

Anaphylactic reaction secondary to *Bothrops* snakebite

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Key words: allergens; emergency; venom allergy.

A 30-year-old herpetologist presented to the Vital Brazil Hospital approximately 5 min after being bitten on the left

thumb by a lance-headed viper (*Bothrops* spp.). The patient had no previous experience of snakebites or a personal history of atopy and hypersensitivity to snakes or their venom. Upon arrival in the hospital he complained of dyspnoea, cough, general pruritus, throat tightness and immediate pain and bleeding at the bite site. Physical examination was unremarkable, except for a generalized urticarial rash and minimal local swelling and ecchymoses around the puncture site. Lung auscultation and cardiac examination were normal. Blood pressure was within normal limits. Laboratory studies (haemoglobin, haematocrit, glucose, creatinine, BUN and blood clotting tests) were also normal. The patient was treated with an initial injection of 0.5 mg 1 : 1000 adrenaline and intravenous fluids. Additional therapy consisted of 500 mg hydrocortisone, 50 mg promethazine and specific antivenin (two ampoules). He was discharged from the hospital after 3 days. A follow-up evaluation 1 week later found him to be fully recovered, with no residual deficits.

Because of this clinical picture, we questioned whether an allergic reaction

We present the case of a herpetologist who developed anaphylaxis secondary to a first snakebite.

could explain postbite signs and symptoms. The presence of immunoglobulin (Ig) E against *Bothrops* venom in the patient's serum, but not in controls, could be demonstrated through enzyme-linked immunosorbent assay (ELISA). To establish the IgE-binding patterns to allergens from *Bothrops* snake venom, Western blots were performed. Figure 1 shows the serum IgE-binding patterns. Components of various molecular weights and IgE-binding patterns were detected in the *Bothrops* snake venom extract. None of the negative control sera reacted to the *Bothrops* snake venom extract. Additional laboratory values showed total IgE 315 kU/l (normal, < 100 kU/l) and negative specific IgE (ImmunoCAP®; Pharmacia Diagnostics

AB, Uppsala; Sweden) to a combination of common allergens (household dust, airborne fungi and animal allergens).

This is the first case report to describe an anaphylactic reaction from a *Bothrops* bite. Snakes of the genus *Bothrops* are responsible for the vast majority of snakebites in South America. Local envenoming is characterized by bleeding, swelling, pain, and sometimes blisters and necrosis at the bite site (1). Signs of systemic involvement include haemorrhage, coagulopathy, acute renal failure and haemodynamic imbalance (1). Deaths are usually attributed to renal failure, shock and severe bleeding (1).

The patient described here manifested classic symptoms of anaphylaxis: dyspnoea, throat tightness and urticaria. The importance of recognizing an anaphylactic reaction in a snakebite patient cannot be underestimated, as treatment is markedly different from that for simple envenomation. In this particular case, antivenin was administered, although after the patient has been treated with adrenaline, hydrocortisone and antihistamine.

Anaphylaxis can be mediated through a variety of different mechanisms, including IgE-mediated sensitivity (2). In this case, the involvement of IgE-mediated mechanism was demonstrated by ELISA and Western blot assays, independently of atopy.

Hypersensitivity to snake venom is uncommon, but has been described after recurrent exposure through bites (3–5) and, presumably, through repeated inhalation of or dermal/mucosal contact with venom (3). Our patient had no previous snakebite, but has worked with poisonous snakes for 13 years. The sensitization might be attributable to inhalation of or repeated dermal/mucosal contact with the venom.

Although not a common presentation for snakebite, the incidence of anaphy-

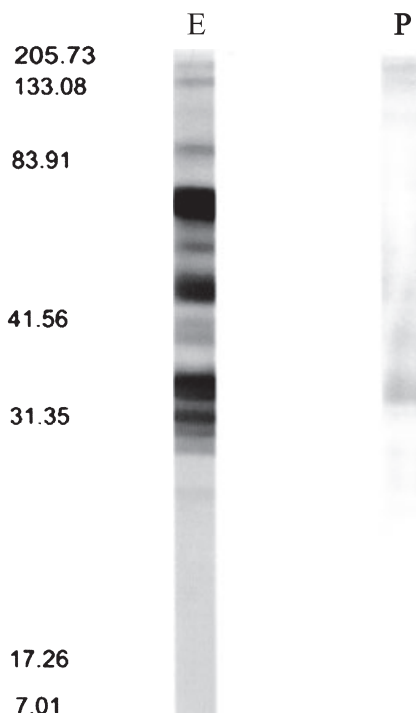


Figure 1. Western blot with *Bothrops* venom proteins for IgE binding with sera sample of the patient (P). (E) SDS-electrophoresis of *Bothrops* venom. Numbers to the left indicate the mobility of molecular mass markers.

laxis to snake venom has been underestimated (6). This condition, which has not been addressed as promptly as it should be, can be a contributing factor to fatal snakebites in endemic regions, apart from the toxicity of the venom itself (6).

In conclusion, recognition of potentially life-threatening allergic reactions to *Bothrops* snake envenomation is important in therapeutic decisions. Aggressive therapy against anaphylaxis should be combined with the standard approach to envenomation.

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References

1. França FOS, Barbaro KC, Fan HW, Cardoso JLC, Sano-Martins IS, Tomy SC et al. Envenoming by *Bothrops jararaca* in Brazil: association between venom antigenaemia and severity on admission to hospital. *Trans R Soc Trop Med Hyg* 2003;**97**:312–317.
2. Simons FE. Anaphylaxis, killer allergy: long-term management in the community. *J Allergy Clin Immunol* 2006;**117**:367–377.
3. Wade AA, Rabson AR, Path MCR. Development of specific IgE antibodies after repeated exposure to snake venom. *J Allergy Clin Immunol* 1987;**80**:695–698.
4. Reimers AR, Weber M, Müller UR. Are anaphylactic reactions to snake bites immunoglobulin E-mediated? *Clin Exp Allergy* 2000;**30**:276–282.
5. Ryan KC, Caravati EM. Life-threatening anaphylaxis following envenomation by two different species of *Crotalidae*. *J Wilderness Med* 1994;**5**:263–268.
6. Schmutz J, Stahel E. Anaphylactoid reactions to snakebite. *Lancet* 1985;**7**: 1306.

Anaphylaxis after Oseltamivir (Tamiflu®) therapy in a patient with sensitization to star anise and celery-carrot-mugwort-spice syndrome

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Key words: anaphylaxis; celery-carrot-mugwort-spice syndrome; Oseltamivir; star anise.

A 51-year-old man reported on an anaphylactic reaction following therapy for 5 days with Oseltamivir phosphate (Tamiflu®; Roche, Grenzach-Wyhlen, Germany). Seven hours following the intake of the last Oseltamivir pill, the patient experienced cough, conjunctivitis, angioedema and airway constriction. He was successfully treated with prednisolone and Clemastin. The proton

Anaphylaxis after Oseltamivir (Tamiflu®) in a patient sensitized against Chinese star anise.

pump inhibitor Esomeprazol (Nexium® mups; AstraZeneca, Wedel, Germany), which was concomitantly taken for reflux esophagitis could be excluded as a causative agent, because it was repeatedly tolerated subsequently.

Prick testing of Oseltamivir revealed a reproducible positive reaction after 30 min (Fig. 1A). Chinese star anise (*Illicium verum*) was 2+ after 30 min (Fig. 1B). In further prick testing, positive reactions were found for mugwort pollen 3+, anise 2+ (*Pimpinella anisum*), carrot 1+, celery 2+, parsley 1+ and house dust mites 1+ (Fig. 1A). Prick test showed negative results for cat epithelium, peanut, hazelnut, walnut, and the pollen of grass, rye, alder, birch, hazelnut, and plantain. A star anise fruit was used for 'prick to prick' skin test. None of the food allergens, connected with the food consumed prior to the anaphylactic reaction, tested positive.

We report a case of spontaneous hypersensitivity reaction to Oseltamivir phosphate in a patient with Chinese star anise (*I. verum*) sensitization. Although anaphylactic reactions to Oseltamivir have been reported (1), to our knowledge no spontaneous allergy to Oseltamivir and especially no cross-

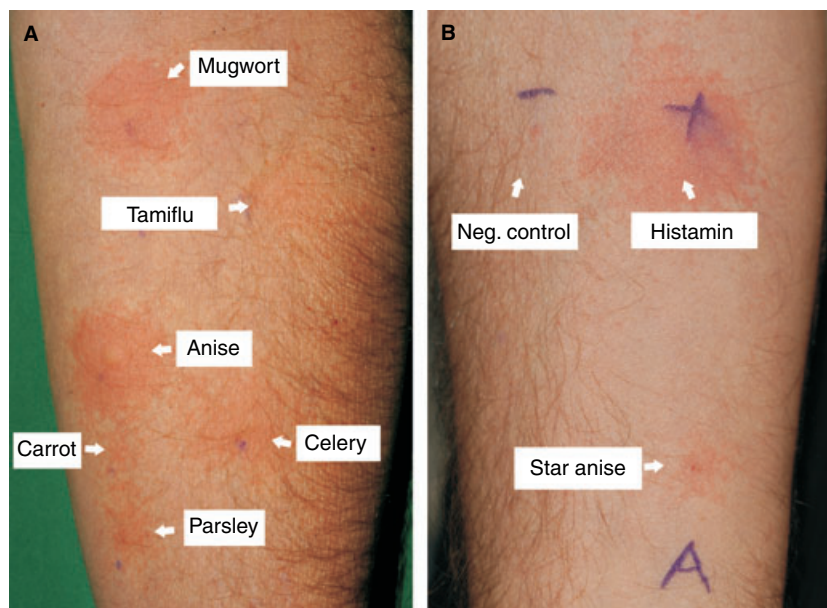


Figure 1. Skin prick test results showing the typical constellation for a 'celery-carrot-mugwort-spice syndrome' with additional sensitization to Chinese star anise and Tamiflu®. (A) Skin prick testing was performed for mugwort pollen (*Pimpinella anisum*), carrot, celery, parsley and Tamiflu® and (B) Chinese star anise (*Pimpinella anisum*), positive control (histamine) and negative control 0.9% saline solution.