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Contact Dermatitis and its Clinical Manifestations: A Case Study

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Abstract:

With the different seasons of the year, the increasing dust storms in Iraq, and the use of antibacterial soaps, the likelihood of dry skin and the infection with contact dermatitis, a form of skin inflammation that can be either acute or chronic and is brought on by physical or chemical exposure, increase. This paper examines the case of a 32-year-old Iraqi woman who, as a homemaker, frequently used washing products, resulting in severe itching and fluid leakage from lesions in her right hand. A red rash, bumps, blisters, swelling, and dry or itchy skin are all signs of contact dermatitis. Although these rashes are not communicable or fatal, they can cause a great deal of discomfort. Individuals with atopic dermatitis are more vulnerable to bacterial, fungal, and viral infections, most notably, microorganism colonization due to abnormalities in their innate and acquired immune responses. The origins, signs, and therapies for contact dermatitis are illustrated in this instance.

INTRODUCTION

An allergic response to an irritant that comes into contact with skin causes contact dermatitis, a type of eczema. Contact dermatitis is a skin ailment that causes inflammation and itching. Contact dermatitis happens when irritants or chemicals that cause an allergic reaction come into close contact with the skin (Bains *et al*., 2019; Cohen and Heidary, 2004). The most common type, irritating contact dermatitis, accounts for 80% of cases. Long-term contact to irritants damages the skin's epidermal cells directly, which sets off an immunological reaction and an inflammatory cutaneous reaction (Bains *et al*., 2019). Phototoxic dermatitis occurs when sunlight triggers an allergy or irritation. The diagnosis of allergic contact dermatitis is often aided by patch testing (Cookson *et al*., 2001).

Irritant contact dermatitis and allergic contact dermatitis are the two main types of CD. Allergic contact dermatitis is caused by an allergic immunological reaction, or an immune system reaction. An allergen, such as poison ivy, may cause a delayed reaction that shows up as a rash a day or two later. Exposure to irritating substances, including soaps or hair colors, damages skin cells between minutes to hours, causing irritant contact dermatitis, a non-immune-mediated reaction (Clynick and Holness, 2024).

Atopic dermatitis (AD), a widespread, chronic, variable skin illness that usually appears within the first two years of life and lasts into adulthood in around two-thirds of cases, affects 7 to 17% of children. Many newborns with AD have a positive family history of allergic rhinitis, asthma, or AD in one or both parents, and they will continue to experience more atopic difficulties as they grow older. AD is a complex illness that is impacted by both genetic and environmental variables. Four chromosomal areas linked to AD that are different from atopy-associated loci have been identified using genomic scanning of children with the condition (Lee *et al*., 2000; Cookson *et al*., 2001). Interestingly, four loci that have been identified as having psoriasis susceptibility genes closely match these linkage sites, suggesting that these loci may contain genes that control skin inflammation and immunity in both disorders (Diepgen and Weisshaar, 2007).

Contact dermatitis can appear as dry, scaly patches that can be red, purple, brown, or gray, or as an itchy rash, depending on the skin tone. Redness, swelling, itching, and sometimes blisters are its hallmarks. Long-term exposure to the allergen or irritant may result in a significant reaction, but the reaction is often limited to the skin area that comes into contact with it. Contact dermatitis can occur anywhere on the body that comes into contact with allergens, including the hands, feet, scalp, face, arms, legs, chest, belly, and genitalia (Fenner *et al*., 2020).

Any age or skin tone might be affected by CD. Occupational contact dermatitis can occur in people who are exposed to chemicals or irritants at work. This includes those who work as mechanics, housekeepers, doctors, pet owners and breeders, hair stylists, etc. People with atopic dermatitis are more vulnerable to contact dermatitis due to a weakened skin barrier (Lee *et al*., 2000). Contact dermatitis creates a good place for bacteria or fungi to grow and may cause an infection (Al-Jumaa *et al.,* 2025; Al-Khawlany *et al.,* 2021).

Once the trigger has been identified, avoiding the chemical is crucial to preventing further reactions. Furthermore, contact dermatitis is not communicable and can coexist with other eczemas like atopic dermatitis (Leyden *et al*., 1974). The origins of contact dermatitis, its clinical manifestations, and the role microorganisms play in AD by initiating disease activity through microbial components are the main topics of this paper.

CASE PRESENTATION

The clinical assessment and observation of a Babylonian patient provided the foundation for this study. A 32-year-old woman with skin infections on her right hand was suffering from

severe itching and fluid flow. She acts as a homemaker and mother, which introduces her to dust, so she uses cleaning products frequently during the day. Cortisone ointment was utilized along with instructions to alleviate the patient's suffering.

Inflammatory skin can appear pink, red, brown, or grey depending on the skin tone. The common symptoms of contact dermatitis include intense itching in the affected areas, which can result in acute scratching that bleeds the skin. Touching it could also cause pain. Scaly damage to the layers that make up the skin causes irregularities in the nail and the skin surrounding it, as well as dryness, irritation, swelling, and eventually breaking of the skin at the dermatitis areas. Itchy skin or skin that leaks a clear yellow fluid as shown in Figures 1 and 2.

Fig. 1. Patient's hands with severe symptoms of skin inflammation.

Fig. 2. Patient's fingers in different stages from **A.** inflammation and deformation of nail tissue, **B.** Redness and cracking, swallowing, **C.** oozes clear fluid **D.** scaly-dry skin down **E.** shedding of the affected skin layer.

MANAGEMENT AND TREATMENT

The best way to manage contact dermatitis is to stay away from the trigger that is causing the reaction.
The basic treatments for contact dermatitis avoiding known triggers (wearing gloves or other protective gear may be necessary if contact must be avoided) Using a mild cleanser in a bath Frequent moisturizing helps prevent allergens and irritants from penetrating the skin, fight dryness, and restore the skin's protective layer (Figure 3).

Fig. 3. The patient's hand after the treatment.

DISCUSSION

Contact dermatitis occurs when the skin becomes exposed to an irritant or allergen. It is caused by an inflammatory response that occurs when the skin enters into contact with something that irritated the skin or to which an individual is allergic (Lubbe, 2003).

Both eczema sufferers and medical professionals commonly refer to anything that aggravates or triggers their illness as a "trigger." You can prevent flare-ups by being aware of what irritates your skin. However, identifying triggers may be difficult. A flare-up may occur following exposure to an allergy or allergen. This lag time may make identifying a particular trigger challenging.

The common causes of contact dermatitis metals such as gold, nickel, and cobalt, topical drugs such neomycin and glucocorticoids (Lubbe, 2003; Milam and Cohen, 2019) dust particles, animals' hair, aromas (Milam and Cohen, 2019) rubber products, such as gloves (Lubbe, 2003). Methylisothiazolinone, formaldehyde, and parabens are examples of preservatives (Lubbe, 2003; Mowad, 2016). A child-friendly "slime" toy can be made using borax (Mowad, 2016). Balloons and other goods made of natural rubber latex are known to cause allergies (Lubbe, 2003). One typical ingredient in moisturizers is sheep lanolin. Two plants that resemble poison ivy 4 dyes for hair (National Eczema Association, 2025).

Patients with AD are more likely to have certain specific bacterial, fungal, and viral conditions (Nilsson *et al*., 1992). Due to their similar symptoms, contact dermatitis and atopic dermatitis are often misdiagnosed as eczema. On the other hand, contact dermatitis originates after getting into contact with an allergen, while atopic dermatitis is inherited.

Staphylococcus aureus bacterial colonization, which affects both lesioned skin and, to less extent, non- lesional AD skin, is the most frequent skin infection in AD patients (> 90% of patients as opposed to 5% in healthy individuals) (Ring *et al*., 1992; Tramontana *et al*., 2023). Furthermore, there seems to be a causal link between the quantity of bacteria on the skin and the intensity of the disorder in AD patients, whereas treatment-induced bacterial clearance is typically linked to an improvement in skin lesions.

CONCLUSION

This case study and assessment of the literature demonstrate the serious clinical and public health problem that contact dermatitis presents, especially in certain environmental settings like

Iraq. The 32-year-old homemaker's case serves as a striking example of how everyday chemical exposures, like those found in chemicals for washing, can cause a severe inflammatory skin response that results in symptoms like itching, blistering, and leaking blisters.

The study also emphasizes the crucial pathophysiological connection between secondary microbial colonization, epidermal barrier breakdown, and contact dermatitis. Infections thrive in disorders like atopic dermatitis due to damaged skin structure and underlying immunological dysregulation, which increases the severity and complexity of the illness.

In the end, this case highlights the need for a dual management approach: in continuous or severe cases, clinicians must preserve an elevated level of suspicion for combined microbial infections; in the first, identifying and avoiding causal irritants and allergens is critical for prevention and treatment. A thorough grasp of these interrelated elements—environmental triggers, skin barrier function, and microbial ecology—is necessary for efficient diagnosis, treatment, and enhancing the lives of those who are impacted.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest.

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