

Acute Hemorrhagic Edema of Infancy: Case Report

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SUMMARY Acute hemorrhagic edema of infancy (AHEI) is a benign form of leukocytoclastic vasculitis that typically affects children between 4 and 24 months of age. The etiology remains unknown. The potential triggers of AHEI include preceding bacterial or viral infections, immunizations and drugs. The onset of AHEI is often dramatic with petechiae, ecchymoses, and annular, nummular or targetoid purpuric lesions usually appearing on the extremities, face, or ears. We report on a case of AHEI that occurred after upper respiratory tract infection.

KEY WORDS: acute hemorrhagic edema of infancy, Henoch-Schönlein purpura, leukocytoclastic vasculitis

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INTRODUCTION

Acute hemorrhagic edema of infancy (AHEI) is a benign form of leukocytoclastic vasculitis that typically affects children between 4 and 24 months of age, usually during winter (1). It has also been observed in older children (2). Snow in the United States first described it in 1913. He reported on a case of "purpura, urticaria and angioneurotic edema of the hands and feet in a nursing baby". Many cases of this condition have been reported later on under different clinical terms, among which are Finkelstein's disease (3), Seidlmayer's 'cockade' purpura or syndrome (4). Although some authors consider AHEI a purely cutaneous variant of He-

noch-Schönlein purpura (HSP), most authors prefer to regard it a separate clinical entity within the group of cutaneous small vessel vasculitis of childhood.

The etiology of AHEI remains unknown. The potential triggers of AHEI include preceding bacterial or viral infections, immunizations and drugs. The onset of AHEI is often dramatic, characterized by petechiae, ecchymoses, and annular, nummular or target-like purpuric lesions usually involving the extremities, face, or ears (5). Other occasional cutaneous signs are petechial or reticulate purpura, necrotic lesions and urticaria (1). Subcutane-



Figure 1. Typical annular, sharply demarcated, hemorrhagic, target-like lesions on lower extremities.

ous edema often appears on the face, scrotum, ears and distal parts of the extremities. Low-grade fever is common. The involvement of viscera and joints is unusual.

Histological features of AHEI reveal leukocytoclastic vasculitis, which affects both capillaries and post-capillary venules of the upper and middle dermis. Direct immunofluorescence of skin biopsy specimen can demonstrate deposits of IgM, C3, C1q and fibrinogen (6).



Figure 2. Annular, hemorrhagic, target-like lesions on the right thigh.

There is no specific treatment for AHEI. Systemic corticosteroids and antihistamines do not seem to improve the course of the disease but are often prescribed. Antibiotics should be given in cases of concurrent bacterial infection (7). Spontaneous and complete resolution usually occurs within one to three weeks, but recurrences, although rare, are possible. The differential diagnosis includes HSP, meningococemia, erythema multiforme, urticaria vasculitis and Kawasaki disease (5). Child abuse should also be considered (8).

CASE REPORT

A 14-month-old boy was admitted to the Unit of Pediatric Dermatology of our Department with purpuric rash. Seven days prior to the rash development, the patient had high fever, rhinorrhea and productive cough. The parents denied any medication except for Dentinox, a solution for dentition (that consists of lidocaine and chamomile extract). The boy had previously been reported as healthy. He received vaccination against measles, parotitis and rubella 2 weeks prior to the illness. When admitted, the child was irritable, sleepy, in good general condition and with normal vital signs. Multiple, scattered, annular, sharply demarcated hemorrhagic target-like lesions, localized on his limbs, especially on his legs, ranging from 0.5 to 3 cm in diameter, were observed (Figs. 1 and 2). The right ear lobe was edematous and erythematous (Fig. 3). Serous nasal secretion was present. The remainder of physical examination was unremarkable and there were no signs of systemic involvement.



Figure 3. Hemorrhagic swelling of the right ear.

Laboratory studies revealed decreased hemoglobin (105 g/L); increased LDH (500 U/L), AST (47 U/L), eosinophils (11%) and platelet count ($687 \times 10^9/L$); erythrocyte sedimentation rate, leukocytes, renal function tests, serum electrolytes, CK, CRP, AP, ALT and GGT were within the normal ranges. ANF and anti-dsDNA were negative. Serum levels of immunoglobulins and CH 50 were also normal. Circulating immune complexes were increased (0.161; normal <0.12). Urine and control urine analyses were normal. Stool sample was negative for occult blood. *Streptococcus pneumoniae* was isolated from the nasopharynx culture. The stool sample culture was negative for pathogenic bacteria.

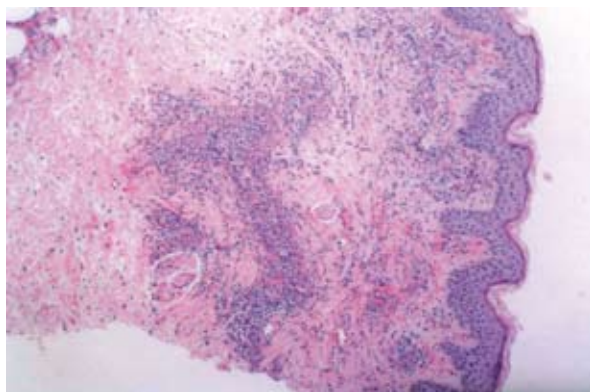


Figure 4. Superficial and deep perivascular and interstitial infiltrate of neutrophils. (Hematoxylin and eosin stain; original magnification, X40).

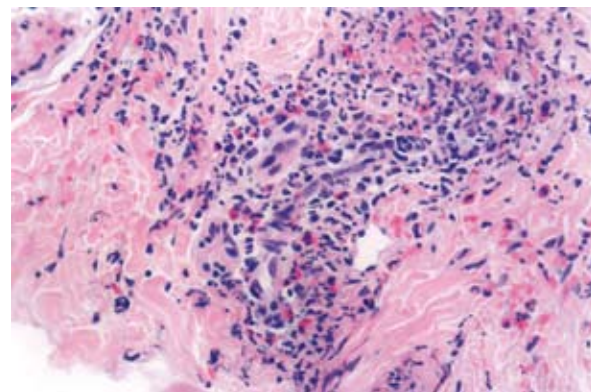


Figure 5. Neutrophils, abundant nuclear 'dust' of neutrophils and numerous extravasated erythrocytes. (Hematoxylin and eosin stain; original magnification, X120).

Histology of a skin lesion revealed leukocytoclastic vasculitis with a superficial and deep perivascular neutrophilic infiltrate in the dermis with nuclear dust and extravasated erythrocytes. Fibrin deposits were not observed (Fig. 4). Direct immunofluorescence study demonstrated deposits of C1q in vascular walls. The condition spontaneously improved with only symptomatic treatment (nasal decongestants). The patient was discharged from the Department with the prescription for an iron supplement.

DISCUSSION

We report on a case of AHEI, which was diagnosed according to the clinical symptoms, histology findings and direct immunofluorescence study of a skin lesion. A typical histopathology finding of AHEI is leukocytoclastic vasculitis of dermal vessels with fibrinoid degeneration of vascular walls,

nuclear dust, extravasated erythrocytes, and interstitial edema (3), as found in our patient. Direct immunofluorescence usually shows vascular deposits of C1q, C3, fibrinogen, IgA or IgM (7). C1q deposits seem to be a 'constant finding' in AHEI (8). IgA deposits are found in about 30% of cases (7). In our patient, C1q deposits were found in vascular walls.

Routine laboratory tests in patients with AHEI are not conclusive, usually yielding normal results. Mild anemia, eosinophilia and thrombocytosis, found in our patient, are not characteristic of the diagnosis of AHEI (7).

Edema of the earlobes occurs in half of AHEI patients (8). Renal, gastrointestinal and joint involvement is uncommon. Kidney involvement with microscopic hematuria, mild proteinuria or increased blood urea nitrogen levels has always

Table 1. Comparison of acute hemorrhagic edema of infancy (AHEI) and Henoch-Schönlein purpura (HSP) (modified from ref. nos. 1 and 8)

	AHEI	HSP
Age	4-24 months	Peak between 3 and 6 years
Purpura	Ecchymotic cockade pattern; limbs and face	Papular, petechial, urticarial lesions; predominantly on lower limbs
Edema	Constant, often extensive	Inconstant
Visceral involvement	Very uncommon	Frequent
Histopathology		
Leukocytoclastic vasculitis	+	+ (often less marked)
Fibrinoid necrosis	Frequent	Uncommon
Direct immunofluorescence		
Perivascular IgA deposits	Positive in 30% of cases	+
Perivascular C1q deposits	+	-
Mean duration	12 days	30 days
Relapses	No	Frequent

been transient (8). Intestinal intussusception has been described in two cases (6,8). Torsion of the testis has been described once (8). Joint pain has occasionally been described (1). Spontaneous and complete resolution occurs within 1-3 weeks (8). Recurrences are uncommon (3).

Although the etiology of AHEI is unknown, it represents an immune complex mediated vasculitis, often preceded by a prodromal period (7). Association with prior viral infections (upper respiratory tract infection, otitis media, viral conjunctivitis), bacterial infections (streptococcal or staphylococcal pharyngitis, pulmonary tuberculosis, pneumonia, urinary tract infection), vaccination, or medication (penicillin, cephalosporins, trimethoprim-sulfamethoxazole, paracetamol, or cough syrup) has been documented (7).

AHEI in our patient was probably associated with a viral respiratory infection. We did not consider *Streptococcus pneumoniae*, isolated from the child's nasopharynx, to be linked with AHEI. It was not likely that preceding vaccination or dental drops induced AHEI in our patient.

Treatment of AHEI remains controversial. While it has been reported that systemic corticosteroids and antihistamines do not alter the course, some authors support the use of these medications to hasten resolution of symptoms (9). Antibiotics should be given when there is evidence of concurrent bacterial infection.

While some believe AHEI to be a mild variant of HSP, others consider it to be a distinct entity (8). Although the clinical picture is dramatic, and AHEI represents a leukocytoclastic vasculitis, in the majority of cases it affects only cutaneous small vessels. Systemic affection, when present, seems to be transient. Table 1 summarizes differences between these two entities (1,8).

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