

Allergic suture material contact dermatitis induced by ethylene oxide

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Key words: delayed hypersensitivity; ethylene oxide; suture.

Skin reactions to suture material are frequently observed. They are usually identified as unspecific inflammatory or foreign body

reactions. Nevertheless the risk to trigger an allergic reaction cannot be excluded whenever potentially sensitizing suture materials are used.

Suture material contact dermatitis: possible type III reaction or delayed hypersensitivity induced by ethylene oxide.

A 56-year-old nurse consulted with a history of four episodes of inflammatory reaction following skin biopsy. In the first episode, an erythematous raised reaction had appeared around the stitches eight days after the skin biopsy. A secondary onset of central skin necrosis around the stitches had been accompanied by more general symptoms as fever, lumbar pain and malaise.

The three following episodes had been characterized by the onset of the same inflammatory plaques, but the reaction had been more intense and had appeared earlier, starting two days postsurgery, with the same general manifestations (fever, lumbar pain and malaise).

The laboratory tests, realized 3 months after the last episode, were normal showing an absence of immune anomalies. Test results revealed neither anti-nucleus antibodies nor circulating immune complexes. The total complement was normal. The natural rubber latex prick test and the latex-specific immunoglobulin (Ig)E test were negative. The latex patch test was also negative, as well as the iodine patch test.

Ethylene oxide sterilization being one of the methods currently used to sterilize sutures, the next step was to measure the ethylene oxide specific-IgE level. The IgE CAP test was positive at a concentration of 3 kU/l.

As it was impossible to use prick or patch tests to confirm the ethylene oxide allergy given the absence of standardized allergens, a provocation test was undertaken with two different sutures. The patient received two stitches. The first one was made with a nonresorbable suture sterilized with ethylene oxide (Ethicon®), the second one, intended as a negative control test, was made with a gamma irradiated suture (Ethibond®).

At 2 days, the ethylene-oxide-sterilized stitch was surrounded by an erythematous raised plaque spreading rapidly to a width of 6 cm. The plaque onset was accompanied by violent arthralgias, but there was no biological inflammatory syndrome, and circulating immune complexes were not detected.

The inflammatory plaque histology showed dermatitis with a mononuclear cell infiltrate of the interlobular septa at the subcutaneous level and a mixed infiltrate with neutrophils and lymphocytes around venules without thrombosis.

No macroscopic reaction had been triggered by the control gamma-irradiated stitch.

Ethylene oxide allergic reactions have been well studied in dialysed patients (1). Authors have essentially evoked an IgE-mediated pathogenic mechanism.

The present observation reports an allergic reaction which is neither a transitory irritant contact dermatitis (2) nor an airborne dermatitis (3) usually described after superficial contacts.

The intense granulomatous reaction associated with systemic signs suggests the initial responsibility of IgE. The persistence of the inflammation could be explained by the slowness of the allergen resorption lasting several days. It could also suggest the triggering of a type III allergic reaction by complement activation or an authentic ethylene oxide delayed hypersensitivity. This possibility of delayed hypersensitivity systemic reactions has already been explored with tuberculin in experimental pathology (4).

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Anaphylaxis to raw carrot not linked to pollen allergy

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Key words: anaphylaxis; birch; carrot; food allergy; mugwort; rBet v 1; rBet v 2.

Carrot allergy has been reported in pollen allergic patients, specially in those sensitized to birch

and mugwort pollens (1–4). The immunoglobulin(Ig)E binding structures identified

An uncommon case of anaphylaxis induced by raw carrot in a non-pollinic patient.

comprise Dau c 1 (16–18 kDa), a Bet v 1 homologous protein, carrot profilin (12 kDa), a Bet v 6-related allergen (35 kDa), and cross-reactive carbohydrate determinants (1, 2, 4). This report presents a case of anaphylaxis and rhinoconjunctivitis induced by raw carrot in a nonpollinic patient.

A 50-year-old woman presented 5–10 min after the intake of a freshly home-made raw carrot juice, vomiting, diarrhea, dyspnea, and a generalized urticaria, which required emergency room

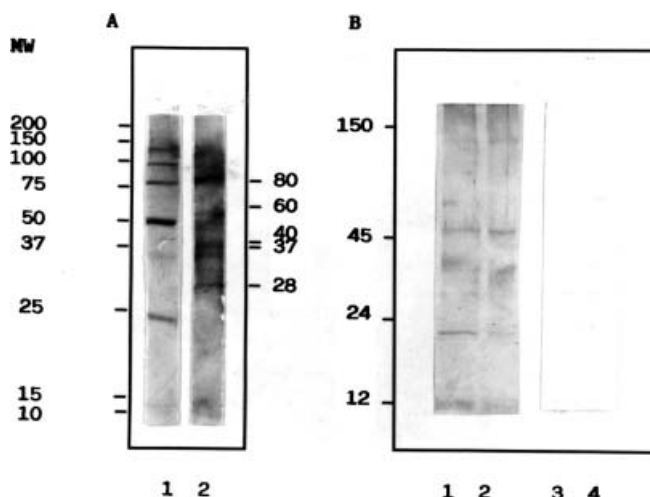


Figure 1. (A) Protein separation by 12% Sodium dodecyl Sulphate-polyacrylamide amide electrophoresis of raw nondialysed carrot extract (reducing conditions). Lane 1, molecular weight standards. Coomassie-blue staining of the gel. (B) Immunoglobulin E-Immunoblotting of raw nondialysed carrot extract after protein transfer to polyvinylidene difluoride (PVDF) membranes. Lanes 1 and 2, patient's serum. Lanes 3 and 4, control serum. Lanes 1 and 3, unreduced. Lanes 2 and 4, reduced.

treatment. She had previously noticed mild rhinoconjunctivitis while peeling raw carrots. She denied symptoms of pollen allergy and had negative skin prick tests (SPTs) to a battery of inhalants including birch and mugwort pollens. Prick-prick test with raw carrot was positive (10 mm), but negative with boiled carrot. Specific IgE to carrot was 5.97 kU/l, and negative to birch and mugwort pollens (Pharmacia CAP). The following study was performed with the patient's written consent.

Raw and boiled carrots were extracted separately, and one half of each extract was dialysed with a 12 kDa membrane. The SPTs (in quadruplicate), and conjunctival challenge tests were performed with the raw dialysed, raw nondialysed (RND), boiled dialysed, and boiled nondialysed carrot extracts. Positive SPTs (10 mm mean wheal) and conjunctival challenge were only obtained with RND extract. Cooked carrot (100 g) was tolerated in an open challenge. Negative SPTs and conjunctival challenges with

the carrot extracts were found in two controls.

An IgE-immunoblotting performed with the RND extract revealed several bands between 12 and 65 kDa (Fig. 1), whereas no bands were detected below 20 kDa in the remaining three carrot extracts (not shown). Some of the 35–65 kDa bands were not specific as they appeared with the control serum (Fig. 1). CAP to rBet v 1 and rBet v 2 were negative, as well as specific IgE to carrot profilin and recombinant carrot lipid transfer protein determined by previously published procedures (5, 6).

In summary, we report a carrot induced anaphylaxis not related to pollen allergy. Although the characterization of the involved allergen(s) is out of the scope of the study of this uncommon single case, our results suggest that it is a thermolabile low molecular weight allergen, probably not related to any of the carrot allergens identified so far.

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