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Case Report

Herpes-associated erythema multiforme in a child

Hanna Alaydrus, Indah Sagitaisna

Department of Dermatology, Faculty of Medicine/ Sebelas Maret University, University Sebelas Maret Surakarta, Indonesia.

Abstract Herpes-associated erythema multiforme (HAEM) is a syndrome of various skin eruptions triggered by previous herpes simplex virus (HSV) infection. Erythema multiforme (EM) generally attacks young adults (20-40 years) and 20% of cases occur in children. We describe a case of a 4-year-old and 6-month-old boy who presented with reddish rashes spread all over the body, especially on both legs, accompanied by fluid-filled sacs.

Key words
Erythema multiforme; Herpes simplex virus; Herpes-associated EM; Pediatric, HAEM.

Introduction

Erythema multiforme is a skin eruption condition with polymorphic features, macules, papules, bullae, and target lesions with or without oral or other mucous membranes lesions that are triggered by viral infections, immunity, and the use of certain drugs.[1,2] Erythema multiforme generally attacks young adults (20-40 years) and 20% of cases occur in children, it also happens more often in men than women. It is triggered by previous herpes infections in up to 70% of cases.[3] Erythema multiforme syndrome, which is mostly caused by previous herpes simplex virus infection, tends for lesions to appear on the distal extremities and less commonly on the oral mucosa.[2] This form of syndrome is called herpes-associated EM. However, not all HSV episodes are followed by the development of HAEM, some HAEM episodes are not preceded by a clinically identifiable HSV episode.[2] The presence of HSV in the pathogenesis of HAEM is a direct mediated immune response against specific HSV antigens in the skin which is central to the development of lesions in HAEM.[4]

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Address for correspondence
Dr. Hanna Alaydrus
Sebelas Maret University, Ir. Sutami Road, No. 36, Jebres, Surakarta, Central Java 57126, Indonesia.
Email: hanaalydrs@gmail.com

Case Reports

A boy aged 4 years 6 months presented with reddish rashes sized half a centimeter (cm) to five centimeters spread all over the body, accompanied by fluid-filled sacs, some of which had burst, especially on both legs for a week before coming to the hospital. Initially, lesions appeared around the mouth and nose as well as the elbow and right arm. The boy was brought to a clinic to receive treatment. He was declared to have herpes simplex and was given drugs such as acyclovir and dexamethasone. After taking medication from the clinic, the complaints got worse, and somehow the lesions spread throughout the body. The patient denied a history of fever and allergies. Physical examination showed vital signs within normal limits. From the local dermatological status, it was found that in the labial region, crusts appeared with an erythematous base. In the trunk, upper, and lower extremities, multiple purpuras appeared with geographic shapes, firm boundaries, and sizes varied between 1x2 cm to 2x3 cm. In several locations, multiple bullae were found, with loose walls, and round-shaped, firm boundaries, filled with varying sizes of

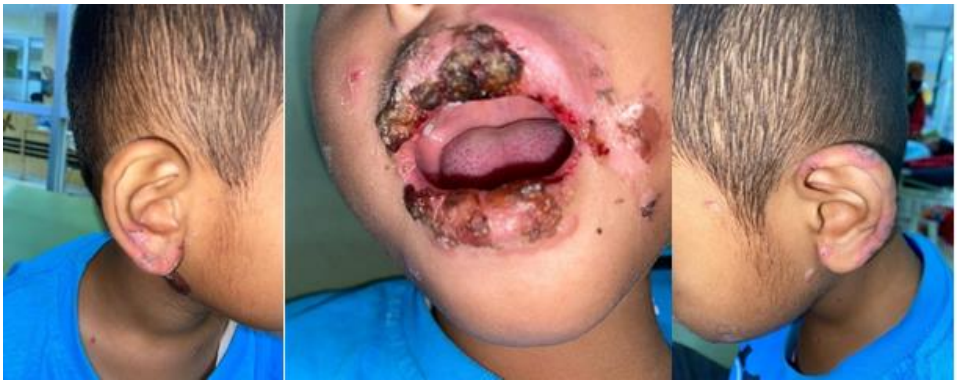

Figure 1 Crusts with an erythematous base on the labia and both ears.

serous fluid. Erosion of a ruptured bulla and firm boundaries of the target lesion were also found. Laboratory results showed an increase in blood glucose yet other parameters were within normal limits.

Discussion

An acute, self-limiting inflammatory condition of the skin and mucous membrane known as EM is characterized by a unique iris or focal lesion that is typically actually dispersed and frequently accompanied by sore throat, mucosal lesions, and malaise.[5] It is a polymorphic, frequently recurrent eruption brought on by drug exposure or several diseases, mostly the herpes simplex viruses (HSV-1 and HSV-2).[6,7] Target or iris lesions scattered symmetrically on the extremities and trunk characterize this blistering, ulcerative, mucocutaneous disease. Ninety percent of the time, EM is minor. Over 70% of EM cases have oral mucosal ulcers. Oral mucosal ulcerations and little to no skin lesions are additional symptoms of EM.[5]

Rarely, prodromal symptoms, which commonly appear 7 to 14 days before the development of a cutaneous lesion and include fever, malaise, headache, cough, rhinitis, sore throat, myalgia, arthralgia, and nausea, may be linked to erythema multiforme. Target or iris lesions, which can range in size from 2 to 20 mm and are characterized by concentric erythematous rings divided by rings of nearly normal color, are the most common skin lesions associated with EM. The dorsal surfaces of the hands, feet, elbows, and knees typically have a symmetrical distribution of lesions. Although there have been reports of burning or itching, the lesions are typically asymptomatic.[5] In instances of HAEM, the lip is the site of prior HSV infection most frequently.[5]

Since herpes simplex virus infection is the most

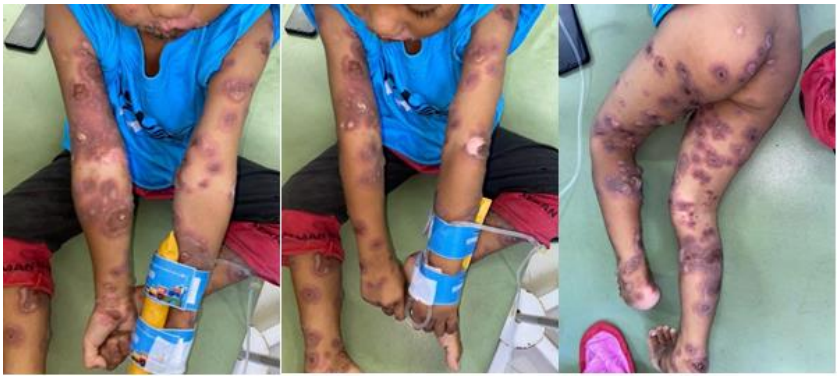

Figure 2 Multiple purpuras appeared with geographic shapes, firm boundaries, and sizes varied between 1x2 cm to 2x3 cm appeared on all four extremities.

frequent cause of EM, all patients should be tested for HSV-induced illness. When HSV is the cause, EM (small or severe) lesions usually appear 10 to 14 days after an HSV infection (lip is most frequently affected).[5] In our situation, lesions first showed up around the lips, nose, elbow, and right arm. The boy was sent to a clinic to obtain herpes simplex therapy.

For effective patient therapy, it is crucial to comprehend the etiology of HSV-associated EM. We propose that viropathic effects mediated by HSV proteins, particularly DNA polymerase (Pol), and an immune response to viral antigens combine to cause HAEM. The development of a complex of antigens and antibodies in the blood vessel circulation is the first stage in EM pathogenesis. In this situation, the complex is an allergen that enters the body in the form of HSV. The antigen will stay in the circulatory system for a longer period if it is not eliminated or if the phagocyte or macrophage cells are unable to perform their job.[9]

The next phase is when immune complexes are deposited in numerous organs, which ultimately leads to an increase in IFN-g release and an inflammatory response throughout the body. Antigen and antibody interactions can result in a variety of adverse effects, including the death of nearby keratinocytes, the production of cytotoxic substances, the halt of keratinocyte development, and apoptosis, all of which can harm the epidermis.[5] The identification of the deposited HSV genes, the size of the capillaries on the skin, the degree of vasoconstriction, and the surrounding temperature are all variables that could affect the frequency of recurrences, the severity of the lesion, and its anatomical placement.[6,7]

As histopathologic characteristics and laboratory tests are nonspecific, the diagnosis of EM is primarily based on the history and clinical presentation.[5] When a patient develops target lesions and has an HSV infection either before or concurrently, the clinical diagnosis of HAEM is made easy.[8] The history of HSV infection, along with typical skin and mucous membrane target lesions, supports the diagnosis of EM.[5] In our instance, we saw many purpuras, bullae, and target lesions throughout the trunk and extremities along with crusts in the labial mucosa and on the lips.

The severity of the disease's appearance, its underlying causes, and its acute or chronic course all affect how the condition is treated.[10] Treatment focuses on employing anti-inflammatory, anesthetic, or analgesic medications to treat symptomatic issues. It could take up to 3 to 6 weeks for lesions to fully heal, and the condition could return. Depending on the cause and severity of the ailment, a doctor may advise taking systemic steroids. Recurring HSV-associated EM can be prevented with continuous antiviral medication.[5]

The diagnosis in this case was EM driven by HSV infection. The history of HSV infection, along with typical skin and mucous membrane target lesions, supports the diagnosis of EM. The degree of severity of the disease's symptoms determines how it should be treated.

Declaration of patient consent The authors certify that they have obtained all appropriate patient consent.

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Conflict of interest Authors declared no conflict of interest.

Author's contribution

HA: Manuscript writing, critical review, has given final approval of the version to be published.

IS: Identification, management of the case, manuscript writing, has given final approval of the version to be published.

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