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PhotoDermDiagnosis

A paradoxical hypersensitivity reaction

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A 29-year-old male presented to the dermatology OPD with complaints of an oozing pruritic rash on the hands. On inspection, erythematous lesions were observed on both hands involving the fingers in a background of scaling. The patient was a school teacher by profession. On further inquiry, the patient didn't report any change in his personal cosmetic or hygiene products. However, he admitted to frequent sanitizer use recently. A KOH prep test was negative. This presentation was classical for contact dermatitis. The patient was counseled to avoid sanitizer. He was advised an antihistamine, corticosteroid ointment, and emollients.

Few days later, our patient presented with a flare-up of his hand dermatitis. On examination, the erythematous lesions had increased in size and number **(Figure 1)**. Due to his paradoxical worsening on topical corticosteroid use, a decision was made to stop the treatment. The patient was advised to undergo patch testing which subsequently revealed a positive skin reaction for corticosteroids. After being diagnosed as allergic to corticosteroids as well, he was eventually treated with topical tacrolimus. The patient responded well and his skin condition improved on subsequent follow-up

Figure 1 Picture demonstrating contact dermatitis of the hands.

What is the diagnosis?

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Diagnosis

Contact Dermatitis flare-up subsequent to topical steroid.

Discussion

Most, if not all, drugs are xenobiotics interacting with several activation systems on the cellular level upon administration. Adverse reactions to pharmacological therapy fall into two groups: the first type is predictable as well as common and mostly revolving around the pharmacologic actions of the medication itself (Type A reactions) while the other being those that are uncommon, remain unpredictable and are generally not related to the intended pharmacologic actions of the drug (Type B reactions).[1] The latter includes allergic hypersensitivity (AHS), and non-allergic hypersensitivity (NAHS) reactions. Although these can occasionally be difficult to fully comprehend due to the involvement of various complex mechanisms nonetheless, differentiation between the above-mentioned two types of reactions to drugs has significant importance. AHS is not only rare but can become life-threatening whereas NAHS is quite frequent, at times presents with increasing severity becoming fatal in exceptional cases only.[2,3]

Steroid pharmacotherapy causes hypersensitivity rarely in the general populace. According to an article reviewing multiple such instances, most of the cases were due to non-systemic application of corticosteroids. Such reactions are classified into 2 groups (immediate & non-immediate); patients who report allergy within an hour of medication while the other, more common, develop hypersensitivity afterwards. After detailed analysis, it was observed that allergic contact dermatitis (ACD) is the most frequently reported non-immediate hypersensitivity reaction typically following application of a topical corticosteroid.[4] Another literature review compiled data from 106 patients who reported a total of 120 reactions of hypersensitivity occurring within 24 hours after the use of corticosteroids. Diagnoses were confirmed after a thorough medical history. Challenge testing revealed ¾ of the patient population to be positive out of whom most were able to tolerate a single alternative therapy at the least, requiring desensitization only rarely.[5] It has also been studied that contact allergy can only be rarely induced by corticosteroids where the underlying cause was related to one's occupation.[6]

Knowledge regarding hypersensitivity/ delayed hypersensitivity as a secondary manifestation caused mainly due to the use of topical corticosteroids (allergic contact eczema) is improving, however little is known regarding the immediate and delayed allergies of topical and systemic CSs. Therefore, it is necessary to address such incidences, where precise and efficient diagnostic work-up is the only way to determine potential replacement agent(s) that the patient may still be able to tolerate.

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