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Case Report

# Infantil Acute Hemorrhagic Edema in a Neonate: A Case Report

**Cagri Cumhur Gok,[1] Seyran Ozbas Gok,[2] Emrah Can,[1] Sahin Hamilcikan,[1] Yigit Ulgen[3]**

[1]Department of Pediatrics, University of Health Sciences Türkiye, Bagcilar Training and Research Hospital, İstanbul, Türkiye
[2]Department of Dermatology, Beylikdüzü State Hospital, İstanbul, Türkiye
[3]Department of Pathology, University of Health Sciences Türkiye, Bagcilar Training and Research Hospital, İstanbul, Türkiye

**Abstract**

Acute infantile hemorrhagic edema is a rare leukocytoclastic vasculitis with symptom triad of fever, large purpuric skin lesions, and edema. The major features are an ecchymotic purpura, an inflammatory edema of the limbs and face. It is a benign condition with a dramatic onset, resolves spontaneously and completely within 1–3 weeks, and is seen in children younger than 3 years of age. We would like to detail a newborn with acute infantile hemorrhagic edema, as it is a rare disease in childhood, especially in the neonatal period.

**Keywords:** Infantile acute hemorrhagic edema, newborn, vasculitis

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Acute infantile hemorrhagic edema (AIHE) is a rare leukocytoclastic vasculitis seen in children younger than 3 years of age and seen in the neonatal period. Disease was first defined by Snow as "purpura, urticaria, and angioneurotic edema in the hands and feet" in 1913.[1] It is also known as post-infectious cockade purpura, Finkelstein disease, or Seidlmayer disease. The exact prevelance of the disease is unknown.[2] This disease is more common in men than in women. Goraya and Kaur speculated on the link between IgA vasculitis and infantile hemorrhagic edema. According to the authors, since the infant's IgA system is not fully mature, if acute hemorrhagic edema is associated with IgA vasculitis, the patient is unable to mount an IgA-mediated immune response, which would explain the IgA deficiency on immunofluorescence.[3] The disease is characterized by large purpuric lesions, fever, and edema and these symptoms disappear within 3 weeks. The main skin lesions are an ecchymotic purpura, usually annular pattern, and an inflammatory edema of the limbs and face.[4] The lesions are usually located outer parts of trunk. There is no specific treatment for acute infantile hemorrhagic edema. It occurs after infections such as vaccination, otitis media, upper respiratory tract infection, or conjunctivitis.[5] It has also been shown to be associated with CMV, HSV-1, or rotavirus infection. Since children take antibiotics and antipyretics before lesions occur, it can also develop due to drugs. This disease increases in the winter season.[6]

In some cases, it has been reported that steroids and antihistamines can be used in some cases, and the general opinion is that the treatment does not change the clinical course of the disease.[7,8] On the other hand, there are also cases reporting that the lesions regress rapidly after 24 h with the use of steroids.[9,10] In general, heamatologic values and coagulation factors are normal. The initial findings of

**Address for correspondence:** Emrah Can, MD. Sağlık Bilimleri Üniversitesi Bağcılar Eğitim ve Araştırma Hastanesi, Çocuk Sağlığı ve Hastalıkları Anabilim Dalı, İstanbul, Türkiye
**Phone:** +90 532 512 36 06 **E-mail:** canemrahcan@yahoo.com

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the disease can be considered as Henoch Schonlein purpura meningococcal septicemia or purpura fulminans lesions and may lead to unnecessary investigation and treatment interventions.[11,12] In the pathogenesis of leukocytoclastic vasculitis, it is considered that circulating immune complexes are located in the vessel wall.[11] The factors that initiate the immune complex formation in leukocytoclastic vasculitis are not fully known. Recurrence is not usually seen, but it may occur rarely one to four times.[13] All reported AIHE cases recovered without sequelae within an average of 35 days.[14] Since it is rarely seen in the neonatal period, we aimed to present a 19-day-old newborn admitted to our emergency service, AIHE. In this presented case, parental consent was obtained.

## Case Report

A 38-week born to a 27-year-old mother 2700 g male neonate was admitted to our emergency service on the postnatal 19$^{th}$ day. In his medical history, the family used diaper powder for his skin lesions approximately 5 days, when the lesions did not regress, they were admitted to another hospital and were prescribed an anti-fungal cream. They applied to the emergency service of our hospital when purple rashes developed after using this cream. Physical examination revealed a purplish erythematous and annular plaques diameters ranging 1–3 cm edema on the limbs and chest which faded with pressing and left a paleness. He had no fever and abnormal findings in his vitals. In his phsical examination, his body weight was 3400 g, length was 50 cm, body temperature was 36°C, heart rate was 144/min, respiratory rate was 44/min, and arterial blood pressure was 60/35 mmHg. There was a dense purpuric rash on the arms and especially legs (Fig. 1). In laboratory findings, white blood cell count was 10300/mm$^3$, hemoglobin was 18 g/dL, hematocrit was 54.4%, platelet count was 248000/mm$^3$, and C-reactive protein was 11.14 mg/L. Other biochemical parameters and bleeding profile were normal. Serological tests including hepatitis B and C, HIV, and TORCH infections were negative. The patient had a negative COVID-19 PCR test and had no family history of COVID-19 infection. Lumber puncture performed on the patient and no signs of regarding meningitis obtanined; therefore, ampicilin and cefotaxime treatment was started for the patient. Histopathological examination of the right lower extremity lesion demonstrated hyperkeratosis in the epidermis, edema between collagen fibers in the dermis, and mild lymphocyte infiltration (Fig. 2). The pathological findings were compatible with infantile acute hemorrhagic edema. The patient was diagnosed as AIHE as a result of clinical and histopathological findings. All of the skin lesions disappeared totally within 4 days of admission to neonatal intensive care unit and the patient discharged in the 7$^{th}$ day of admission.

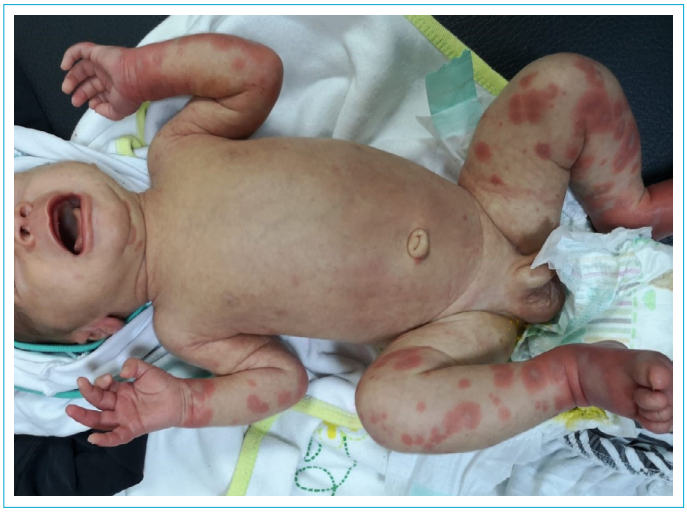

**Figure 1.** Purpuric rash on the arms and especially legs.

## Discussion

AIHE is a benign condition characterized by leukocytoclastic vasculitis. It is usually limited to the skin, involvement of visceral organ and other systems is very rare.[5] AIHE is first described by Snow in 1913.[1] There is no accurate evidence about etiopathogenesis; drug use, vaccination history, and infection may be trigger factors.[15,16] It is diagnosed usually clinically based on the criteria reported by Krause et al., these are four main criteria which help clinician to diagnose:[17]

(i) Purpuric rashes beginning before age of 2 years, (ii) purpuric rashes especially on the face and extremities together with edema, (iii) no visceral or systemic skin lesions disap-

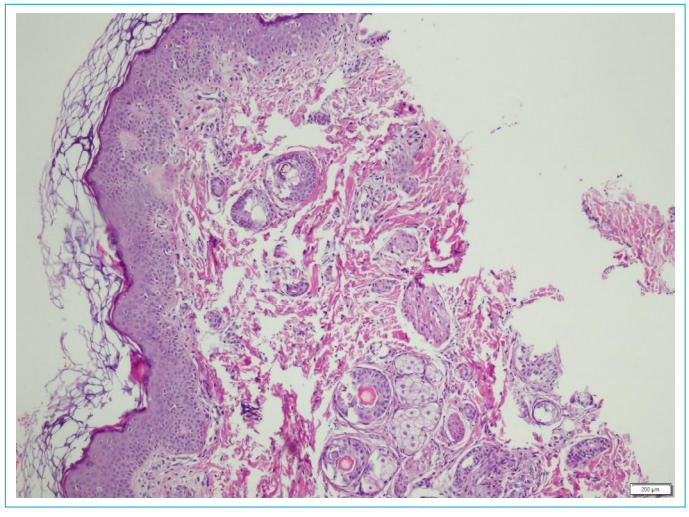

**Figure 2.** Hyperkeratosis in the epidermis, edema between collagen fibers in the dermis, and mild lymphocyte infiltration.

pears spontaneously in a few days or weeks. Some of the clinicians consider AIHE as a mild form of Henoch-Shöenlein purpura (HSP), and (iv) skin lesions develop a target like shape within 24–48 h and disappears in days or weeks.

Although fever is one of the most important findings of AIHE, in this case, our patient did not have a fever at admission and did not develop fever during his hospitalization. Parker et al. found it to be 0.7 per thousand in children under 2 years of age. Fever complaint was 65%. The youngest baby in the study was 6 months old, fever may not have been observed in our case since fever is not a very common finding in newborns.[18] The skin lesions were characteristic target like purpuric lessions. These lesions disappeared approximately in 1 week. Furthermore, one of the major findings of this disesase is that the skin lesions are usually seen in face and lower extremities, also in our case, the rashes were on the face and gross on the limbs. In one study, 85% of the rashes were purpuric, most (96%) the rash occurred on the lower extremities but also on other parts of the body including the upper limbs and face.[18]

Although laboratory findings are usually normal in AIHE, sometimes leukocytosis, trombocytosis, eosinophilia, and elevated C-reactive protein levels can be seen with a normal bleeding profile. Only C-reactive protein level was 11.14 mg/L, even cerebrospinal fluid values are normal in lomber puncture in our case and bleeding profile was normal as expected in AIHE. Parker et al. found significantly higher CRP in their study.[18]

Because of AIHE is a leukocytoclastic vasculitis, skin biopsy shows the perivascular neutrophilic infiltration of the small dermal vessels and this leads to a fibrinoid necrosis.[19] Furthermore, extravasation of erytrocytes and interstitial edema can be seen. The pathologic findings in the case that we reported are edema around collagen fibers in dermis, a few dilated vessels and light lenfocyte infiltration around them.

AIHE has no spesific treatment. Antibiotics can be used only in association with an infection. There is no need for steroid or antihistaminic therapy. Treatment is usually supportive. It is recommended that antibiotics should be given if there is an evidence of concurrent infection. Systemic steroid therapy and antihistamines appear to be ineffective for the treatment of AIHE.[4]

The disease limits itself and complete recovery and disappearing of lesions are expected within 1–3 weeks.[20] No relaps expected. Parker et al. found complications such as arthralgia or arthritis melena or hematochezia microscopic hematuria and compartment syndrome in 50% of cases. They diagnosed familial Mediterranean fever as a result of gene analysis of the patient with compartment syndrome. The authors suggest that in complicated cases, attention should be paid to the patient's medical history and family history. In our case, there was no family history and it was not complicated, but we cannot give a result in terms of FMF because we did not follow-up for a long time.[18]

## Conclusion

As a conclusion, AIHE is such a rare disease in the neonatal period characterized by purpuric lesions and edema. Diagnosis is basicly depends on clinical appereance. Diseases and conditions such as meningococcemia, thrombocytopenia, and coagulopathis should be thought in differantial diagnosis. In this case, we wanted to emphasize that this disease can be seen in newborns although it is rare. AIHE should be considered by the clinician in the differantial diagnosis of presenting purpuric lesions in neonatal period.

### Disclosures

**Informed consent:** Written, informed consent was obtained from the patient's family for the publication of this case report and the accompanying images.

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** None declared.

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