CLINICAL CASE

Infantile acute hemorrhagic edema in a female child: a different entity from Henoch-Shönlein purpura

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Abstract

Background: Infantile acute hemorrhagic edema (IAHE) is an entity manifested in young children and has a self-limiting and benign course. It usually appears secondary to a history of upper respiratory illness, course of antibiotics or vaccination. The two primary cutaneous features include large “cockade” or rosette appearance or annular purpuric lesions found primarily on the face and upper extremities along with edema of the limbs and face.

Case report. We report the case of a female patient (age 4 years and 11 months) who manifested all the classic clinical characteristics of this entity at an older age.

Conclusions. The concept that Henoch-Schönlein purpura and IAHE are different entities is reinforced.

Key words: infantile acute hemorrhagic edema, Henoch-Schönlein purpura, Finkelstein’s disease, Seidlmayer syndrome.

Introduction

Infantile acute hemorrhagic edema (IAHE) is a rare entity with a self-limiting and benign course. It most often affects infants between 4 and 24 months old and presents a leukocytoclastic vasculitis of small vessels with two distinctive cutaneous characteristics that include rosette (or cockades) and annular or bulls-eye lesions. These lesions are first seen on the face, upper chest and limbs. It also presents edema that spreads to the face and limbs. Disorders are not common to internal organs.1,2 We report the case of a female patient who showed all the classic characteristics of this disease at a later age. This case allows us to reinforce the concept that Henoch-Schönlein purpura and IAHE are two different entities.

Clinical Case

The patient was a preschool female of 4 years and 11 months of age with no heredofamilial, perinatal, or personal history of pathological importance. The child had a history of upper respiratory tract...
infection with 48 h of evolution prior to clinical dermatological manifestations and exclusive treatment with non-steroidal anti-inflammatory analgesics (acetaminophen). The patient was admitted to our department with disseminated dermatosis of the head, chest and upper and lower extremities that affected the eyelids and cheeks, anterior face and posterior thorax predominantly in upper areas, upper limbs on all sides dominating in the lower muscles and ankles. These were characterized by purpuric rosette and annular-type lesions with central paleness. Pruritic, polycyclic lesions of 48-h evolution were 0.5 to 2 cm in diameter with a tendency to coalesce. She also presented edema of the eyelids, lips, knees and backs of hands and feet (Figures 1 and 2).

Laboratory studies revealed hemoglobin 14.1 g/dL, hematocrit 40.6%, leukocytes 8100/mm$^3$, neutrophils 71.5%, lymphocytes 23.6%, eosinophils 0.03%, platelets 326,000/mm$^3$, and ESR 15 mm/h. Pharyngeal exudates were negative and urinalysis was normal.

Skin biopsy stained with hematoxylin and eosin showed an unaltered epidermis, papillary and reticular dermis with presence of dilated capillaries with inflammatory infiltrates consisting of neutrophils and eosinophils, in addition to nuclear fragmentation (karyorrhexis) in their walls. With these findings we established the diagnosis of leukocytoclastic vasculitis with eosinophilia (Figures 3 and 4). Immunofluorescence was negative for all immune reactants with the exception of the presence of fibrinogen in capillary walls.

Symptomatic treatment was initiated with cetirizine at 0.25 mg/kg/day and lubricant cream, having an involution of the lesions to hyperpigmented macules that disappeared 3 weeks from the start of the illness without after effects or recurrence.

**Discussion**

IAHE has also been called acute hemorrhagic edema of infancy, Finkelstein's disease, Seidlmayer syndrome, benign childhood cutaneous leukocytoclastic vasculitis and postinfectious purpura in childhood cockades. Snow published the first case in 1913 with the title of “urticarial purpura and angioneurotic edema of hands and feet in an infant” and considered that this disease was a variant of Henoch-Schönlein purpura. Finkelstein in 1938 and Seidlmayer in 1939 were the first authors to recognize this entity as a different disease, which is why the disease has also been called Finkelstein and Seidlmayer syndrome. 

![Figure 1. Edema of eyelids and lips; cockades and annular lesions on face, trunk and upper extremities (arrows).](image1)

![Figure 2. Lesions in rosette, annular and bulls eye with a tendency to coalesce, located on the trunk and upper extremities.](image2)
The frequency of this disease is not well known; however, reported cases in different countries show a poorly diagnosed entity probably because of the lack of knowledge about its existence. It is normally seen in infants between 4 and 24 months of age, although there are some reports of patients between 2 and 4 years of life. No racial predilection has been observed, but there is a slightly higher incidence in male patients and during the winter months. The cause of this disease is unknown; nevertheless, in many cases, the skin lesions are preceded by infectious processes mainly in the upper respiratory tract and associated with agents such as *Streptococcus pneumoniae*, *Staphylococcus*, *adenovirus*, *Mycoplasma pneumoniae*, herpesvirus, respiratory syncytial virus (RSV), etc. Furthermore, it has been reported after administration of drugs such as penicillin, cephalosporins, sulfa drugs and acetaminophen, as well as after vaccinations, specifically trivalent (measles, mumps and rubella). The relationship of these agents suggests that there may be an immune complex leukocytoclastic vasculitis condition in response to an antigenic stimulus.

Clinical manifestations develop rapidly over a period of 24 to 48 h and are characterized by purpuric lesions and edema. Skin lesions are predominant on the face, upper chest and extremities and are characterized by rosette-shaped, annular or bull’s-eye purpuric lesions that coalesce and form plaques. The bull’s-eye lesions start as edematous papules with a central petechiae that spreads centrifugally in three distinct areas: central hemorrhagic scabs surrounded by a pale palpable ring, a hyperemic area disappearing under the pressure and, in rare cases, progression to a necrotic bullosa. The course of these skin lesions is intermittent, and there are lesions in various stages of evolution. On rare occasions it has been described as mucocompromised, mainly in oral mucosa with the presence of petechiae.

Edema may be the initial sign and may be soft, painless and most often affects the face, predominantly the eyelids, ears lobes and extremities. In the latter, the pain begins in the hands and feet and later spreads to nearby areas. The condition has also been reported to affect the genital areas and scalp.

Clinical symptoms may be accompanied by fever and general wellbeing, which contrasts with the apparent severity of cutaneous manifestations. Lack of visceral involvement is also characteristic of this disease, with isolated reports of dysentery, intestinal invagination, melena and microscopic hematuria with proteinuria, as well as joint involvement. These alterations are generally temporary. The disease resolves spontaneously and without after-effects in a period of 1 to 3 weeks with low recurrence. When cutaneous lesions are involved, postinflammatory hyperpigmented macules may occur.

Routine laboratory studies are not diagnostic and alterations found are not specific. Blood test may be reported as normal or may demonstrate discrete neutrophilia with predominantly polymorphonuclear cells, lymphocytes and occasionally eosinophilia and thrombocytosis. ESR may be elevated and general urinalysis and complete serum levels are usually normal.

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**Figure 3.** Micrograph of the skin biopsy (HE stain; 10X) showing the presence of dilated capillaries in the papillary and reticular dermis with inflammatory infiltrates in their walls.

**Figure 4.** Micrograph of skin biopsy (HE stain; 20X) showing inflammatory infiltrate composed of neutrophils and eosinophils as well as karyorrhexis in vascular walls (leukocytoclastic vasculitis with eosinophilia).
Diagnosis of this disease is fundamentally clinical and can be confirmed with histopathological studies. Findings from these studies show a variation in this anatomic leukocytoclastic vasculitis of small vessels, which initially shows an infiltrate in superficial and deep dermis and even in subcutaneous tissue, with a primary component of interstitial and perivascular neutrophils. Later, the infiltrate becomes more dense and fibrin deposits form in the walls of very small vessels of the dermis. Occasionally, extensive extravasation of erythrocytes occurs. Nuclear dust is often present. Edema is evident as paleness in the papillae skin as well as in miniscule vesicles within the epidermis. Direct immunofluorescence studies have shown different deposits of immune reactants in the walls surrounding the caliber of small vessels. They are fibrinogen and factor C3 in 100% of cases and less frequently may be IgA (33%), IgG (22%), IgM (78%), and IgE (33%).

Differential diagnosis should be principally established with Henoch-Schönlein purpura. Other entities to consider are multiform erythema, urticaria, meningococcemia, Kawasaki disease, Sweet syndrome (acute febrile neutrophilic dermatosis), polyarteritis nodosa, drug-induced vasculitis, trauma-induced purpura and neonatal lupus. In any case, analysis of clinical characteristics, evolution of the disease and histopathological findings allow for accounting of the difference.

Some authors consider that IAHE is a clinical variant of Henoch-Schönlein purpura in young children. However, the reported cases in children between 2 and 4 years of age as well as the patient reported here who is nearly 5 years old, allow concordance with the authors who consider these to be different entities with well-defined clinical and pathological characteristics (Table 1).

Table 1. Clinical and pathological differences of IAHE and Henoch-Schönlein purpura

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<thead>
<tr>
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<th>IAHE</th>
<th>HSP</th>
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<tr>
<td>Age at presentation</td>
<td>&lt;2 years</td>
<td>&gt;3 years</td>
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<tr>
<td>Topography</td>
<td>Face, upper chest, extremities</td>
<td>Lower extremities (99%)</td>
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<tr>
<td>Morphology</td>
<td>Purpuric rosette or “cockade” appearance or annular lesions in white rings with tendency to coalesce</td>
<td>Palpable petechiae and purpuric papules</td>
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<td>Edema</td>
<td>Always present</td>
<td>Occasional</td>
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<td>Associated symptoms</td>
<td>Slight fever, good general status</td>
<td>Moderate fever, arthralgias, poor general status</td>
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<td>Systemic involvement</td>
<td>Very rare</td>
<td>Articular, gastrointestinal, renal and pulmonary (50%)</td>
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<td>Direct immunofluorescence</td>
<td>Fibrinogen deposits (100%); IgA (33%)</td>
<td>IgA deposits (&gt;75%).</td>
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<td>Treatment</td>
<td>None required; self-limiting course</td>
<td>Severe skin involvement or systemic compromise: prednisone 1-2 mg/kg</td>
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<td>Evolution</td>
<td>Resolved in 1-3 weeks</td>
<td>Resolved in 4-6 weeks</td>
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IAHE: infantile acute hemorrhagic edema; HSP, Henoch-Schönlein purpura.
References


