

A drug not recognized as a photosensitizer?

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Numerous drugs are recognized as being triggers for phototoxic or photoallergic reactions. The culprit drug in the case reported here, amoxicillin, is a well-known cause of cutaneous drug adverse reactions, but has so far not been recognized as a photosensitizer.

CASE REPORT

A 71-year-old man had been treated with amoxicillin for 3 days because of a tick bite, when he presented with photodistributed exanthema on his face and upper limbs, which then spread to non-exposed areas (Figure 1). The drug was discontinued, and the rash began to clear within a few days with topical steroids. The patient had a history of photoallergic contact dermatitis (PACD) caused by a ketoprofen (KP) gel 10 years earlier, and of contact dermatitis caused by perfume use 2 years earlier. Two biopsies showed a similar pattern suggestive of cutaneous drug adverse reactions, with a dermal inflammatory infiltrate of lymphocytes and histiocytes around the vessels combined with eosinophils. There were no other abnormalities except for eosinophilia (1.19 G/L).

After 3 months, the patient underwent patch testing with IQ Ultra chambers and allergens from Chemotechnique Diagnostics (Vellinge,

Sweden). Patch tests were performed on day (D) 0 with the European baseline series and the additional series of the French network for vigilance in dermato-allergy (REVIDAL). At the same time, amoxicillin 10% pet. and the KP gel "as is," as well as a personal "KP series"



FIGURE 1 Photodistributed rash with respect of the forehead that was protected by the cap, and lesser involvement on covered areas such as the upper arms and flanks that is very suggestive of photosensitivity, possibly drug-induced

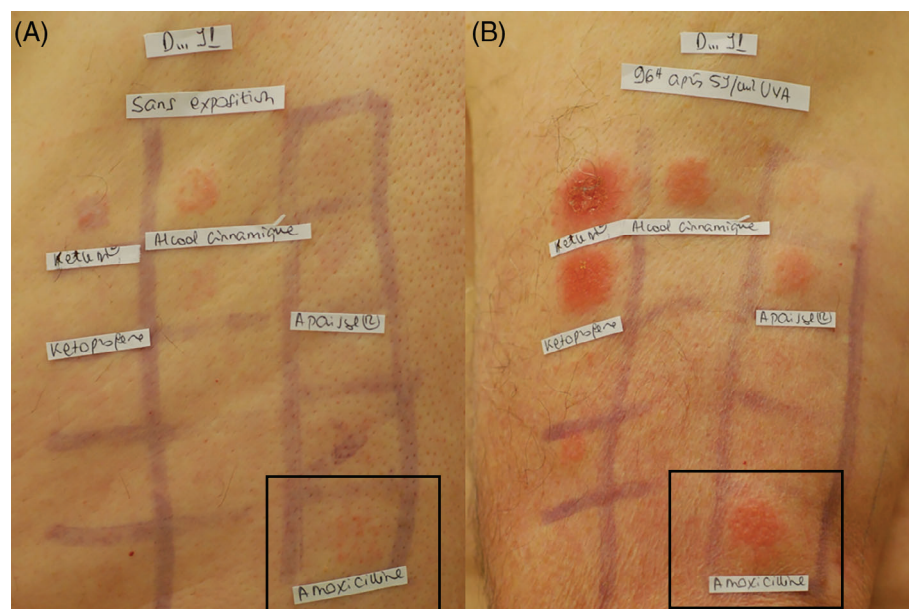


FIGURE 2 Results of patch testing (A) and photo-patch testing (B) on day 4 showing positivity for amoxicillin (+ and ++ for patch testing and photo-patch testing, respectively)

including KP, octocrylene, benzophenone-3, cinnamic alcohol, and fenofibrate, were applied in duplicate, one protected from light with a black cloth, and the other exposed to ultraviolet A on D2 with a 5 J/cm² dose (PUVA 800; Waldmann Lichttechnik, Villingen-Schwenningen, Germany). Readings were performed on D3 and D4, and also immediately after irradiation of the photo patch test.

Patch testing with *Myroxylon pereirae*, fragrance mix I and cinnamic alcohol, as well as photo-patch testing with KP and the KP gel, gave positive results on D4 and D5 (++) for patch tests and +++ for photo patch tests; the reactions were previously relevant in view of the history of PACD caused by KP gel. The patch test with amoxicillin gave a negative result on D3 and a doubtful result on D4, whereas the photo-patch test gave positive results on D3 (+) and D4 (++) and these were currently relevant (Figure 1). The other tests gave negative results (Figure 2).

DISCUSSION

This case report is strongly suggestive of systemic photoallergy to amoxicillin. To the best of our knowledge, this seems to be the first case reported in the literature in which amoxicillin is without doubt the culprit drug responsible for photoallergy. One case of possible phototoxicity caused by amoxicillin in a haemodialysis patient has been reported,¹ and a case of phototoxicity caused by cephalosporins was described in 1993.² No photo-patch tests were performed in these cases.

Amoxicillin is well known to trigger cutaneous adverse drug reactions, especially maculopapular rashes, in which, if performed, patch tests with amoxicillin frequently give positive results. In the present case, a peculiar photoreactivity related to the history of PACD caused by KP in this patient could be an explanation for this very unusual photosensitivity to amoxicillin. Such peculiar photoreactivity has been reported with other products, such as octocrylene, fenciclor, and phenothiazines, which do not have any chemical similarities with KP.^{3,4} It has been shown that KP is able to induce the formation of amino acid

photoadducts. The specific immunogenic complex thus formed could continue to react with various compounds that can generate singlet oxygen, even without KP, and in this way could induce photoallergy.⁵

In conclusion, this case highlights the need for targeted photo-patch testing of all prescribed drugs when there is a rash on sun-exposed areas suggestive of a cutaneous adverse drug reaction, even if the drugs are not known to be photosensitizers.

CONFLICTS OF INTEREST

The authors have no conflicts of interests to report.

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