PAPER DETAILS

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PAGES: 86-90

ORIGINAL PDF URL: https://dergipark.org.tr/tr/download/article-file/469191

OLGU SUNUMU / *CASE REPORT*

Eritroderma ile prezente olan ağır, akut allerjik kontakt dermatit olgusu

Severe Acute Allergic Contact Dermatitis Presenting as Erythroderma: A Case Report

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ABSTRACT

Erythroderma is defined as generalized erythema and scaling involving more than 90% of the body surface area and associated with multiple systemic and cutaneous diseases in the pediatric population. Allergic contact dermatitis (ACD) associated with erythroderma is extremely rare. We report an unusual presentation of acute ACD with an essence named *'black cat fragrance'* in a 13-month old girl.

Key words: allergic contact dermatitis, black cat fragrance, cutaneous, erythroderma, systemic reaction

ÖZET

Eritroderma vücut yüzey alanının %90'dan fazlasını tutan eritem ve soyulma olarak tanımlanmakta olup çocukluk yaş grubunda çok çeşitli sistemik ve kütanöz hastalıklara bağlı olarak gelişebilmektedir. Ancak kontakt dermatite bağlı eritroderma çocuklarda oldukça nadir görülmektedir. Bu yazıda kara kedi esansı isimli bir esansa bağlı alerjik kontakt dermatit ve eritroderma gelişen on üç aylık bir kız hasta sunulmuştur

Anahtar Kelimeler: allerjik kontakt dermatit, kutanöz, eritroderma, sistemik reaksiyon

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Geliş Tarihi: 09.03.2015 Kabul Tarihi: 27.09.2017

Introduction

Erythroderma/ exfoliative dermatitis is a generalized erythema and varying degrees of scaling involving at least 90 % of body surface area[1]. The causes of erythroderma in neonates and infants are; inherited ichtyoses, immunodeficiencies, primary dermatoses, drug reactions, infections and other rare diseases such as diffuse cutaneous mastocytosis, pitriasis rubra pilaris, graft-versus-host disease and nutritional dermatitis[2]. The most common causes of erythroderma in adults are; contact dermatitis, atopic dermatitis (AD), drug reactions and psoriasis[2]. Rarely, contact dermatitis may become generalized, presenting as erythroderma[3].

Contact dermatitis is defined as an inflammatory process affecting the skin surface that is induced by contact with chemicals, physical and/or biologic agents. It is divided into four subgroups as; irritant contact dermatitis, allergic contact dermatitis (ACD), contact urticaria and photo contact dermatitis[4].

ACD consists of two phases including sensitization phase and elicitation phase. Sensitization phase begins when the low molecular weight allergen penetrates the skin and is taken up by the Langerhans cells. Langerhans cells then migrates to the regional lymph nodes, where T lymphocytes form a group of cells with immune memory. In the next exposure with the allergen (elicitation phase), these memory cells proliferate and secrete inflammatory cytokines and localized dermatitis occurs[5]. The occurrence of dermatitis is 12-24 hours after allergen exposure, peaking in 3-5 days, and can last for 3-4 weeks if untreated. The potency of the allergen determines the number of exposures required for the formation of this process. Once sensitization occurs, it is thought to be long lasting[5].

The most common allergens that cause ACD in children are; nickel, neomycin, cobalt, fragrance, myroxylon pereirae (aka balsam of Peru), gold, formaldehyde, lanolin/wool alcohols, thiomersal and potassium dichromate[4]. Herein, we report an unusual presentation of acute allergic contact dermatitis induced by an essence named *'black cat fragrance'* in a 13-month old girl.

Case Report

A 13-month-old girl admitted to our hospital with fever (38.1^{o}C), widespread erythema of the skin with dryness, scaling, impetiginous eczematous lesions on her face, neck, shoulders and upper trunk, swelling of the eyelids and lips, edema on her eyelids, lips and face and bilateral purulent eye discharge. There was an eroded skin area on the front of her body 1x3 cm in diameter, and two eroded skin areas about 1 cm in diameter on the back (Figure 1a). When a detailed history was taken from the family, it was learned that they applied an alcohol-free essence named ''black cat fragrance'' behind both of her ears 6 days before admission. After 10-12 hours of application, an erythema appeared on her neck which spread to her face and trunk. Even though they used antihistamine syrups and corticosteroid creams, it was extremely itchy. The swelling of eyelids and lips started two days before of admission.

Her laboratory investigations were; hemoglobin: 11.7 gr/dl; leukocyte: 20500/mm^3; lymphocyte: 41.8 %; eosinophil: 4.7 %; platelet: 316000/mm^3; erytrocyte sedimentation rate (ESR): 16mm/h; c-reactive protein: 2.99mg/dL (0- 0.34). The liver and kidney function tests were normal. The conjunctiva and blood cultures were negative.

The patient was hospitalized and treated with daily bath, petrolatum, wet dressing, topical hydrocortisone and mupirosin. The skin lesions improved on the fifth day of her hospitalization (Figure 1b). One week after hospitalization her skin lesions were completely resolved without pigmentation, only there was skin peeling of her feet and toes (Figure 1c, 1d). The ingredients in the essence named '*black cat fragrance'* were unknown, therefore we couldn't perform patch test or use test not to lead a similar reaction. The patient was considered as ACD because of the lesions being far from the contact area and having severe pruritus.

Discussion

The exact incidence of allergic contact dermatitis in children is not known and varies depending on exposure to contact allergens [varies according to geography (eg, poison ivy) and cultural practices (eg, jewelry wearing, use of fragrances)]. It has been estimated that ACD accounts for at least 20 % of all cases of childhood dermatitis[6]. The prevalence of ACD in children may be increasing. It has been reported that sensitization is quite high in preschool population[7].

A generalized dermatitis termed autoeczematization or 'id' reaction, can be seen several weeks after the first localized dermatitis lesion. Autoeczematization is particularly common in children with nickel dermatitis and responds quickly to the classical contact dermatitis treatment. The esence named '*black cat fragrance*' which our patient used is a mixture of plants and chemicals. Because of having dermatitis lesions far away from the application area, it was considered as autoeczematization (allergic contact dermatitis stage 3a)[8].

Staphylococcal scalded skin syndrome was considered as a differential diagnosis but it was excluded by the lack of desquamation, negative Nikolsky sign, and no growth in blood, conjunctiva and skin swab cultures. Additionally, the skin lesions resolved quickly with wet dressing and topical corticosteroid treatment and the fever subsided on the next day.

It is known that contact dermatitis is more common in children with AD. Flaggrin mutation was also shown to be involved in irritant contact dermatitis[11]. Topical corticosteroids, topical antihistamines, topical antibacterial, antiviral or antimycotic agents or emollients used to treat AD can cause contact dermatitis[12]. Impaired epithelial barrier in AD probably facilitates the contact sensitization. Contact dermatitis should be kept in mind in AD patients who do not respond the treatment.

ACD associated with strong antigens like poison ivy (urishiol) generally develops within 4 to 96 hours after exposure and peaks between 1 and 14 days after exposure[9]. Because urushiol is a potent allergen, a single exposure can be adequate to cause clinical symptoms. The '*black cat fragrance*' was searched from internet and learned that it was a mixture of more than 200 plants, but we couldn't find out the sorts of plants. Because our patient had severe allergic contact dermatitis, the fragrance was thought to contain probably powerful allergenic plants. Like poison ivy, the plant-derived fragrance might have caused allergic contact dermatitis in our patient with a single exposure. Patch testing to distinguish allergic and irritant contact dermatitis wasn't performed because it is not recommended with totally unknown products[10]. The patient was considered as ACD with generalized disseminated and highly pruritic skin lesions.

In conclusion, ACD can present with generalized dermatitis instead of only localized lesions. This case was reported because of the rareness of ACD presenting as erythroderma in childhood.

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Figure Legends

Figure 1a. Generalized erythema of the skin with scaling. Swelling of the eyelids, lips and face. Impetiginous eczematous lesions on the face, neck, shoulders and trunk. An eroded skin lesion on the trunk; **1b.** Improvement in the skin lesions on discharge (5th day of her hospitalization); **1c**. One week after discharge. Skin peeling of her feet and toes. **1d**. One week after discharge. Full recovery of her dermatitis lesions.