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Hand, Foot and Mouth Disease in Immunocompetent Adult with Severe Oral Manifestation

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Abstract

Hand-foot-mouth Disease (HFMD) is an acute, self-limited, and highly contagious disease caused by a virus and generally affects children under 10 years old. The etiology of this disease is enterovirus 71 or coxsackievirus A16 which usually causes symptomatic infection or mild disease. Immunocompetent adults are rarely affected. However, recently the incidence of HFMD in immunocompetent adults has increased. We report a 41-year-old woman with severe oral lesions and painful papulovesicular eruption on the palms of her hands and feet.

Key words: Hand, Foot and Mouth Disease; Enterovirus Infections; Skin Diseases, Vesiculobullous; Adult; Immunocompetence; Diagnosis; Case Reports; Signs and Symptoms

Introduction

Hand-foot-mouth disease (HFMD) is a highly contagious disease characterized by multiple papules and vesicles in the hands, feet and oral mucosa accompanied by fever, myalgia, and abdominal pain. It is commonly caused by Enterovirus (1), mostly found in children <10 years old during the summertime (2). The most common causes are Coxsackievirus A16 and Enterovirus 71 (1). Lesions can be asymptomatic, but sometimes a touch can induce pain. Symptoms improve within 7-10 days (3). Oral lesions usually precede cutaneous lesions: however, oral lesions can occur without cutaneous lesions, and otherwise have also been reported in immunocompromised adult patients (2).

Hand-foot-mouth disease is a clinical diagnosis, and laboratory tests are not always necessary (1, 4). The sample for PCR can be obtained from serum, skin vesicles, throat and stool swabs to identify enterovirus serotypes (5, 6). Histopathological examination revealed a picture of reticular degeneration in the epidermis which results in the formation of intraepidermal fissures filled by neutrophils, mononuclear cells and eosinophilic protein material (7, 8). These vesicles have a necrotic roof with disceratosis and acantholysis. The upper dermis appeared edematous with perivascular mixed cell infiltrate. Viral inclusion or multinucleated giant cell was not found (1, 6). Treatment is typically supportive aimed at reducing discomfort and dehydration. Novel antiviral agents and vaccine development targeting enterovirus 71 is an active area of investigation because of the strain of virulence, geographic spread, risk prevalence, and risk of devastating brainstem encephalitis (1, 3, 7).

Children are the most vulnerable targets as well as immunocompromised adult patients. However, the incidence of HFMD is very rare in immunocompetent adults (2, 3). One case of HFMD was reported in a 41-years-old immunocompetent woman, with severe oral involvement.

Case Report

A 41-year-old woman complained of redness on the lips, both palms and feet and sores on the oral mucosa which developed three days before coming to the hospital. It occurred suddenly and simultaneously, accompanied with itchiness, burning sensation then followed by some reddish spots that appeared on both of the hands and feet. The patient also complained about fever up to

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Figure 1. (A, B) Multiple vesicles and erythematous papules on the palm and plantar area; **(C-D)** Lesions on the lips and oral mucose, abscesses, pus, crusting and erosion. Patients unable to open their mouths fully.

39°C lasting for two weeks which was reduced by fever reliever. Fever was accompanied by nausea and vomiting. She had lost her appetite due to sores in the mouth. Complaints of cough, runny nose and joint pain were denied. Prior to the visit, the sores worsened and showed some pus. Any past medical history was denied. History of family members or neighbors with similar complaints was denied. History of consumption of medicines such as corticosteroid, herbs, topical medicine was denied. Drug and food allergies were denied.

On physical examination she was found to be moderately ill and alert, her blood pressure was 140/80 mmHg, heart rate 88 bpm, respiratory rate 22 breath/minute, and temperature 39°C. The dermatology examination revealed erythema, erosion, crusting, abscess with pus in the oral region. In addition, multiple crusted erythematous papules and vesicles were found on both palmar and plantar. There was no redness in the other area.

The suspected differential diagnoses were hand-foot-mouth disease, drug eruption, and erythema multiforme. Laboratory examinations

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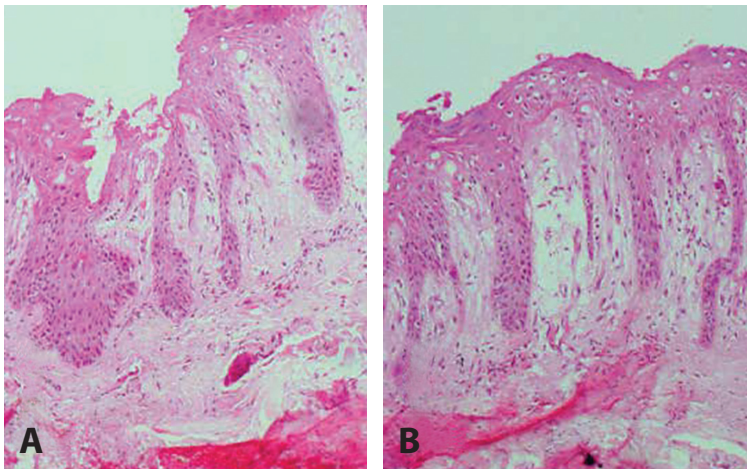


Figure 2 (A-B). Epidermal hyperkeratosis, spongiosis, edema of the dermal papillae with dense neutrophils

were conducted to rule out the differential diagnoses. Complete blood count was normal. Electrolytes, blood sugar, liver function test, renal function test results, urinalysis were normal. Immuno-serological examination was confirmed non-reactive for HBsAg, non-reactive anti-HCV and non-reactive HIV antigen, and negative for Salmonella typhi antigen. Skin biopsy from the left palm showed the epidermal hyperkeratosis with spongiosis, edema of dermal papillae with dense neutrophils, which supported a hand-foot-mouth disease.

Based on the history, physical examination and biopsy, the diagnosis of hand-foot-mouth disease was established. The patient was given NaCl infusion 0.9% 28 drops/minute, cetirizine tablets 10 mg/24 hours/oral, paracetamol 500 mg/8 hours/oral, desoximetasone cream was applied on hands and feet in the morning and evening, and triamcinolone in orabase on the lips and oral mucosa.

Discussion

Hand-foot-mouth disease (HFMD) is a self-limited enteroviral exanthema that is found throughout the world, mostly caused by Enterovirus 71 (9). The transmission of HFMD is via the fecal-oral route and, less commonly via respiratory inhalation. There is a high transmission rate between household contacts in one family (1, 5, 9). Adult HFMD patients are usually asymptomatic or only subclinical, causing them to be potential reservoirs of human-to-human transmission and it is often not possible to identify the origin of infection (3). In our case, the source of transmission is not known. Investigation in Taiwan reports that about half the adult population in northern Taiwan have antibodies to Enterovirus 71, which indicates the high rate of transmission of the virus. 9 HFMD infection usually starts with non-specific prodromal symp-



Figure 3. Clinical improvement after 14 days of follow-up

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toms, including fever (38-39°C) lasting 1-2 days, malaise and sometimes, abdominal pain or symptoms of upper respiratory tract disorders (9). Another study reported that HFMD was followed by persistent fever and systemic arthritis (10). In this case, fever was found to occur in the last 2 weeks, accompanied by nausea and vomiting.

Almost all patients with HFMD have painful oral lesions. Oral lesions are mostly found on the tongue, buccal mucosa, palate, and, more rarely, oropharynx. The lesion initially presents as bright pink maculopapular lesions which develop into 4-8 mm size vesicles surrounded by erythema. These lesions are rapidly eroded and form yellow-gray erosions surrounded by erythema (1, 7, 11). Oral lesions usually occur prior to the cutaneous lesions (1, 6, 11). There is a case report of HFMD in immunocompetent adults with severe oral lesions reported in previous study with erosion, bleeding and pus on the upper and lower lips which caused the patient to not open his mouth (12). In this case, abscesses, pus and crusts were seen in the inferior of oral region and excoriation in the superior labia which disabled the patient to open her mouth. Typical HFMD lesions on the palmar and plantar area are erythematous papules or vesicles (9, 12). Atypical HFMD can be found in the extensive cutaneous lesions, perianal area, elbow, and face (11, 12).

Viral detection is using polymerase chain reaction (PCR) of feces, vesicles and pharynx and viral culture is the most accurate confirmation: however, the diagnosis is usually made based on clinical presentation (1, 7). Typical histopathological findings of HFMD are reticular degeneration of the epidermis without inclusion bodies or multinucleated giant cell (9, 10). In this case, the biopsy showed hyperkeratosis epidermal, spongiosis, and edema of the dermal papilla with dense neutrophil inflammation.

Most HFMD patients only get symptomatic treatment because HFMD is self-limited. In the cases with more prolonged fever, diarrhea, and joint pain, drugs can be given to reduce discomfort (1, 3, 12). In this case, the patient was given NaCl 0.9% 28 drops/minute, cetirizine tablets 10 mg/24 hours/oral, paracetamol 500 mg/8 hours/oral, desoxymetasone cream applied to both palms and feet in morning and evening, and triamcinolone in orabase on the lips and mouth.

Hand-foot-mouth disease infection can cause several complications. Complications are more common in children than in adults (12, 13). Barbara et al. reported one case of HFMD followed by myocarditis (14). Another study reported acute unilateral maculopathy, onychomadesis 2-3 months after the onset of HFMD (14, 15). In this case, no onychomadesis at the 3 months follow up and no complication was found. Hand-foot-mouth disease is a highly contagious disease. Immunocompromised people, such as elderly and pregnant women, have higher risk of infection. HFMD can also occur in immunocompetent adults: however, early detection and accurate diagnosis are difficult.

Abbreviations

HFMD – hand-foot-mouth disease
PCR – polymerase chain reaction

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Bolest šake, stopala i usta kod imunokompetentne odrasle osobe sa teškom manifestacijom u ustima

Sažetak

Bolest šake, stopala i usta (BŠSU) akutna je, samoograničena, izuzetno zarazna bolest koju izaziva virus i uglavnom pogađa decu mlađu od 10 godina. Etiologija ove bolesti je enterovirus 71 ili koksaki virus A16 koji obično izaziva simptomatsku infekciju ili blag oblik bolesti. Retko napada imunokompetentne odrasle osobe. Međutim, nedavno je došlo do porasta incidencije BŠSU kod odraslih. Ovde je prikazan slučaj 41-godišnje žene sa izrazitim oralnim lezijama i bolnom papulovezikularnom erupcijom na dlanovima šaka i stopalima.

Ključne reči: Bolest ruku, stopala i usta; Enterovirusne infekcije; Vezikulobulozne kožne bolesti; Odrasli; Imunokompetencija; Dijagnoza; Prikazi slučajeva; Znaci i simptomi

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