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Delayed-type cutaneous drug eruption due to oral prednisolone

Dear Editor,

Delayed-type allergic reactions to oral prednisolone are rare but important complications because it is widely used for its anti-inflammatory effects. Here, we report a case of delayed-type cutaneous drug eruption due to oral prednisolone.

A 62-year-old man with no significant past medical history was referred to our hospital for a progressing skin rash over his entire face and trunk (Figure 1A,B). The rash presented approximately 24 hours after the oral administration of prednisolone 60 mg, adenosine triphosphate disodium hydrate (ATP) 180 mg, methylcobalamin 1500 μg, and teprenone 150 mg for sudden onset of sensorineural hearing loss. Physical examination was unremarkable except for the skin rash. No abnormal findings were noted on hematological testing, which included eosinophils, renal, and liver

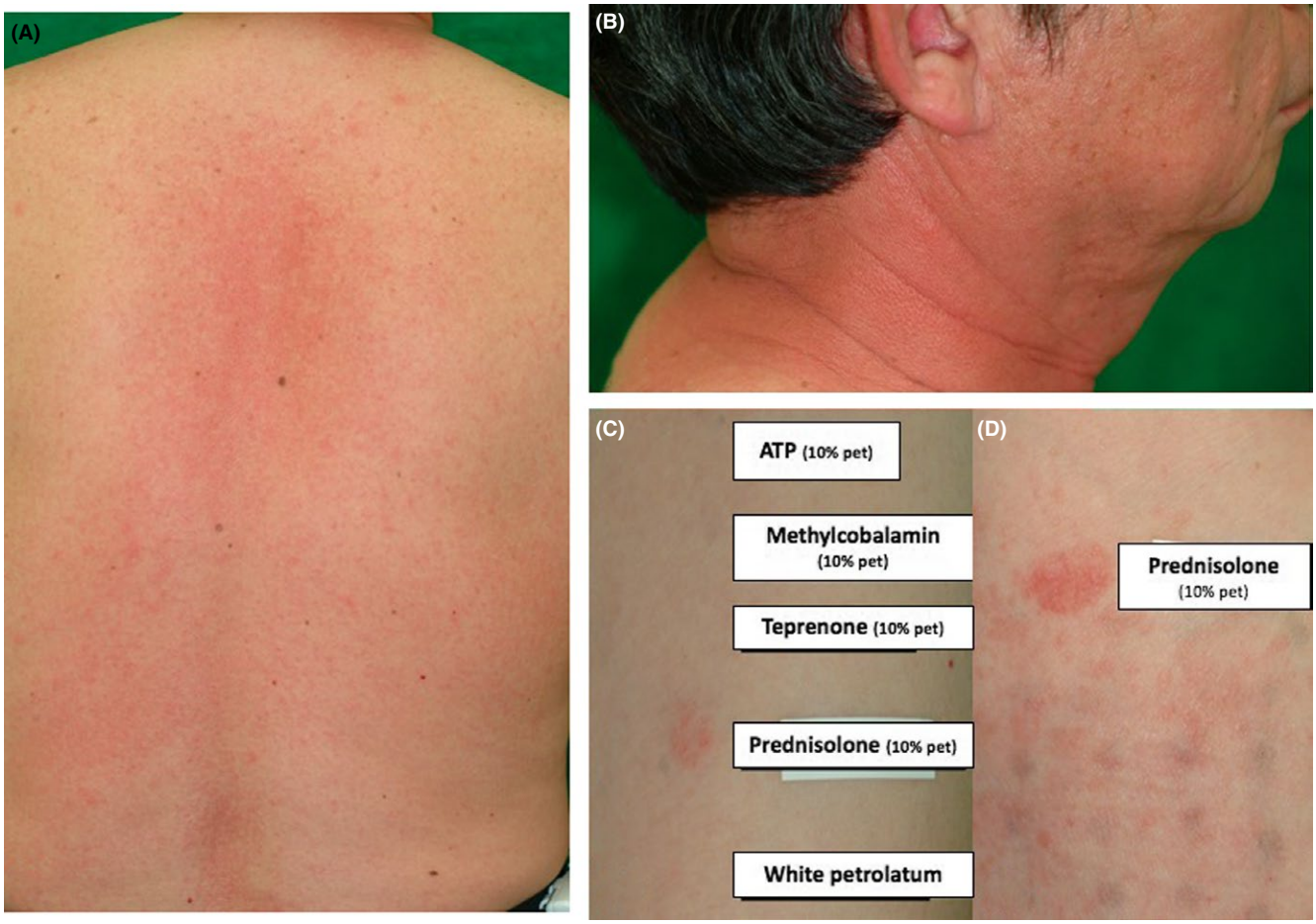

FIGURE 1 Clinical appearance and patch test findings. A, B, Cutaneous examination revealed confluent erythematous papules 2-8 mm in size spreading across the face, neck, and whole body. C, Patch test (72 h) for the four suspected drugs is positive for prednisolone (10% pet). D, Patch test (1 wk) with the constituents of prednisolone is positive for prednisolone (10% pet) itself, not other components of the drug

function assessments. An adverse reaction to the prescribed drugs was suspected, and the administration of these drugs was discontinued. Oral betamethasone 6 mg daily and olopatadine hydrochloride 10 mg daily were prescribed. The eruption gradually resolved and disappeared after 2 weeks of treatment.

We performed patch tests for the four drugs in question. Testing was positive only for prednisolone (10% pet) (Figure 1C). We thus conducted patch tests with the constituents of prednisolone, and positive results were seen only for prednisolone (10% pet) itself and negative for all other components of the drug (Figure 1D). Reactions were positive 72 hours and 1 week after application in both tests. Therefore, we diagnosed as a drug-related skin eruption due to prednisolone but not from the other components of this medication.

Hypersensitivities to systemically administered steroids are rare. In the majority of reported cases, the reactions are caused by administration of steroids intravenously with immediate reactions, such as anaphylaxis or acute generalized angioedema. Hypersensitivity reactions to oral corticosteroids with delayed-type cutaneous manifestations occur far less frequently. Only a few case reports have been documented, especially to oral prednisolone.[1,2]

Although our patient could not recall having a history of prednisolone used before, we suspected that he might have been sensitized via a topical corticosteroid prior to onset and had a delayed cutaneous reaction to an orally administered systemic steroid, as previously reported.[2,3] It is suggested that corticosteroids themselves are not intrinsically allergenic, but steroidal metabolites and glyoxal degradation products such as “cortisol-transcortin” or “cortisol-albumin” conjugation may be immunogenic substances.[4,5]

Since allergic cross-reactivity may occur, careful assessment is necessary to determine the type of steroid to which the patient is allergic. It is also important to recognize that the other components of a corticosteroid drug, such as preservatives and excipients, can induce a hypersensitivity reaction. Allergen testing is necessary to determine what component of the suspected medication causes the reaction, as was performed in our case.

This condition is paradoxical as corticosteroids are usually used to treat allergic reactions. Hence, it is difficult to diagnose unless clinicians suspect it.

Given the frequent use of oral prednisolone clinically, it should be kept in mind that the wrong treatment choice may be life-threatening.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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