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Case Report

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A case report of an African infant with cow milk allergy and extensive atopic skin disorders

Abstract

Introduction: Cow milk allergy (CMA) is difficult to diagnose but is one of the most common causes of atopic dermatitis. Even if the atopic skin disorders are common on the other hand the published cases are limited. Cow milk allergy (CM) is often misdiagnosed though no specific symptoms, connecting to significant rate of morbidity and mortality.

Case presentation: In this study we analyze a case of a Nigerian 7 month's male infant from showed symptoms of generalized allergic reaction after feeding with cow's milk and itching without the presence of abdominal flatulence or bloody stools, being in bad general health conditions. Our patient showed few episodes of diarrhea, no episodes of vomiting and the physical examination found generalized skin lesions. Additionally reveals history of previous episode of allergic reactions since 6 months, without symptoms of infection or fever and no one evidence of hereditary disease. The serological and clinical analyzes found allergic reaction to cow's milk, with symptoms of extensive atopic skin disorders and partially skin infections.

The evaluation and assessment of the overall clinical value and haematological parameters led us to the diagnosis of atopic dermatitis due to cow's milk feeding. It was recommended immediate discontinuation of the diet with cow's milk, replacing it with goat's milk and medication of local use of cortisol and moisturizers and partially antibiotics. The clinical signs and symptoms showed significant improvement and complete remission in a period of 3 months.

Conclusion: The CMA associated in some cases with generalized atopic dermatitis causing several symptoms such as itching, pain, skin rash with delayed weight gain and may be a predisposition for the development of severe microbial infection. The right diagnosis in comparison with immediate treatment by pausing making cow's milk and taking appropriate medication are therapeutic agents that lead to extensive clinical improvement.

Keywords: food allergy, cow milk allergy, infant, skin disorders

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Abbreviations: HSV, herpes simplex virus; CMA, cow milk allergy

Introduction

Cow milk allergy (CMA) is difficult to diagnose but is one of the most common causes of atopic dermatitis and allergic eosinophilic gastrointestinal disorders in childhood, which may be identified after serological and clinical examinations. The cow milk allergy often misdiagnosed though no specific symptoms, connecting to significant skin and other systematic disorders.

Case presentation

A 7 - Month's male infant from Nigeria, examined by doctors in social solidarity services of Attica, showed persistent skin rash and redness of the eye from the age of 6 months after the intake daily diet of cow's milk. The medical history showed mild symptoms of atopic skin disorders at the age of 6 months, without fever, mild episodes of vomiting and diarrhea, with delayed weight gain. Physical examination showed a rash of the trunk, limbs and scalp, flushed with oral mucosa and conjunctiva, without the presence of enlarged cervical lymph nodes while the chest radiograph was normal Figure 1. By the assessing and clinical examination of the respiratory and heart rate observed no pathological evidences, even if the cardiac evaluation revealed tachycardia with normal heart sounds.

For the assessment of the incident requested further medical laboratory tests which showed: white blood cell number 7800/mm3 (normal values 3,300 to 9.700/mm3), hemoglobin level of 11.6 g/dl (normal values 11.5 to 14.5g/dl) and platelet count 392.000/mm3 (normal values 150.000 to 350,000 / mm^3). Of the remaining hematological indices evaluated the factors of mild increased of erythrocyte sedimentation rate 42 mm/h (normal values by 5 to 25 mm/hour) and the increased value of C- reactive protein (CRP) 1.5 mg/dl (normal values between 0 to 1mg/dl). Indicators of liver function were normal, but found increase prices of specific antibodies leading to diagnosis and possible treatment for atopic skin lesion. Specifically detected levels of IgG to 452 mg/dl (normal values 380 to 790mg/dl), the levels of IgA 42 mg/dl (normal values 20 to 120mg/dl), while IgE antibody was positive counting 14.6 kU/L (normal values 0 to 0.35 kU/L). Besides serological values and blood cultures, urine sample and checking for cytomegalovirus and measles virus, rubella virus, Epstein-Barr and antibodies for possible streptococcal infection were all negative. The evaluation and assessment of the overall clinical value and haematological parameters led us to the diagnosis of atopic dermatitis due to cow's milk feeding. Also in our case, our patient showed cutaneous infection with *Staphylococcus aureus* treated by taking antibiotic therapy may be caused by skin lesions. It was recommended immediate discontinuation of the diet with cow's milk, replacing it with goat's milk and medication of local use of cortisol and moisturizers. The clinical signs and symptoms showed significant improvement and complete remission in a period of 3 months.

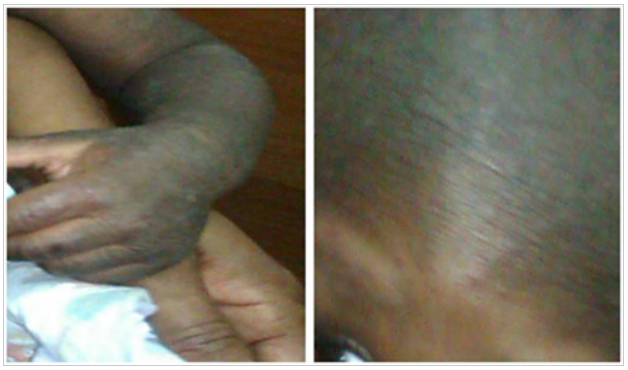

Figure 1 A 7 - Month's neonatal from Africa showed persistent skin rash and redness of the eye rash of the trunk, limbs and scalp, flushed with oral mucosa and conjunctiva. It was diagnosed generalized atopic skin disorders and severe skin infection caused by cow milk feeding.

Discussion

The atopic dermatitis (AD) is an inflammatory skin disease that is associated with the development of food allergy and asthma, in a large number of foods, and in our case to cow milk. Atopic dermatitis can be either localized or generalized and may be combined with a wide range of events and attack systems such as the heart or gastrointestinal.[1,2] The allergic response in infants receiving cow milk is well documented and quite often in combination with the occurrence of gastrointestinal symptoms.[3,4] According to epidemiological data, the prevalence of food allergy cases is estimated at 8% in the USA, with 38.7 % of the patients having a history of severe allergic reactions and 30.4 % have multiple food allergies.[4] With the exception of milk many children exhibit significant allergic reactions after ingestion of wheat, milk and shellfish.[4,5] In a study conducted in Australia, the infants who had a positive skin test, with appearance wheal size greater than 1 mm in one or more foods (raw egg, peanut, sesame, shellfish or cow's milk), had also oral sensitization in various foods including raw egg, peanuts or sesame. The study included 2848 infants the prevalence of sensitization in each case is individual food stands at 8.9 %, the egg white 16.5 %, to 2.5 % in sesame and cow's milk 5.6 %.[6] In our study, the infant was subjected to a test of sensitivity to various food items, by taking both orally feed and release allergens found in the skin and release of allergic reaction to cow's milk receiving therefore determined, in combination with laboratory testing in the presence of IgE - mediated food allergy to cow's milk.

Allergic reaction to cow's milk (CMA) increased in the neonatal start making synthetic milk and peaks during early childhood. The CMA is a clinical reaction is due to a complex immunological mechanism that is mediated by the action of the antibody IgE.[7,8] Furthermore several studies reported high levels of immunoglobulin IgE in 95 % of cases of cow milk allergy, showed that persistent allergic to milk depends on the age of children. The Yavuz et al. conducted a retrospective study of 148 children who had been diagnosed with an allergy to milk - based clinical history with high levels of sIgE and positive either OFC or history of skin lesion.[9] In a prospective study by Martorell et al, which examined 170 infants diagnosed with milk allergy, the authors indicate persistent milk allergy at different ages between 12 and 48 months, which vary considerably from person to person.[10] Additionally the study of Santos et al, also indicated that the larger the value of sIgE, less the likelihood of an individual for developing tolerance,[11] and The Sek et al reported that a decrease of about 50 % or 90 % of the values sIgE within a 12 month period associated with a probability of achieving tolerance to 0.31 and 0.66, respectively.[12]

It is therefore assumed that most clinical features of generalized atopic reaction are non -specific, as the clinical and serological data can be seen in many infectious diseases and diseases with hereditary characteristics. Also if and allergic skin reaction may be second in frequency after gastrointestinal disorders, the extent of the allergic reaction and the intensity of symptoms throughout the body of the infant was examined in this study, combined with poor health conditions, make diagnosis and rapid treatment imperative. Also, the fact of the presence of atopic reactions at the mother's medical history raises the suspicion of inherited genetic factors may induce changes in the maturation of the immune system by increasing the risk of severe and generalized allergic skin reaction. The new research reveals significant structural abnormalities in the skin that may be associated with the evolution of the phenomenon. Patients with atopic skin disorders have a predisposition for colonization or infection by microbial organisms, particularly *Staphylococcus aureus* and the herpes simplex virus (HSV).[13] As in our case, the patient showed cutaneous infection by *Staphylococcus aureus* that is treated by taking antibiotic therapy. Thus the immediate therapeutic interruption and pause of cow milk intake can improve the symptoms of allergic skin disorders, the clinical signs and symptoms of our patient showed significant improvement and complete remission in a period of 3 months.

Conclusion

We propose alterations of the immune system are usually present in allergic patients with CMA associated with generalized severe atopic dermatitis and may in some cases be a predisposition for the development of microbial infection an these conditions becoming threatening for neonatal life. Pausing making cow's milk and taking appropriate medication are therapeutic agents that lead to clinical improvement.

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Consent

Written informed consent was obtained from the patient's legal guardian(s) for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Authors' contributions

Ioannis Drikos, Argyrios Ioannidis, Armodios Drikos carried out and participate at the clinical examination and the manuscript demonstration. Ioannis Drikos participated in the design of the study and helped to draft the manuscript. All authors read and approved the final manuscript.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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