

Recall urticaria

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It is not uncommon for patients receiving allergy immunotherapy to have local reactions to the shots.¹ We report two patients who had been receiving two different allergy shots in different arms on different days who, on a day when receiving a shot in one arm, had a reaction on the other arm.

CASE REPORTS

Case 1

A 26-year-old man with allergic rhinitis began allergy immunotherapy with two aqueous extract mixtures. One extract mixture contained 1.0 ml of 1:10 wt/vol of each of two grasses (Bermuda and rye), three weeds (ragweed, Russian thistle, and sage), and one mold (*Alternaria tenuis*), 0.5 ml of 1:10 wt/vol of two other weeds (lamb's-quarter and English plantain), 2.0 ml of 5000 allergenic units/ml house dust mite mix (*Dermatophagoides pteronyssinus* and *D. farinae*) and 1.0 ml of diluent (0.9% sodium chloride, 0.03% albumin [human], and 0.4% phenol in water). The other extract mixture contained 0.5 ml of 1:10 wt/vol of each of 16 trees (alder, ash, birch, cedar, cottonwood, elm, eucalyptus, maple, mesquite, mulberry, oak, olive, pecan, poplar, sycamore, and walnut) and 2.0 ml of diluent. The grass, weed, mold, and mite mixture was always given in the left arm, and the tree mixture was always given in the right arm. Nine months after he began receiving shots, the left arm shot was discontinued because of repeated local reactions, but the right arm shot was continued. Nearly 2.5 months later, after receiving his shot in the right arm, the patient had a mild systemic reaction, including cough and scratchy throat. There was no local reaction at the site of the shot; however, numerous hives appeared on his left arm

at the site where the other extract had previously been injected.

Case 2

A 22-year-old man with allergic rhinitis began allergy immunotherapy with two aqueous extract mixtures. One extract mixture contained 1.0 ml of 1:10 wt/vol of each of two grasses (Bermuda and rye), two trees (cottonwood and walnut), five weeds (English plantain, ragweed, Russian thistle, sage, and wing scale), and 1.0 ml of diluent. The other extract mixture contained 1.0 ml of 1:10 wt/vol of each of 10 trees (ash, eucalyptus, juniper, maple, mesquite, oak, olive, pecan, poplar, and sycamore) and no additional diluent. The grass, tree, and weed mixture was always given in the left arm, and the tree mixture was always given in the right arm. Eight months after he began receiving shots he had achieved a maintenance dose for the right arm. He did not achieve a maintenance dose for the left arm because of several delayed large local reactions on the left arm, as well as a systemic reaction, which had been associated with a local reaction only on the left arm. Later it was decided that the two shots should no longer be given on the same day. Several shots were subsequently given in the left arm without reaction (building up toward a maintenance dose). Four days after receiving such a shot in the left arm, the patient was given his maintenance dose of the other extract in the right arm. When he was checked 30 minutes later, he had only a small local reaction at the site of the shot on the right arm (Fig. 1, A), but he had numerous hives on the upper left arm where he had not received a shot in 4 days (Fig. 1, B).

DISCUSSION

These cases represent "local" reactions at the site of immunotherapy; the reactions occurred at the site of allergy shots. However, although the patients had received many allergy shots at the location of the reaction, they were precipitated acutely by a shot containing different allergens given in the opposite arm. This "recall urticaria" phenomenon has not, to our knowledge, been previously reported.

In case 2 the cottonwood extract in one shot could cross-react with the poplar extract in the other shot. Similarly, the walnut and pecan extracts could cross-react. Such cross-reactivity could conceivably contribute to the recall urti-

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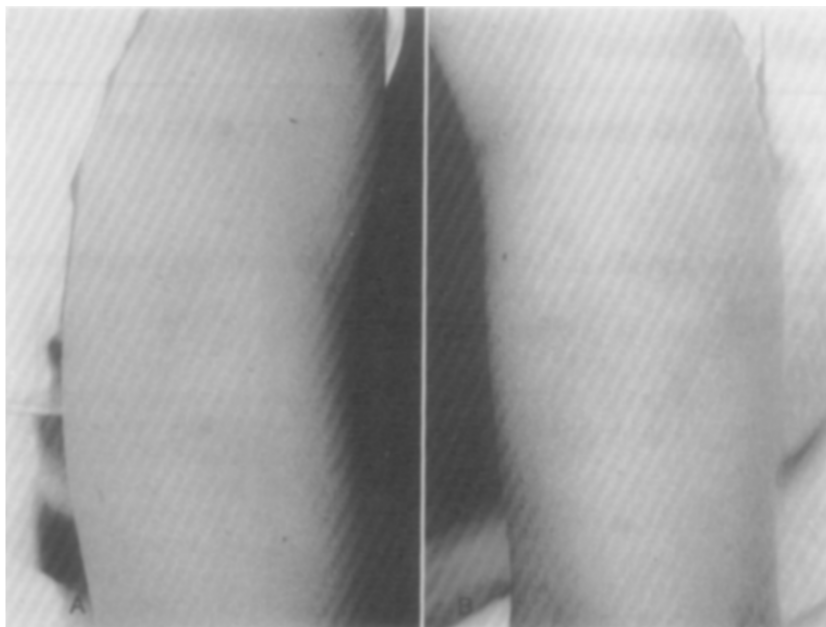


FIG. 1. Case 2. A, Right arm. B, Left arm.

caria described; however, the phenomenon also occurred in case 1 when no cross-reacting allergens were present in the two extract mixtures. Also, the common diluent seems an unlikely explanation because none of its components are known to be allergenic.

Recall urticaria brings to mind two other previously reported phenomena. The first is false-positive immediate-type skin test results produced by proximity to the histamine control² or strongly positive allergen³ test sites. This phenomenon has been attributed to an "axon reflex" but remains poorly explained. The second is "excited skin syndrome" or "angry back syndrome" in which the presence of a strongly positive delayed-type (patch) skin test result or even a noniatrogenic dermatitis can cause a false-positive patch test result at an adjacent or even distant site.⁴ Explanation of this phenomenon also remains speculative.

The recall urticaria phenomenon reported here strongly suggests that long-lasting local changes may occur at the site of allergy shots, which can manifest later on as hives. Perhaps there are

increased accumulations of mast cells at the site of allergy shots, or the previously existing mast cells are rendered more easily releasable. The degranulation of these mast cells precipitated by the distant injection of allergen could be due either to systemic absorption of allergen or the systemic release of histamine releasing factors. This phenomenon may also be related to the priming effect of allergic rhinitis, whereby repeated exposure to allergen renders the nasal mucosa more sensitive not only to the priming allergen but also to unrelated allergens.⁵

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