Acute Hemorrhagic Edema of Infancy

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Acute hemorrhagic edema of infancy is a distinctive, cutaneous small vessel leukocytoclastic vasculitis of young children with dramatic characteristic skin findings. It is characterized by low-grade fever, erythematous edema, and purpuric lesions mainly on the face and extremities. Visceral involvement is uncommon, and spontaneous recovery usually occurs within one to three weeks without sequelae. The main differential diagnosis is Henoch-Schönlein purpura. We report this case to highlight the condition and emphasize its benign nature.

We describe a classic case of acute hemorrhagic edema of infancy, and comment on the clinical features, pathology, treatment, and prognosis. The disease has spontaneous recovery without sequelae.

Introduction

Acute hemorrhagic edema of infancy (AHEI) is a rare disorder which was first described by Snow in 1913. It has almost exclusively cutaneous manifestations and most commonly occurs in children under two years of age.

Patients with AHEI often have recently had an upper respiratory infection and/or have been treated with antibiotics. Clinical features include petechiae and ecchymoses of the head and distal extremities. We report a classic case of AHEI and its clinical differential diagnosis.

Case Report

An 11-month-old male patient was brought to Pediatric Emergency Ward of Imam Reza Hospital, Mashhad, Iran because of cutaneous lesions, edema, and fever with a rapidly progressive course. Then the child was referred to Dermatology Department for dermatologic consultation. Fever and nontender edema of the ears, face, hands, and feet had started suddenly in the morning of the day before hospital admission. Examination showed tender edematous palpable annular petechiae and ecchymoses measuring from one to three centimeters in diameter, most of them were like target or rosette, some coalescent. The lesions were found primarily on the ears, face, and extremities, which began distally and spread proximally (Figures 1A and 1B). The trunk and genital area were spared. On mobilization and palpation, the upper extremities appeared painful. Mucosal surface of the mouth and nose was normal. There were no signs or symptoms of internal organ involvement. Throughout the illness, apart from an initial and transient mild fever, the child was otherwise fit and well with no obvious systemic symptoms. The only clinically relevant antecedent was a history of common cold and suppurative rhinorrhea treated with amoxicillin, acetaminophen, and pediatric grip syrup.

On laboratory investigations, consisting of complete blood count, serum level of complements, antistreptolysin, urinalysis, clotting screen, liver function tests, kidney function tests, and electrolytes, all tests were in normal range for his age and sex. Only serum C-reactive protein level was elevated.

Skin biopsy specimen was obtained from a new
plaque on his thigh. The histologic examination showed a small vessel leukocytoclastic vasculitis (Figure 2). Direct immunofluorescence (DIF) was negative. Wound care was the only treatment we proposed for the patient. On the next visit, five days later, most of the lesions were remarkably resolved without any drug administration (Figures 3A and 3B). The child remained well with no systemic problem. The renal function remained normal.

**Discussion**

Snow first described AHEI in the U.S. in 1913 under the title “purpura urticaria and angioneurotic edema of the hands and feet in a nursing baby.”1 Europeans have recognized Finkelstein’s description of this disease since his publication in 19382 and until recently, most reports of this disorder, occurred in the European literature under the terms of Finkelstein's disease, Seidlmayer syndrome,3 purpura en cocarde avec oedema,4 medallian-like purpura, infantile postinfectious iris-like purpura,4 and edema and infantile Henoch-Shönlein purpura (HSP).5, 6 AHEI is a distinctive, cutaneous small vessel leukocytoclastic vasculitis of young children with dramatic and characteristic skin findings.7 The cutaneous findings are dramatic both in appearance and fast progression. The two primary features include large cockade, annular, or targetoid purpuric lesions found primarily on the face, ears, and extremities, and edema of the limbs and face. The typical patient is aged four to twenty-four months with a history of recent upper respiratory tract infection and/or a course of antibiotic therapy8, 9; it has also been reported in a neonate at birth.10

AHEI is a vasculitis mediated by immune complexes. Bacterial or viral infections (mainly of the upper respiratory and urinary tracts), drugs especially antibiotics, and less frequently, immunization are suggested to be the likely triggering mechanisms.11 – 14 The peak incidence occurs in the winter and this may be due to the association of this disease with upper respiratory tract infection.15 There is a slight male preponderance.16

Its clinical picture is very striking as the cutaneous lesions, which at the onset of the disease are acute and profuse, are in stark contrast with the patient's good general state of health.17 Nontender facial edema may be the presenting sign of AHEI lesions, which are often asymmetrical. There is sudden development of tender edematous petechiae and ecchymoses on the head and distal extremities, as well as large annular, coin-shaped or targetoid lesions. Lesions start distally and spread proximally, sometimes involving the scrotum in male.8 Characteristically, the trunk is spared.11 Clinically, the patients are medically stable, although they may be febrile. The disorder may rarely involve joints, the gastrointestinal tract (with bloody diarrhea), or kidneys13 with vasculitis.
Histologic changes are those of a leukocytoclastic vasculitis which is demonstrated as vascular changes with a cellular infiltrate containing neutrophils; only small vessels in the dermis are involved. Vessels show swelling of their endothelium and deposits of fibrin within and around their walls. The result is a smudgy appearance termed fibrinoid degeneration. Typically, extensive extravasation of erythrocytes is present.\textsuperscript{19}

The main differential diagnosis of AHEI is HSP. The age of onset of AHEI, however, is younger (four to twenty-four months) compared with a peak age of four to seven years in HSP. Unlike HSP in which systemic complications (arthralgia, gastrointestinal hemorrhage, nephritis) are common, in AHEI they are extremely rare.\textsuperscript{15} HSP is clinically characterized by palpable purpura on the extensor surfaces of the legs and on the buttocks, whereas in AHEI larger purpura and ecchymoses are found on the face and extremities, with far more extensive edema.\textsuperscript{20} Both AHEI and HSP are leukocytoclastic vasculitis, but the immunohistology in AHEI is different from the pattern of HSP. In AHEI there is more extensive vasculitis with fibrin deposits; IgA deposits are seen in a minority of cases.\textsuperscript{20-22} AHEI may depict IgM, fibrinogen, and C\textsubscript{3} as with HSP, but it also presents C\textsubscript{1q} perivascular deposition which is not found in HSP.\textsuperscript{21,22} There is also a report of AHEI and HSP overlap in a child.\textsuperscript{23}

AHEI may be diagnosed only after meningo-coccemia, erythema multiforme, urticarial vasculitis, Kawasaki disease, and child abuse have been ruled out.\textsuperscript{8,24} No effective therapy exists; wound care is the only treatment necessary for patients with AHEI.\textsuperscript{8} Although it is said that steroids have no proven effect on AHEI,\textsuperscript{24} there is a report that showed clear improvement 24 hours after the onset of the disease once the therapy with prednisolone had been started.\textsuperscript{17} Spontaneous recovery usually occurs within one to three weeks, without sequelae.\textsuperscript{25} Recurrent episodes may occur.\textsuperscript{8}

AHEI is an uncommon disorder which often goes unrecognized or has been confused with HSP. The most striking classic features of this disease are the contrast between the acuteness of the cutaneous lesions and the good general condition of the patient. It is distinguished from HSP by its occurrence in children aged four to twenty-four months; lack of systemic features such as hematuria, gastrointestinal bleeding, arthralgia, and constitutional features; resolution within one to three weeks without sequelae; and negative DIF.

So, awareness of this relatively unknown form of leukocytoclastic vasculitis will assist in making an early diagnosis possible, thereby avoiding unnecessary treatment and concern.

References

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