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Case report

Periocular Manifestation in Acute Atopic Dermatitis in a Paediatric Patient. A Case Report

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Abstract: *Atopic dermatitis* is a chronic skin condition characterized by itchy, scaly, and crusted lesions, most commonly affecting infants and children. The condition presents with intense pruritus and a chronic course with exacerbations. Periorbital involvement is expected due to the thin and sensitive skin in this area, and the inflammation can be exacerbated by rubbing or scratching. This case reports a 5-year-old girl with bilateral periorbital inflammation that had been present for 4 hours. She had a history of atopic dermatitis and no known surgical history or medication allergies but was allergic to shellfish. No medication or topical cream was administered for the described episode. Upon waking up, she presented with newly developed periorbital inflammation. She had not consumed any food to which she was known to be allergic, and there had been no increase in eyelid scratching. There was no recollection of contact with any toxic agents. During the physical examination, erythematous scaly plaques were observed on both cheeks, chin, and neck, and periorbital inflammation accompanied by eyelid and periorbital Dennie-Morgan fold. The primary diagnosis was periorbital atopic dermatitis in the context of an acute atopic dermatitis flare-up. The prescribed treatment included prednisolone acetate (Estilsona) for five days and pimecrolimus for the atopic dermatitis. Atopic dermatitis is a complex condition with a multifactorial aetiology, and its management can be challenging. Further research is needed to develop more effective treatments for atopic dermatitis.

Key words: Dermatitis, Atopic, Eczema, Skin Diseases, Pruritus, Erythema, Epithelial barrier, SCORAD and Paediatrics.

1. Introduction

Atopic dermatitis (AD), or eczema, is a chronic skin disorder that causes itchy, scaly rashes. It is a hypersensitive reaction similar to an allergy, leading to long-term skin inflammation. AD is most common in infants and children, often appearing as early as 2 to 6 months of age. Many individuals outgrow the condition in early adulthood, but it can be challenging to manage in children. It is the most frequent chronic skin disease in childhood [1].AD is characterized by intense pruritus and a chronic course, presenting in the form of exacerbations. The paediatrician will establish a diagnosis of suspicion for dermatitis with intense pruritus with a persistent or recurrent character. The treatment of AD must be aimed at reducing the symptoms [2] (skin pruritus and eczema), preventing exacerbations, and minimizing the risks of treatment, as optimal control of symptoms is difficult to achieve.

The two main pillars in the medical treatment of AD are adequate hydration of the skin and the use of topical corticosteroids [3]. Topical corticosteroids are the first line of treatment for AD. In the market, various topical preparations are available. In a similar study where the educational program

was directed at children, 97% of those receiving education about AD obtained a significant decrease in SCORAD at six months [3].

However, AD is a complex condition with a multifactorial aetiology, and its management can be challenging. Its aetiology is unknown, and there is no effective treatment. Multiple treatments, including emollients, sunscreens, steroids, and calcineurin inhibitors, have been tried with little response [3].

Periorbital involvement, as seen in the case of the 5-year-old girl, is a common manifestation of AD. The periorbital region is often affected due to the thin and sensitive skin in this area. The inflammation can be exacerbated by rubbing or scratching, common in AD due to the intense itchiness. The management of periorbital AD involves the same principles as managing AD in other areas of the body, including avoiding triggers [4], maintaining good skincare, and using topical treatments as needed.

2. Case report

A 5-year-old girl came for a consultation due to bilateral periorbital inflammation that had been present for 4 hours. The patient has a history of atopic dermatitis and is under the care of the Pediatric Service at her Health Center. She has no known surgical history or medication allergies, but she is allergic to shellfish. Her vaccinations are up-to-date. The patient's father reported the onset of eczema on the upper limb, neck, and face approximately 72 hours ago, accompanied by itching. No medication or topical cream was administered for the described episode. Upon waking up, she presented with newly developed periorbital inflammation. She has not consumed any food to which she is known to be allergic, and there has been no increase in eyelid scratching. There is no recollection of contact with any toxic agents. She has not experienced ocular mucous secretion, itching, pain, or hyperemic eyes. During the physical examination, erythematous scaly plaques were observed on both cheeks, chin, and neck, and periorbital inflammation accompanied by eyelid and periorbital Dennie-Morgan fold (Figure 1). Erythematous plaques without apparent lichenification were also observed in the inner elbow fold on both arms and the popliteal fold. A urine test was negative. The primary diagnosis was periorbital atopic dermatitis in the context of an acute atopic dermatitis flare-up.

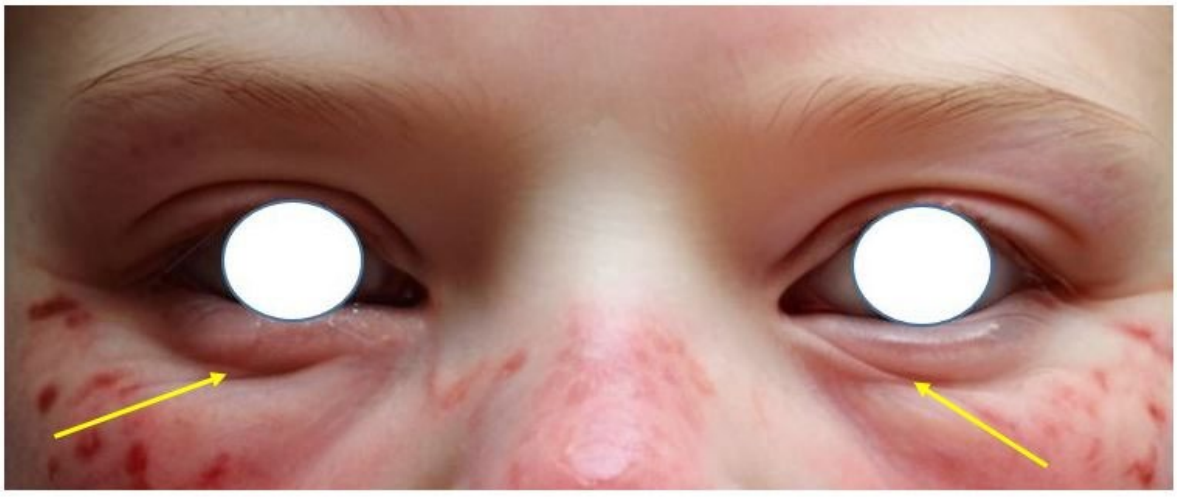

Figure 1. Periocular erythema extending to the nasal region and cheeks. Yellow arrows: Dennie-Morgan fold.

3. Discussion

Treatment of prednisolone acetate (Estilsona) was prescribed for five days, with 2 ml every 12 hours for three days, followed by 1 ml every 12 hours for two days. For atopic dermatitis, a treatment of benzyl alcohol, cetyl alcohol, stearyl alcohol, and propylene glycol (pimecrolimus) was prescribed,

with one application every 12 hours on erythematous plaques and maintenance of two applications per week on regions where the plaques appeared for three months. Dexchlorpheniramine (Polaramine) was prescribed for itching, with one and a half tablets every 24 hours.

Atopic dermatitis (AD) is a chronic skin disorder that causes itchy, red, scaly, and crusted lesions [5]. It is a hypersensitivity reaction similar to an allergy, leading to long-term skin inflammation. AD is most common in infants and children, often appearing as early as 2 to 6 months of age. Many individuals outgrow the condition in early adulthood, but it can be challenging to manage in children. It is the most frequent chronic skin disease in childhood. The clinical presentation of AD is highly variable, depending on the patient's age, ethnicity, and disease activity. In infants and young children, AD typically presents with pruritic, red, scaly, and crusted lesions on the extensor surfaces and cheeks or scalp but may be diffuse. In older children and adolescents, AD is characterized by less exudation and often demonstrates lichenified plaques in a flexural distribution, especially of the antecubital and popliteal fossae, volar aspect of the wrists, ankles, and neck. In adults, AD is considerably more localized and lichenified, affecting mainly the skin flexures. Less frequently, the dermatitis may involve the face, neck, or hands. The prevalence of AD varies widely, affecting approximately 5 to over 20 per cent of children worldwide, with significant variations among countries and ethnic groups [6].

In the United States, the overall prevalence is approximately 16 per cent, with the highest rates reported in African American children. The prevalence of AD in adults is limited, with population-based studies from Scandinavian countries reporting prevalence rates of 10 to 14 per cent among adults(7,8). The genetic and environmental risk factors for AD include a family history of atopy, climate, urban versus rural settings, air pollution, early exposure to nonpathogen microorganisms, and water hardness. The pathophysiology of AD involves a multiplicity of mechanisms, including epidermal barrier dysfunction, genetic factors, Th2 cell-skewed immune dysregulation, altered skin microbiome, and environmental inflammation triggers [9–11]. The epidermal barrier dysfunction is the critical abnormality in the pathophysiology of AD, hence the importance of moisturizers and emollients in its management. AD is a complex, multifactorial aetiology, and its management can be challenging. In the presented case, a 5-year-old girl with AD experienced bilateral periorbital inflammation, which was successfully managed with prednisolone acetate and pimecrolimus. However, further research is needed to develop more effective treatments for AD.

4. Conclusions

Atopic dermatitis (AD) is a chronic skin condition that primarily affects children, with a global prevalence estimated at 5 to 20 per cent. It is characterized by dry skin and intense itching. The clinical presentation varies widely, depending on the patient's age, ethnicity, and disease activity. In infants and young children, AD typically presents with pruritic, red, scaly, and crusted lesions on the extensor surfaces, cheeks, or scalp but may be diffuse. In older children and adolescents, it is characterized by less exudation. It often demonstrates lichenified plaques in a flexural distribution, especially of the antecubital and popliteal fossae and volar aspect of the wrists, ankles, and neck. AD is considerably more localized and lignified in adults, mainly affecting skin flexures. The prevalence of AD varies widely, affecting approximately 5 to over 20 per cent of children worldwide, with significant variations among countries and ethnic groups. In the United States, the overall prevalence is approximately 16 per cent, with the highest rates reported in African American children. Genetic and environmental risk factors for AD include a family history of atopy, climate, urban versus rural settings, air pollution, early exposure to nonpathogen microorganisms, and water hardness. The dysfunction of the epidermal barrier is a critical abnormality in the pathophysiology of AD, emphasizing the importance of moisturizers and emollients in its management. AD is a complex condition with multifactorial aetiology, and further research is needed to develop more effective treatments.

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Abbreviations

The following abbreviations are used in this manuscript:

AD: Atopic Dermatitis
CI: Confidence Interval
DNA: Deoxyribonucleic Acid
FLG: Filaggrin
HLA: Human Leukocyte Antigen
IgA: Immunoglobulin A
IgE: Immunoglobulin E
IgG: Immunoglobulin G
IgM: Immunoglobulin M
IL: Interleukin
OR: Odds Ratio
RNA: Ribonucleic Acid
SCORAD: SCORing Atopic Dermatitis
Th2: T-helper 2
TNF: Tumor Necrosis Factor
TSLP: Thymic Stromal Lymphopoietin

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