthesiology, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Chiayi City, Taiwan, Phone: +886 981908750.

Figure 2: The initial rashes on the left buttock of the 1-year-old boy.

Figure 3: The right knee rashes of the 1-year-old boy.

Figure 4: The left knee rashes of the 1-year-old boy.

The third case was the father, who shared meals with the daughter on August 25 (including ramen, dumplings, and a beverage at noon, as well as curry rice in the evening) and again on August 26 (cake, Canele, orange juice, and a lunch box, Figure 5). Afterwards, on August 28, he developed rashes on the palms and soles, and painful ulcers on the tongue. On August 29, the rashes extended to distal forearms (Figures 6,7). The father developed hypersomnolence, poor appetite, high fever (39 degrees Celsius), chest tightness, shortness of breaths and sore throat. Due to frequent hand use (chopsticks, steering wheel) and foot pressure from wearing leather shoes, he developed extensive painful blisters at the fingers (Figures 8,9) and lateral soles (Figures 10,11). Some blisters were hemorrhagic, and some were yellowish-gray colored.

Figure 5: The father and the daughter is sharing the same piece of Canele.

Figure 6: The right forearm of the father on August 29.

Figure 7: The left forearm of the father on August 29.

Figure 8: The right hand of the father on August 29.

Figure 9: The left hand of the father on August 29.

Figure 10: The medial side of the right foot of the father on August 29.

Figure 11: The medial side of the left foot of the father on August 29.

The father presented to the ED of a tertiary medical center in Tainan City on August 29. Electrocardiogram revealed nonspecific findings. Blood tests resulted in WBC 7700/μL, monocytes 15%, segmented neutrophils 73.5%, lymphocytes 10%, eosinophils 0.7%, AST 90 U/L, ALT 165 U/L, and creatinine 0.79 mg/dL. He was diagnosed with HFMD, with exacerbation of underlying NASH. He was administered with intravenous infusion of 500 mL normal saline and 1 g of propacetamol. Soon, the symptoms relieved, and he could even walk away from the hospital on his own after 3 hours of ED stay only.

On September 2, 2025, all 3 patients recovered, with some blisters gradually healing.

Discussion

HFMD is mainly a pediatric illness, but adult infections are increasingly reported. The index patient in this article was the 6-year-old child, with subsequent spread to a younger sibling and eventually to the father. These highlight the importance of household sanitization and the avoidance of food sharing. Xin-guang Yin, et al. revealed that close contact with HFMD

patients and poor personal hygiene were risk factors for adult HFMD [1].

In adults, HFMD often presents with milder symptoms. Spotts presented 60 cases of HFMD that occurred among freshman residential students in a university. None of them became seriously ill [2]. Russell, et al. also reported an atypical outbreak of HFMD among college students at a university. The outbreak included 138 cases. Tested samples were positive for coxsackievirus A6 [3]. However, Xin-guang Yin, et al. found that EV71 subgenotype C4a was the most common pathogen in adult HFMD in northern Zhejiang [1].

However, severe manifestations can occur in patients with underlying comorbidities. In this report, the father's history of NASH may have contributed to the elevated ALT and severe systemic illness during the acute stage. Additionally, repeated friction and pressure from occupational and daily activities appeared to exacerbate the severity of blister formation, leading to hemorrhagic and necrotizing blisters. Che-Jui Lee, et al. presented similar feet blisters findings in their article [4].

Also, Julie Second, et al. presented that 4 out of 6 patients with severe and atypical HFMD were infected with coxsackievirus A6 [5]. Julie Second, et al. concluded that the inflammatory process is caused by T cells with a cytotoxic profile, as observed in severe drug eruption with necrosis of keratinocytes [5].

Clinicians should be aware that HFMD might also present severe manifestations in adults. Supportive care with hydration and symptomatic medication remains the mainstay of treatment.

Conclusion

We report a family cluster of HFMD in which the father, with underlying NASH, developed severe adult-onset HFMD characterized by hemorrhagic blisters and elevated liver enzymes. This case highlights the importance of recognizing atypical and severe adult HFMD presentations and underscores the role of close household transmission.

References

1. Yin XG, Yi HX, Shu J, Xing-ju W, Xiao-jun W, et al. Clinical and epidemiological characteristics of adult hand, foot, and mouth disease in northern Zhejiang, China, May 2008-November 2013. BMC Infect Dis. 2014; 14: 251.
2. Spotts PH. Outbreak of Hand, Foot, and Mouth Disease Among University Residential Students. J Am Board Fam Med. 2024; 37(3): 513.
3. Russell NG, Kessler R. A Hand-Foot-and-Mouth Disease Outbreak in an Atypical Population of College Students. J Prim Care Community Health. 2024.
4. Lee C-J, Chen H-C. Adult Hand, Foot, and Mouth Disease. Ear Nose Throat J. 2019; 99(9): 105-106.
5. Second J, Velter C, Calès S, Truchetet F, Lipsker D, et al. Clinicopathologic analysis of atypical hand, foot, and mouth disease in adult patients. J Am Acad Dermatol. 2017; 76(4): 722-729.