

# Acute Hemorrhagic Edema of Infancy (AHEI)

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## Introduction

**A**cute hemorrhagic edema of infancy (AHEI) is a benign variant of leukocytoclastic vasculitis occurring in children up to 2 years of age. Although it was first described by Snow<sup>1</sup> in the United States in 1913, it was not before the eighties<sup>2</sup> and nineties<sup>3-5</sup> of the twentieth century that more attention in English literature was given to the disease. Beforehand, cases were mainly reported in the French literature.<sup>6-9</sup> Still, it is an important disease to recognize because of its very impressive clinical presentation combined with a benign outcome and prognosis.

## Clinical Picture

The prodromal period is, in 75% of the cases, characterized by viral (eg, mostly upper respiratory tract infections but also otitis media<sup>10,11</sup> or conjunctivitis,<sup>5,12</sup>) or bacterial infection (eg, streptococcal,<sup>13,14</sup> staphylococcal<sup>15</sup> pharyngitis, pulmonary tuberculosis,<sup>16,17</sup> bronchopneumonia,<sup>18</sup> or urinary tract infection<sup>17</sup>), vaccination (eg, measles, diphtheria-pertussis-tetanus,<sup>10</sup> or combined<sup>5</sup>), or drug intake (eg, penicillin,<sup>5</sup> cephalosporins,<sup>5,10</sup> trimethoprim-sulfamethoxazole,<sup>19</sup> paracetamol,<sup>20</sup> cough syrup,<sup>3</sup> or a combination of these), suddenly followed by, at first, red macules or urticarial lesions later followed by impressive, more or less symmetrically distributed, large (1–5 cm) ecchymotic purpuric lesions, characteristically in a cockade pattern, and painful, nonpitting edema. In some instances, petechiae or reticulated purpura may be seen. The lesions may become necrotic especially on the ears. The face, eg, the ears, eyelids, and cheeks, the scrotal area, and the extremities are most commonly affected. The trunk and mucous membranes are usually spared. The skin eruption may be accompanied by low- to high-grade fever in an otherwise not very ill child, usually showing

no concomitant symptoms. Rare cases of gastrointestinal vasculitis in one case followed by an intussusception<sup>21</sup> with fatal consequences have been reported. Transitory renal problems, eg, microscopic hematuria or mild proteinuria, have been infrequently described with spontaneous recovery within days to 3 weeks.<sup>5,14,22</sup>

The eruption spontaneously disappears without sequelae within 2–3 weeks, but relapses may occur during healing of the original lesions or occasionally later in the follow-up, even up to 15 months<sup>15</sup> after the first sign of the disease. Only necrotic areas may leave a scar.

## Histopathology and Immunofluorescence

Histopathological analysis demonstrates a leukocytoclastic vasculitis of the dermal vessels with fibrinoid necrosis, extravasation of red blood cells, and leukocytoclasia. Direct immunofluorescence examination shows vascular deposits of C1q, C3, and fibrinogen in all cases.<sup>1</sup> Immunoglobulin (Ig) deposits in the vessels were found in the following percentages: IgA in 30%; IgG in 20%; IgM in 80%; and IgE in 30%.<sup>1</sup>

## Laboratory Investigations

Apart from a mild leukocytosis, lymphocytosis, thrombocytosis, or rarely an eosinophilia, no consistent laboratory findings have been reported.

## Differential Diagnosis

The differential diagnosis of acute haemorrhagic edema of infancy includes Henoch-Schönlein purpura (HSP), meningococcaemia, erythema multiforme, urticaria with haemorrhagic elements, Kawasaki disease, skin lesions in septicemia, or a drug eruption. The following diagnostic criteria for AHEI were suggested:<sup>12</sup>

- An age of < 2 years.
- Purpuric or ecchymotic targetlike lesion, with edema of the face, auricles, and extremities, with or without mucosal involvement.
- Lack of systemic disease or visceral involvement.
- Spontaneous recovery within a few days or weeks.

Using these characteristics, most diseases thought of in the differential diagnosis are easily ruled out. The most

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difficult distinction is that between AHEI and HSP. To date, it is not clear whether these two are different diseases or whether HSP behaves more benignly in infancy.

### Treatment and Follow-up

The benign course justifies investigative and therapeutic reserve, but a firm and reassuring attitude towards the parents is needed.<sup>4</sup> Although some reported patients were treated with oral corticosteroids or antihistamines, these interventions are not necessary, because the spontaneous recovery occurs within a relative short time period. Of course, therapeutic interventions for the prodromal symptoms may be needed.

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**D**uring WW II, copper was a strategic metal used in ammunition casings; therefore, the United States mint replaced copper with steel in 1943 for production of pennies. The “D” below 1943 signifies the coin was minted in Denver.

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