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A case of anaphylaxis: Horse-fly or Hymenoptera sting?

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Key words

Anaphylactic reaction, Diptera, Hymenopteras, Venom immunotherapy

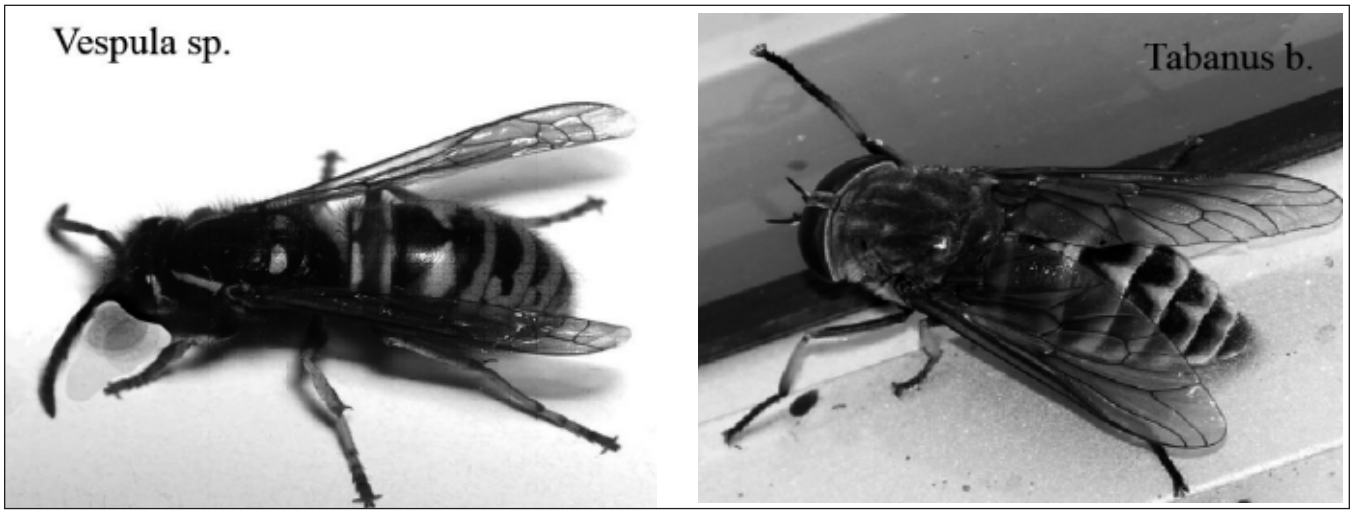
Summary

In literature it has been described a high risk of systemic reaction after blood-sucking Dyptera bites, like mosquitoes and horsefly, in people sensitive to hymenoptera.
A 51 year old man, allergic to hymenoptera venom and with a history of IV reaction after Mueller , who has been treated with Vespula sp. ITS for the last 3 years, was stung by a yellow, black and green insect on the neck.
Five minutes after the bite, he suffered generalized hitching and urticaria, oral cavity and lower limbs paresthesia, followed by lost of consciousness. At the Emergency Room he was successfully treated with adrenaline, intravenous antihistamines and corticosteroid.
The description of the insect as well as the lack of the sting on the site suggested a wasp as the culprit. By studing one of these insect that has been captured by the patient, it turned out it wasn't a Vespula, but a horse fly, the Tabanus bovinus, wich resembles Hymenoptera. Skin prick test and RAST for Tabanus *confirmed the allergology diagnosis.*
In conclusion, also Tabanus bovines *can cause systemic reaction up to anaphylactic shock.*

Introduction

Subjects sensitive to hymenoptera are reportedly at high risk of systemic reactions following blood-sucking Dyptera bites, especially by mosquitoes and horse-flies (1). This clinical event has been called Wasp-mosquito syndrome (2).
We have recently shown that this may also occur with other families of Dyptera, such as Tabanidae and Hippoboscidae (3). The bite of such insects can also cause severe reactions (up to anaphylaxis) with a clinical presentation described as wasp-horsefly syndrome (4).
Specific immunotherapy (SIT) with stinging hymenoptera lyophilized venom is generally regarded as safe and tolerable, though adverse reactions, sometimes even severe, may occur during the treatment (5, 6). In case of further bites followed by severe reactions during SIT course, an increase the vaccine dosage is needed, which exposes the patient to a higher risk of adverse reactions from the treatment. In these cases it therefore essential to identify the stinging insect triggering the new reaction.
We report a patient being treated with SIT for Vespula spp. for three years who experienced an anaphylactic reaction after the bite of an insect, which was subsequently identified as Tabanus bovines, a horse-fly, which can be easily confused with a wasp-like insect.

Figure 1 - Vespula sp and Tabanus b.: the light differences



Case report

A 51-year-old man, allergic to hymenoptera venom and with a history of type IV reaction after Mueller (7), who was being treated with Vespula spp. SIT for the last three years was stung on the neck while outdoor on a hilly side near the woods, by a yellow, black and green insect. He reported an acute pain at the site of the bite with a slight blood drip. Five minutes after the bite the man experienced generalized itching, paresthesia at the oral cavity and lower limbs, and generalized urticaria followed by loss of consciousness. The man was successfully treated at the Emergency Room with adrenaline, and intravenous antihistamines and corticosteroids.

The description of the insect as well as the lack of a sting on the site suggested a wasp (Vespula) as the culprit. However, we were puzzled by the fact that in this patient another previous Vespula bite during the SIT course had not caused any systemic reactions. By thorough interview we found that in that rural area, characterized by many pastures, the culprit insect was rather common. Moreover, the patient reported that the insects flew around him for some time before biting him. Also the blood dripping on the site of the bite resembled more a tabanus bite (8) than the typical sting of hy-

Table 1 - Diptera classification

ORDER	SUBODER	DIVISION	SUPERFAMILY	FAMILY	SPECIES
Diptera	Nematocera	Culicomorpha	Culicoidea	Culicidae	Culex p
					Aedes a
					Anopheles m.
				Simulidae	Simuliom d
		Tipulomorpha	Tipuidea	Tipulidae	Stipula sp
Diptera	Brachycera	Orthorrapha	Tabanoidea	Tabanidae	Crysops sp
					Tabanus sp (bovinus)
					Haematopota p
		Cyclorrapha	Drosophiloidea	Drosophilidae	Dorsophila sp
			Hippoboscoidea	Glossinidae	Glossina sp
				Hippoboscidae	Ornihomia a
					Liptotena c
					Hippobosca e

menoptera. In effect, by studying one of these insects that had been captured by the patient it turned out it wasn't a Vespula but a horse fly, the Tabanus bovines, which resembles hymenoptera (see photo 1). This insect is very common in rural areas, near streams and animals, since it feeds itself with their blood. A positive skin prick test with a mixture of Tabanus whole body and a positive RAST for Tabanus (2.75 kU/l, Class 2) confirmed the diagnosis.

The type of reaction as well as the confusion between these two insects, can easily have consequences on the SIT course. In fact, the correct identification of the insect causing the anaphylactic reaction leads to avoid doubling the maintenance dose of the Vespula SIT, as recommended by the position paper (9), in patients who show systemic reactions following further stings, thus reducing the risk of causing adverse reactions and a decrease in quality of life.

In conclusion, this case suggests that Tabanus bovines may cause a systemic reaction (up to anaphylactic shock). Further, an accurate diagnosis, based on the correct identification of the insect, is warranted before any measure potentially causing a higher risk is started, is always needed.

Finally, since specific SIT for Tabanus sp. and/or Hippobosca is currently not available and the hymenoptera vaccine doesn't protect against allergic reactions to Tabanus bites, both prevention and emergency symptomatic therapy are essential.

References

1. Freye HB, Litwin C. Coexistent anaphylaxis to Diptera and Hymenoptera. Ann Allergy Asthma Immunol. 1996 Mar;76(3):270-2
2. Sabbah A, Hassoun S, Drouet M, Lauret MG, Doucet M. The wasp/mosquito syndrome Allerg Immunol (Paris). 1999 Jun; 31(6):175-84. French
3. Quercia O, Emiliani F, Foschi FG, Stefanini GF. The wasp-horsefly syndrome. Eur Ann Allergy Clin Immunol. 2008 Jun;40(2):61-3
4. Quercia O, Emiliani F., Foschi FG, Stefanini G.F. Anaphylactic reaction to Hippobosca equina bite. Allergol Immunol Clin 2005; 20: 31-33
5. Quercia O., Emiliani F., Pecora S., Burastero S.E., Stefanini G.F. Efficacy, safety, and modulation of immunologic markers by immunotherapy with honeybee venom: comparison of standardized quality depot versus aqueous extract. Allergy Asthma Proc. 2006 Mar-Apr;27(2):151-8
6. Sturm G., Kranke B., Rudolph C., Aberer W. Rush Hymenoptera venom immunotherapy: a safe and practical protocol for high-risk patients. J Allergy Clin Immunol. 2002 Dec;110(6):928-33.
7. Muller UR. Insect sting allergy. Clinical picture, diagnosis and treatment. Stuttgart/NewYork; Gustav Fisher Verlag, 1990
8. Strother S. Genus Tabanus: Tabanides (horseflies). What is this insect and how does it affect man? Dermatol Online J. 1999 Nov; 5 (2):6. Review
9. Bonifazi F., Jutel M., Biló B. M. Birnbaum J, Muller UR, the EAACI Interest Group on Insect Venom Hypersensitivity. Prevention and treatment of hymenoptera venom allergy: guidelines for clinical practice. Allergy 2005;60(12) :1459-1470