International Journal of Advances in Medicine
Alotaibi MK. Int J Adv Med. 2019 Jun;6(3):951-953
http://www.ijmedicine.com
pISSN 2349-3925 | eISSN 2349-3933
DOI: http://dx.doi.org/10.18203/2349-3933.ijam20192268

Case Report

Generalized eczematous rash in a patient with shoe contact dermatitis: a case report

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Received: 20 February 2019
Revised: 21 March 2019
Accepted: 28 March 2019

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ABSTRACT

The id reaction, which is also known as autoeczematisation or autosensitisation dermatitis, refers to the acute development of dermatitis at a site distant from the site of the primary inflammatory cutaneous reaction. Many stimuli have been reported as causes of id reactions, including allergic contact dermatitis. The exact prevalence of id reaction is unknown, however, id reactions have been found to occur in 4%-5% of cases of dermatophyte infections and in up to 37% of patients with stasis dermatitis. This condition has no known predilection for any race, sex or age groups. Shoe dermatitis is a type of contact dermatitis developed following the contact of the foot's skin with shoe's parts that contain different chemical substance that harbor the potentiality to be an immune trigger. Among the potential allergens, rubber is found to be the most common shoe-related allergen reported in the literature. Other known allergens include: cements, dichromats used in tanning, dyes, anti-mildew agents, formaldehyde, and nickel eyelets or nickel arch supports. The pathogenesis of allergic contact dermatitis is a type IV, delayed-type immune response that provoked by cutaneous contacts with different material that have the ability to stimulate antigen-specific T-helper 1 (TH1) in a sensitized individual. The clinical presentation of id reaction includes acute onset of pruritic erythematous eruption with symmetrical distribution that follows the primary dermatitis by one to two weeks. Authors report a 27-year-old male who presented with generalized, symmetric pruritic and eczematous eruption following localized shoe dermatitis.

Keywords: Allergens, Allergic contact dermatitis, Autoeczematisation, Autosensitisation, Dermatophytosis, Id reaction, Nickel, Shoe dermatitis, Patch test, Stasis dermatitis

INTRODUCTION

Shoe dermatitis is a type of contact dermatitis formed by the direct exposure of the foot's skin with shoes containing potential allergic materials. Although shoe dermatitis is a common medical problem, it may present a clinical dilemma. By the 1960s, rubber allergens +considered as the most common identifiable cause of foot dermatitis.[1,2] Id reaction, also known as autoeczematization or autosensitization dermatitis, refers to the acute development of dermatitis at a site distant from the primary inflammatory reaction. A variety of substance have been identified as stimuli for the development of id reactions, which include fungal (e.g. dermatophytosis), viral and parasitic (e.g. leishmaniasis), bacterial (e.g. tuberculosis), skin infections, allergic contact dermatitis (e.g., nickel) and stasis dermatitis.[1] The accurate prevalence of id reaction following shoe dermatitis is not well known. The lack of familiarity to clinical presentation of Id reaction and its predisposing conditions can contribute to delay in diagnosis and proper management. The following is a case of id reaction

following shoe contact dermatitis in a young male patient.

CASE REPORT

A 27-year-old male patient visited the dermatology clinic for evaluation of a generalized rash. The lesion first started as itchy red areas on the feet shortly after wearing new slippers. The patient went to the general practitioner clinic, where he was diagnosed with a non-healing wound and advised to dress it regularly. One week later, the patient developed a generalized itchy rash on his upper and lower limbs and abdominal area. There were no other systemic signs or symptoms. The patient has a past medical history of bronchial asthma and is not on any medications currently. Physical examination revealed bilateral erythematous and scaly plaques at the dorsum of feet (Figure 1) and multiple eczematous lesions at the shin areas, around the elbows, nose, hands and periumbilical region (Figure 2). Mucous membranes were not involved.

Figure 1: Lesion at foot before treatment.

Figure 2: Lesion at elbow before treatment.

The initial differential diagnosis was dermatophytes infection or contact dermatitis with secondary id reaction. Fungal potassium hydroxide (KOH) examination and culture were both negative. Patch testing facility was not available at our clinic; this case had been diagnosed clinically as shoe allergic contact dermatitis with secondary id reaction. The patient was prescribed topical betamethasone valerate (0.1%) in ointment and systemic antihistamine in the form of loratadine 10 mg daily. After 2 weeks, the lesion showed good response to treatment (Figure 3A and 3B).

Figure 3: The skin lesions after treatment course (A): Elbow area after treatment, (B): Foot after treatment.

DISCUSSION

Allergic contact dermatitis (ACD) is formed by the body's immune response to a stimulus that contacts the skin directly.[2] Shoe dermatitis is a type of contact dermatitis developed following the contact of the foot's skin with shoe's parts containing different chemicals.[2] Shoe dermatitis is a common medical problem with aprevalence rate among contact dermatitis cases of 3%-6.3%.[3] Rubber is the most common shoe-related allergen reported in the literature.[3] Other known allergens include: cements, dichromates used in tanning, dyes, anti-mildew agents, formaldehyde, and nickel eyelets or nickel arch supports.[2]

The pathogenesis of ACD is a type IV, delayed-type immune response provoked by cutaneous contacts with different material that able to activate antigen-specific T-helper 1 (TH1) in a sensitized individual.[4] The development of allergic contact dermatitis requires, basically the exposure of the skin to allergens that diffuse through the layers of the stratum corneum upon contact with the environment. Antigenicity requires allergens of at least 5000 daltons in molecular weight, and may involve the conjugation of small molecular haptens, such as nickel, with autologous proteins present in the skin.[5] It had been found that there is increase in activated T-cell and increase in T- cell helper/ suppressor ratio.[6-8] The classical presentation of shoe dermatitis is eczematous eruption over the dorsal aspects of the foot which may extends to the joints of the toes.[3] Patch testing is the gold standard in diagnosis of ACD. Id reaction, or autoeczematisation, is an acute generalized skin eruption in response to a diversity of stimuli, including inflammatory skin conditions and infections.[9,10] The pathogenesis of the id reaction is not understood. The prevalence of id reaction is unknown. Id reactions have

been foundto occur in 4%-5% of cases with dermatophyte infections and in up to 37% of patients with stasis dermatitis.[10] The classic clinical presentation is an acute, itching, symmetric, papulovesicular or maculopapular eruption that typically involves the extremities. The eruption usually appears within days to weeks of the primary inflammatory disorder. Systemic symptoms may present and include fever, anorexia, lymphadenopathy, splenomegaly, arthralgias, and hematologic abnormalities.[1,5] Histopathological examination usually reveals epidermal spongiosis with superficial perivascular lymphohistiocytic infiltration. Few eosinophils may be seen in the dermis. By definition, there must be no identifiable infectious agents in the specimens.[1,10]

Treatment of id reactions targets the primary medical problem, like infection or dermatitis, after that the id reaction will resolve spontaneously. Symptomatic management, if necessary, may include systemic or topical corticosteroids and systemic antihistamines.[1]

CONCLUSION

Physicians should be aware of this unusual clinical presentation while dealing with patients with allergic contact dermatitis of any entity. A careful medical history can raise the suspicion of autoeczematisation and help to avoid proper management delay. Other dermatitis that may induce id reaction should be excluded, like dermatophyte infection and stasis dermatitis. Treatment should be directed toward the primary disease.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Moteb K. Alotaibi. Generalized eczematous rash in a patient with shoe contact dermatitis, a case report. Int J Adv Med 2019;6:951-3.