

L. Marqués Amat

Allergology Unit, "Santa
María" Hospital, Lleida, Spain

Correspondence address:
Dr. Luis Marqués Amat
Rovira Roure 44
E-25198 Lleida, Spain
e-mail: lmarquesa@meditex.es

Case report

Secondary dermographism in wasp sting allergy

A case is presented of a 55-year-old woman who developed dermographism after a wasp sting. She had a previous history of giant delayed local reaction and Grade I systemic reaction after a wasp sting, and at that time the skin tests and specific serum IgE had been positive for *Polistes* spp. (intradermal reaction, 1 µg/ml: 7 x 7 / 25 x 27 mm; specific serum IgE level: 0.51 kU/l). Three years later, after another wasp sting, she developed dermographism and the specific serum IgE levels showed a considerable increase (>100 kU/l). The same clinical manifestations and specific serum IgE levels still persisted five months later. No reported cases of dermographism in association to *Hymenoptera* venom allergy have been found in the literature.

Key words: Dermographism. Hymenoptera venom allergy. Secondary dermographism.

Dermografismo secundario a alergia a picadura de avispa

Se presenta el caso de una mujer de 55 años que inició dermografismo a partir de una picadura de avispa. Tenían antecedentes de reacción local gigante retardada y reacción sistémica de Grado I tras picadura de avispa y, en ese momento, las pruebas cutáneas y la IgE específica habían sido positivas para *Polistes* spp. (intradermorreacción con 1 µg/ml: 7 x 7 / 25 x 27 mm; IgE sérica específica 0,51 kU/l). Tres años más tarde, después de una picadura de avispa, inició dermografismo y los valores de IgE específica aumentaron de manera marcada (>100 kU/l). Al cabo de cinco meses persistían la clínica cutánea e idénticos valores de IgE específica. No se han encontrado casos descritos de dermografismo asociado a alergia a veneno de himenópteros.

Key words: Alergia a himenópteros. Dermografismo. Dermografismo secundario.

Dermographism may occur secondary to allergic reactions to drugs, food or immunotherapy¹⁻⁵, and it has also been reported to occur after insect stings^{6,7}. Even though there are some reports of cold (a frigore) urticaria after *Hymenoptera* stings in patients who were allergic to their venom⁸, no reported description has been found of dermographism secondary to that particular form of allergy.

The present report describes one patient who developed dermographism and sensitisation to *Polistes* and *Vespula* venom after being stung by a wasp.

Table I. Evolution of the clinical manifestations and of the results of the diagnostic test

Time	Event	Symptoms	Skin tests (mm Ø)	Specif serum IgE (kU/l)
1995	Sting	Delayed local reaction	ND	ND
July 1996	Sting	Delayed local reaction	IDR <i>Polistes</i> spp., 1 µg/ml (7 x 7 / 25 x 27)	<i>Polistes</i> spp. (0.51) <i>Vespula</i> spp. (<0.35)
October 1997	Sting	Grade I systemic reaction	ND	ND
August 1999	Sting	Delayed local reaction, Generalised dermographism	ND	<i>Polistes</i> spp. (>100) <i>Vespula</i> spp. (>100)
February 2000		Generalised dermographism	ND	<i>Polistes</i> spp. (>100) <i>Vespula</i> spp. (>100)

IDR: intradermal reaction; ND: not done.

CASE REPORT

The patient was a 55-year-old female; the only salient facts in her past history were a resected mammary nodule and osteoporosis (under therapy with alendronate). Over the past five years she had developed local giant delayed reactions upon being stung by wasps; the mean frequency of the stings had been *ca.* one every two years, and they occurred particularly at her weekend and vacation home near the seacoast. She was first seen at the outpatient clinic in the summer of 1996, and reported being stung by a wasp in the right gluteal region and having developed, some four hours afterwards, marked local oedema (involving also the ipsilateral lower limb). In the previous summer she had had a delayed local reaction extending over >20 cm in the left arm. She denied having had any systemic symptoms in association to these reactions, and correctly identified the involved wasps.

Skin tests were performed at that time with *Hymenoptera* venoms (*Apis mellifera*, *Polistes* spp. and *Vespula* spp.; ALK-Abelló, S.A., Madrid, Spain), both by prick test (10 µg/ml) and by intradermal test (0.01, 0.1 and 1.0 µg/ml), and the specific serum IgE level was quantified using the CAP-System (Pharmacia-Upjohn, Uppsala, Sweden). The tests were positive for *Polistes* spp. (intradermal test with 1 µg/ml: 7 x 7 mm wheal and 25 x 27 mm erythema, with delayed reaction) and negative for *A. mellifera* and *Vespula* spp. the specific serum IgE levels were 0.51 kU/l (Class 1) for *Polistes* spp. and <0.35 kU/l for both *A. mellifera* and *Vespula* spp.

The patient received advice on how to prevent future stings, and symptomatic therapy with antihistamines and corticosteroids was recommended in the case that she should suffer a new one.

In the autumn of 1997 she was stung in the right foot by a wasp; 30 minutes later she developed generalised urticaria (which abated within two hours after taking an antihistamine), with immediate and delayed local giant reaction at the site of the sting. She consulted by telephone, and was advised to have self-injectable adrenaline available.

She did not consult again until August 1999, after being stung by a wasp in the face. She immediately took one 30 mg dose of oral prednisone but developed a delayed local giant reaction encompassing the ear, the cheek and the lateral aspect of the neck, without immediate systemic symptoms. On the following day she started experiencing mild generalised pruritus with development of linear whealing lesions in the areas of scratching. At the time of the physical examination (a few days later) she had no overt skin lesions, but she did evidence immediate dermographism: pruritic linear wheals developing within two minutes after friction of the skin. The laboratory results at this time were: specific serum IgE to *Polistes* spp. and *Vespula* spp., >100 kU/l in both cases (Class 6); total serum IgE 206 kU/l; no eosinophilia; ESR 8 mm in the first hour; the hepatic and renal function tests and the serum proteinogramme were within normal ranges. Therapy was instituted with oral cetirizine, 10 mg/day, and the symptoms abated, but recurring when this therapy was interrupted. Five months later the dermographism still persists; the patient requires oral cetirizine (10 mg every 2 – 3 days), and the specific serum IgE levels for *Polistes* spp. and *Vespula* spp. are unchanged (>100 kU/l) (Table I). The patient has refused repeat testing with *Hymenoptera* venoms. The skin tests performed at some time were negative for common airborne allergens.

DISCUSSION

Symptomatic or pathologic dermographism is the most frequent form of physical urticaria, and represents ca. 8 – 9% of all urticaria cases¹⁻⁷. This condition is defined by the development, upon localised skin traumatism (rubbing, scratching), of immediate local, pruritic, and linear whealing of short duration. Transient secondary symptomatic dermographism may be caused by acute urticaria, by a number of drugs, by scabies or by insect stings or bites⁷, although the elimination of the cause, when known, seldom cures the dermographism itself⁴. Secondary dermographism is probably rare (or is underdiagnosed), as many authors do not mention this type of reaction and even less its association to insects generally or *Hymenoptera* in particular⁹⁻¹³.

No reports have been found in the literature of cases related to *Hymenoptera* venom allergy.

In the case now reported, a patient who had previously had local delayed giant reactions and documented allergy to *Polistes* venom, with evolution to a Müller's Grade I systemic reaction (urticaria) developed dermographism which started a few hours after a new wasp sting. At that time, a very considerable increase in the specific serum IgE levels was detected (from the previous Class 1 to Class 6) which persisted, as did the clinical manifestations, five months afterwards.

It is conceivable that the dermographism may have been induced by the wasp sting, considering the chronological relationship and the marked increase in the specific serum IgE levels. One hypothesis regarding the relationship between the vespid venom allergy and the dermographism, in this patient, may be based on the fact that she had presented local delayed reactions. The skin hyperreactivity might then be due to a hyperproduction of delayed allergic reaction mediators, similar to that occurring in delayed local reactions but, in the present case, sustained over time. As a consequence, the clinical manifestations and the increased specific serum IgE levels persisted des-

pite the disappearance of the initial triggering stimulus. This possibility has been recognised by other authors⁴.

Specific *Hymenoptera* venom immunotherapy was not recommended in this case, as the patient did not fulfil the accepted clinical criteria for recommending this therapeutic modality and she achieved good symptomatic control with oral cetirizine.

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