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An 8-month old with erythema nodosum – clinical case report

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Key words: Erythema nodosum, Children, Food Allergy, Specific IgE, Gluten.

Erythema nodosum is rare pathology in childhood and usually associated with big antigen load.

Aim of the work was to make differential analysis of the described case with developed multiple, nontender, depth erythematose papules in the epidermis-dermis (like nodules) on the head, trunk, extremities, associated with adopted cow’s milk-based formula intake.

Methods and results. The next methods, as deep literature review and differential analysis, helped to underline probable pathogenetic mechanisms of such type of allergy skin symptoms, to diagnose Erythema nodosum in the child.

Conclusion. This clinical case showed presence of rare clinical food allergy skin symptoms that have mixed mechanisms of onset. Further studies of the gear of onset and histology specificity are needed.

Erythema nodosum (EN) is the most common type of panniculitis; it may be due to a variety of underlying infectious or otherwise antigenic stimuli. The pathogenesis remains to be elucidated. EN can be one of the forms of the allergic vasculitis. Beyond treating underlying triggers, therapeutic options consist mainly of nonsteroidal anti-inflammatory drugs, symptomatic care, potassium iodide, and colchicines [1-3,5,6].

Our aim was to present case of the EN like symptoms in infant which are rarely seen in this age.

Case Presentation. An 8-month-old male was seen in the outpatient department of the University Hospital of Zaporizhzhia State Medical University because of the multiple, nontender, depth erythematose papules in the epidermis-dermis (like nodules) over the body, associated with adopted cow’s milk-based formula intake. The patient had no history of fever, low appetite, vomiting, or diarrhea. Artificial feeding was started early – on the 3rd week of life due to the hypogalactia. Several weeks ago easily-digested instant cereal-based preparations were added to the child’s menu. Two weeks later, mother noticed first nodules appeared on the face, trunk, extremities and their quantity gradually increased. Lesions onset was sudden and symmetrical. She took the child to pediatrician’s office. The mother could recall no specific insect bites to his legs, and that small bumps had not been painful or tender. The patient had been treated with antihistamine medications (Dimetindeni maleas, Chloropyramine hydrochloride) without positive effect. At first, the nodules showed bright red color, but within some time, mostly on the shins, they become livid red. The boy was a full-term infant with normal birth weight. No complications of medical problems. Routine immunizations had been administered. There were no relatives with allergic diseases and his family history was unremarkable. The patient was not taking any medications and had no recent illnesses.

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level was 122,8 IU/ml. Speciﬁc IgE levels to casein, milk (0.25 kU/l), Soy (0.25 kU/l), yeast (0.25 kU/l), Birch+Oak (0.25 kU/l), Alder+Hazel (0.25 kU/l) were borderline (0.25 kU/l), Cladosp+herb+Altern.alter., grasses were not changed.

Differential diagnosis. When considering the skin symptoms most important aspects were: the number, ﬁrmness, localization, color and absence of itching, and no effect from antihistamine drug. Because the most part of the lesions were on the shin, erythema nodosum was initially considered as a primary diagnosis. It was important to distinguish between infectious, inﬂammatory and neoplastic causes [1,12]. Multiple causes of EN related to infection have been described, including streptococcal infection, tuberculosis, coccidioidomycosis, and histoplasmosis, as well as infections caused by species of bartonella, yersinia, salmonella, mycoplasma, chlamydia, and leptospira [12]. Acute urticaria, insect bites were included into the differential diagnosis list too.

In infectious EN intoxication and change of the general state of health are usually presented as fever, low appetite, hepatosplenomegaly, CBC change, serum speciﬁc antibodies levels. In a special case of leprosy, syphilis and leishmaniasis other speciﬁc symptoms are seen as usual [1,2,12]. Our patient didn’t have such symptoms. Taking into account situation with tuberculosis the boy’s history was additionally analyzed. Patient’s parents, the boy were vaccinated with BCG vaccine and had scar on the shoulder. Child’s general condition, other organs, except skin, were not affected. Metastatic neuroblastoma was excluded because it is commonly associated with internal organs affection [12].

The patient did not have a recent history of pharyngitis or sick contacts before and at the time of skin symptoms appearance. He had no exposure to domestic animals and rats. Appetite was good.

On examination, the patient had normal physical and mental development. He had no fever, chills, dysphagia, nausea, abdominal pain, bleeding. His mood was good, and he slept through the night. During exam the boy was alert, occasionally cooperative and playful. The mucous membrane below. There were papules approximately 3 to 5 mm in diameter free within the epidermis and superﬁcial layers of the derma. Their color was deep red, they were ﬁrm, spheriform, free within the epidermis and superﬁcial layers of the derma. Their color was deep red, they were ﬁrm, spheriform, nontender, slightly mobile. Palpation elicited no discomfort. They were localized over the face, beck, on the lower extremities, mostly on the shins (Fig. 1 on the color tab №4). Abdomen, scalp and upper extremities were covered minimally. They were not ﬁxed to skin or subcutaneous tissue below.

Patient had no itching, xerosis, maceration zone. Lymphatic nodules were not enlarged, painless, elastic. Internal organs exam data were normal. He had no hepatosplenomegaly. The nodules were not enlarged, painless, elastic. Internal organs tissue below. They were not enlarged, painless, elastic. Internal organs tissue below.

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the proliferation and accumulation of cells which can have manifestation with polymorphous cutaneous eruption over the whole body. As it was in our patient, the clinical course of Histiocytoses is usually benign and self-limited. The aetiology in paediatrics is still unclear. Virus-induced local immune alternation in the transformation of the histiocytosis has been postulated [4]. But in this case eruption onset was associated with easily-digested instant cereal-based preparations introduce and it increase was associated with adopted cow’s milk-based formula intake.

Discussion

In this case, based on the patient’s history, on the conditions of resolution of symptoms when adopted cow’s milk-based formula was removed, food allergy was suspected. Literature review showed few data concerning EN in children, mostly it related to the hypersensitivity reactions in adults.

Specific clinical skin symptoms and order of their appear made us to suspect EN. N.F. Filatov named this illness «disease in stockings» and our patient had maximal deep papulas/nodules localisation on shins. N.I. Nisevich reported about allergic eruptions looking like EN for differential diagnosis of the infectious diseases [3]. Prof I.V. Bogadelnikov indicated that sizes of the nodules can be from 0.5 to 3 cm, our patient had nodules 0.3–0.5 up to 1 cm. Although he denoted that usually these elements just gradually disappeared, turned pale. Furthermore Prof I.V. Bogadelnikov indicated that evolution is not permanent and other clinical variant of the EN can be [1].

To our mind this patient’s food hypersensitivity EN had cell-mediated or mixed IgE- and cell-mediated mechanism of onset. Habif T. et al. 2011 indicated that EN usually occurs due to the hypersensitivity reactions in the condition of the massive antigen stimuli. Other systems are not changed, lymphadenopathy can be found [7]. It is interesting to note that EN in this patient started to recover gradually only after diet correction and emollient applying. Total recover became only in 3 weeks. In such situation gluten hypersensitivity was suspected. G. Kristjánsson et al (2007) showed that mucosal inflammatory response similar to that elicited by gluten was produced by CM protein in about 50% of the patients with coeliac disease [9]. Effectiveness of the recommended diet with amino-acid formula and cereal-based gluten-free food confirmed our suspicion.

This case gave us opportunity to underline EN as probable clinical form of the food allergy with mixed IgE- and nonIgE-mechanism.

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(Рис. 1 до статті І. В. Козлової «Патоморфологічні особливості ураження нирок в умовах метаболічного синдрому (за даними автоперіоду і в експерименті)», с. 81–84)

(Figures 1–2 to the paper S. N. Nedelska, O. P. Pakholchuk «An 8-month old with erythema nodosum – clinical case report, literature review», p. 114–116)