

## Eczema herpeticum in a child in the first year of life: a clinical case report

H.M. Vahitov<sup>1</sup>, A.G. Makhmutova<sup>1</sup>, L.M. Ziyatdinova<sup>2</sup>, M.S. Pospelov<sup>2</sup>

<sup>1</sup>Kazan State Medical University, Kazan, Russia;

<sup>2</sup>Children's Clinical Hospital of the Health Ministry of the Republic  
of Tatarstan, Kazan, Russia

### Abstract

This article describes up-to-date information about aetiology and pathogenesis of course of herpetic eczema. The authors highlighted new approaches to diagnosis and therapy of Kaposi varicelliform eruption in children of early age. It was described the results of own observations of the child in the first year of life with Kaposi varicelliform eruption and experience of application-sorption therapy in the treatment of this disease. The high efficiency of application-sorption therapy in skin lesions caused by combination of infection and allergy in children was noted. The clinical case examined allowed to assess the full complexity of differential diagnostic approaches in verification of eczema herpeticum. For a wide range of paediatricians and surgeons, algorithms for diagnosis and therapeutic tactics were described in the case of Kaposi varicelliform eruption.

**Keywords:** eczema herpeticum, Kaposi varicelliform eruption, children, diagnostic, therapy.

**For citation:** Vahitov H.M., Makhmutova A.G., Ziyatdinova L.M., Pospelov M.S. Eczema herpeticum in a child in the first year of life: a clinical case report. *Kazan Medical Journal*. 2020; 101 (3): 426–430. DOI: 10.17816/KMJ2020-426.

Skin lesions in children of various ages are steadily increasing in the structure of the general disease rate [1,2]. Among the diseases, allergic and infectious ones are the most common. In some cases, combined skin lesions are formed that significantly complicate treatment approaches and worsen the prognosis [3]. One of these conditions is Kaposi's herpetiform eczema.

Kaposi's herpetiform eczema (herpetic eczema) is a potentially dangerous condition that occurs when a herpetic infection is attached to atopic skin lesions, which, in many cases, leads to severe complications and death [4].

Most often, herpetic eczema develops in children aged 0–2 years [5] who suffer from atopic dermatitis. The prevalence of atopic dermatitis is quite high in the population and varies from 10% to 30% [6], which suggests a significant risk of developing its complications. According to the literature, the current death rate from this disease is approximately 8%–10% [7].

Among the etiological factors, the most common cause of herpetic eczema is the herpes simplex virus [8, 9]. Herpes simplex virus has types 1 and 2 [7]. Type 1 of the virus causes damage more often to the nasolabial region, whereas type 2 is a genital herpes virus of newborns. The combination of

both pathogens frequently leads to the development of generalized forms of the disease, with damage to various organs and systems.

There are two forms of the disease: primary and recurrent, which differ from each other by their clinical presentations.

The primary form of the disease debuts acutely with a short prodromal period of 1–3 days with a sharp deterioration in the general condition and an increase in body temperature to febrile levels. Then, within 6–12 h, numerous papulo-vesicles, vesicles with serous, serous-hemorrhagic contents, and pustules appear sequentially, localized on the face, neck, upper half of the trunk, and limbs that occupy extensive areas of the skin. In most cases, a pathognomonic umbilical occlusion for this disease is determined in the center of the elements [10]. Elements merge quickly, dry out, and form a solid crust that is often accompanied by peeling of the skin. The regional lymph nodes are enlarged and painful. At this stage, the duration of fever against the background of pronounced symptoms of infection, as a rule, is from 8 to 10 days. The severe course of the disease, as described above, can lead to death in 30%–40% of cases [8].

Recurrent herpetic eczema in the vast majority of cases occurs in older children, adolescents, and

adults. It usually occurs with minor and general symptoms. In most cases, rashes are represented by papulo-vesicles and vesicles with serous contents that are grouped. In contrast to the primary form, the elements are smaller in diameter, and there may be no umbilical pitting in their centers [8]. Rashes are often symmetrical, localized on the bends of elbows and knees, and the chest and face. Taking into account the mild infection syndrome, moderate fever, and the nature of skin manifestations, pediatricians often misdiagnose this condition that leads to the wrong prescription of etiotropic and pathogenetic therapy.

We present the results of our observations of a 6-month-old child who was treated at the isolation and diagnostic department of the Children's Republican Clinical Hospital in Kazan to discuss the management approaches and verification of the diagnosis.

From the anamnesis, it was known that the child had bothersome skin manifestations that were accompanied by itching from 1.5 months of age. Then, the patient underwent inpatient treatment twice at the place of a residence with the diagnosis of "atopic dermatitis, diffuse, infantile form, acute stage." Therapy included methylprednisolone and chloropyramine. Against the background of the treatment, there were the positive dynamics of the skin syndrome, and in the state of clinical remission, the child was discharged home. From the transferred diseases, acute right-sided purulent otitis should be noted.

It is also known that genetic history from close relations can be a burden. In this case, the father had severe bronchial asthma, atopic dermatitis with diffuse skin lesions. He had pronounced exudation in childhood, and the older brother has atopic dermatitis with limited areas of skin lesions and rare exacerbations.

From his life history, it was known that this child was born from the second pregnancy, 2 deliveries at 38 weeks by Cesarean operation. The pregnancy took place against the background of a chronic herpetic infection in the mother. The child's birth weight was 3340 g, and his height was 52 cm.

This episode started at the age of 6 months with an increase in body temperature to 38°C and abundant rashes on the skin that were accompanied by itching. Objectively, the patient's serious condition was revealed because of his skin and infection syndromes. The physical and neuropsychological development at the time of the child's examination corresponded to the normal age.

During the child's examination, his skin was dry, congested with papular-pustular elements, that had drying crusts and were weeping. The most ex-



Fig. 1. The appearance of Kaposi's herpetiform eczema on the back of the hand

pressed lesions were localized on the scalp, facial skin, in the lumbosacral and natal areas, on the forearms, hands (Fig. 1), and the back of the feet. The study of his musculoskeletal, respiratory, cardiovascular, and digestive systems revealed no pathology. His physiological functions were not disturbed.

A preliminary diagnosis was made: "Atopic dermatitis, infantile form, a common, severe, period of exacerbation" based on the data of anamnesis and clinical examination. It was impossible to exclude the possibility of secondary bacterial infection because of the severity of the skin lesions. Based on this, the patient was prescribed the following therapy: prednisone 10 mg, 2 times a day, parenterally, and chloropyramine 0.3 ml, 1 time a day, parenterally. His local treatment included the use of betamethasone ointment with gentamicin one time a day and fucorcine one time a day and phototherapy. The patient was on mixed feeding: breast milk + a mixture of a high amount of amino acids.

The following set of laboratory and instrumental research methods was performed to verify the diagnosis.

*Clinical blood test:* leukocytes  $12.52 \times 10^9$  g/#l, hemoglobin 109 g/l.

*General urinalysis:* without pathology.

*Stool analysis:* mucus ++.

*Biochemical analysis of blood:* glucose 5.27 mmol/l.

*Polymerase chain reaction* to herpesvirus infections: deoxyribonucleic acid (DNA) of herpes simplex virus of types 1 and 2, cytomegalovirus DNA was detected.

*Immunogram:* immunoglobulin of class E (Ig) 115 IU/ml.

*Bacteriological examination of feces* for salmonellosis, enteropathogenic colon bacillus, typhoparathyphoid, and dysentery groups of pathogens was not found.

*Serological blood test* for anti-treponema pallidum IgG + IgM-negative.

*Seeding from skin to microflora:* *S. aureus* 103, *S. pyogenes* 104 were isolated.



**Fig. 2.** Dynamics of the skin syndrome against the background of an application-sorption technique

*Allergological study:* revealed a very high level of IgE to soy, cat epidermis, high level to hazelnuts, medium level to carrots, low level to horse epidermis.

*Ultrasound examination* of the hepatolienal system: without pathology.

*Procalcitonin:* 0.092 ng/ml.

The following specialists were consulted.

1. *Consultation by a neurologist:* based on the examination, clinical data, and laboratory research methods, the diagnosis of meningitis was excluded.

2. *Examination by an immunologist:* a study of the immune status was recommended.

Immune status: decreased number of CD3 cells, insufficient cell linkage because of the CD3/CD4 component, humoral status was normal.

Laboratory and instrumental data confirmed the high sensitization of the child to various antigens and the presence in the body of the herpes infection. Based on this information, the child was prescribed an antiviral therapy with acyclovir at a dose of 125 mg 3 times a day intravenously and changed to allergy-free amino acid formulas.

In the background of the treatment, however, there were no positive dynamics of the skin syndrome. Also, in the clinical blood analysis, leukocytosis with neutrophil shift increased, and the level of hemoglobin decreased (anemia of medium severity). There was a suspicion that a secondary bacterial infection was attached. Therefore, a correction of treatment approaches was made, with the additional appointment of the systemic antibacterial drug amikacin at an age-related dose, and locally, bacitracin with neomycin. In the future, the basic antibiotic was changed twice. The lack of positive dynamics in response to antibacterial therapy, in general, allowed us to interpret the skin syndrome as an appearance of purely herpetic infection.

Along with this, the child has also received the antiviral therapy scheme described above, the appointment of which also had no positive effect on the dynamics of the skin syndrome. In this regard,

the only possible reserve was to change the approaches of local influence on the affected areas.

After consultation with pediatric surgeons, it was suggested to use wound-healing ointment dressings based on Peruvian balsam and local application-sorption therapy based on modified cotton pulp as therapy for the skin syndrome. The latter was used as necessary, based on the severity of clinical symptoms, but at least 2 times a day for 8 days. The sorbent was applied in a thin layer to the affected area of the skin.

The positive effect of this approach was obtained already on the first day of use. Crusts formed on the face that protected the skin from damage and repeated moknutii. Also, according to the mother's words, itching and anxiety of the child were noticeably reduced. By days 2–3, the entire area of the affected skin surface was marked by a decrease in edema, moknutia, the elimination of purulent discharge, and the formation of crusts. By the seventh day of application, there was a clear tendency for the epithelialization of tissues in the area of the lesions (Fig. 2) with the relief of other clinical symptoms.

Thus, the presented clinical case allowed us to assess the complexity of differential diagnosis of infectious and allergic skin lesions in children. For a wide range of pediatricians and surgeons, algorithms for treatment approaches in the case of Kaposi's herpetiform eczema in young children are described. In this case, the absence of positive dynamics of the skin syndrome in response to the classical scheme of therapy for combined skin lesions remains unclear. This fact, in our opinion, is because of an extremely burdened allergological, hereditary, and obstetric anamnesis, a combination of herpetic pathogens, and, possibly, individual characteristics of the immunological response of this patient.

**Contribution of authors.** H.M.V.—a manager of a project, A.G.M. made an analysis of a case history; she was responsible for a timely collection of information about the results of treatment, L.M.Z. и M.S.P. made a research.

**Funding.** The study had no external funding.

**Conflict of interest.** The authors declare no conflicts of interest.

## REFERENCES

1. Dudnikova E.V., Kobzeva N.N., Prihodskaja E.S. et al. Certain peculiarities of the clinical course of atopic dermatitis in children's early age. *Medical Herald of the South of Russia*. 2013; (3): 44–47. (In Russ.) DOI: 10.21886/2219-8075-2013-3-44-47.
2. Starodubov V.I., Ulumbekova G.E. Russian healthcare: problems and solutions. *ORGZDRAV: Novosti*.

*Mneniya. Obuchenie. Vestnik VShOUZ.* 2015; 1 (1): 18. (In Russ.)

3. Stadnikova A.S., Tamrazova O.B., Chebotareva T.A. The role of genetic determinants and disorders in systemic and local immunity in the etiology and pathogenesis of herpetic eczema (Kaposi's eczema). *Detskie Infektsii.* 2016; 15 (3): 42–45. (In Russ.) DOI: 10.22627/2072-8107-2016-15-3-42-45.

4. Stadnikova A.S., Tamrazova O.B., Chebotareva T.A. The case of herpetic eczema in a child with congenital ichthyosis and atopic dermatitis. *Detskie Infektsii.* 2017; 16 (1): 65–68. (In Russ.) DOI: 10.22627/2072-8107-2017-16-1-65-68.

5. Lesina O.N., Konnova O.A., Nikolskaya M.V. Infectious exanthemas — problems of clinical diagnosis (the material of the lectures within training course for physicians). *Infektsionnye bolezni: Novosti. Mneniya. Obuchenie.* 2016; (3): 35–41. (In Russ.)

6. Namazova-Baranova L.S., Baranov A.A., Kubanova A.A. et al. Atopic dermatitis in children: Current clinical guidelines for diagnosis and therapy. *Voprosy sovremennoi pediatrii.* 2016; 15 (3): 279–294. (In Russ.) DOI: 10.15690/vsp.v15i3.1566.

7. Stadnikova A.S., Tamrazova O.B., Tebenkov A.V., Ermakova M.N. Clinical and epidemiological features of the course of eczema in children's sarcoma. *Consilium Medicum. Pediatrics (suppl.).* 2016; (1): 46–51. (In Russ.) DOI: 10.26442/2413-8460\_2016.1.46-51.

8. Tamrazova O.B., Chebotareva T.A., Stadnikova A.S., Taganov A.V. Clinical manifestations of herpes simplex virus infection in children with atopic dermatitis. *Rossiyskiy vestnik perinatologii i pediatrii.* 2018; 63 (6): 15–22. (In Russ.) DOI: 10.21508/1027-4065-2018-63-6-15-22.

9. Isakov V.A., Isakov D.V., Ayzsilnieks O.V. Prospects for the topical therapy in patients with relapsing herpes infection. *Infektsionnye bolezni: Novosti. Mneniya. Obuchenie.* 2017; (1): 51–56. (In Russ.) DOI: 10.24411/2305-3496-2017-00022.

10. Okhlopkov V.A., Zubareva E.Iu., Novikov Iu.A. et al. Kaposi varicelliform eruption as a complication of atopic dermatitis. *Klinicheskaya dermatologiya i venerologiya.* 2014; 12 (4): 27–29. (In Russ.)