Death due to Live Bee Acupuncture Apitherapy

Vazquez-Revuelta P, Madrigal-Burgaleta R
Allergy Division, Ramon y Cajal University Hospital, Madrid, Spain

J Investig Allergol Clin Immunol 2018; Vol. 28(1): 45-46
doi: 10.18176/jiaci.0202

Key words: Apitherapy. Anaphylaxis. Allergy. Hymenoptera. Death.

Palabras clave: Apiterapia. Anafilaxia. Alergia. Himenópteros. Muerte.

Apitherapy is the use of substances from honeybees (eg, honey, propolis, royal jelly, or even venom), to relieve various medical conditions. One type of apitherapy is live bee acupuncture, which involves applying the stinging bee directly to the relevant sites according to the specific disease. This practice is often performed in private health care centers or by nonmedical practitioners. Although some benefits of apitherapy have been reported, published evidence of its effectiveness and safety is limited, scarce, and heterogeneous [1,2]. Most hypersensitivity reactions to hymenoptera venoms are due to accidental insect stings. Only a few cases of allergic reactions after acupuncture have been reported, and most are from areas where traditional medicine is widely used, such as Korea [1,2].

In sensitized persons, venom compounds can act as allergens, causing the release of mast-cell mediators and a spectrum of allergic reactions that can range from mild, local swelling to severe systemic reactions, anaphylactic shock, or even death [3]. Furthermore, repeated exposure to the allergen was found to carry a greater risk of severe allergic reactions than in the general population [4]. Various adverse reactions have been reported for apitherapy [2,5].

We report the case of a 55-year-old woman who had been attending apitherapy sessions every 4 weeks for 2 years with good tolerance. She decided to receive apitherapy to improve muscular contractures and stress. She had no clinical record of any other diseases (eg, asthma, heart disease), other risk factors, previous reactions of any kind with hymenoptera, or atopy. During an apitherapy session, she developed wheezing, dyspnea, and sudden loss of consciousness immediately after a live bee sting. An ambulance was called, although it took 30 minutes to arrive. The apitherapy clinic personnel administered methylprednisolone. No adrenaline was available. When the ambulance arrived, the patient's systolic pressure had dropped to 42 mmHg and her heart rate had increased to 110 bpm. Oxygen saturation was not reported. Treatment was administered immediately and consisted of a double dose of adrenaline (0.5 mg each), saline infusion, intravenous corticosteroids, and antihistamines. During transfer to our hospital, the patient's blood pressure and heart rate stabilized, although her Glasgow Coma Scale score was 6; therefore, she was intubated. At admission, a computed tomography scan was compatible with watershed stroke, while the results of an EKG, chest x-ray, and basic blood analyses were normal. Unfortunately, tryptase was not determined during the acute episode. Basal serum tryptase was normal. During admission, in vitro tests were performed 3 days after the reaction, as soon as our allergy department was consulted (Table). In vivo tests could not be performed because the patient had received antihistamine and her clinical situation was problematic. The patient died some weeks later of multiorgan failure. Persistent hypotension during severe anaphylaxis had caused a massive watershed stroke and permanent coma with multiorgan impairment.

Table. In Vitro Test Results[a]

Total IgE	20 KU/L
Apis mellifera sIgE	5.99 KU_A/L
Polistes species	<0.35 KU_A/L
Vespula species	<0.35 KU_A/L
rApi m 1	0.54 KU_A/L
Basal serum tryptase	8.01 ng/mL

[a]Specific IgE assays (ImmunoCAP assay, Phadia)

To our knowledge, this is the first reported case of death by bee venom apitherapy due to complications of severe anaphylaxis in a confirmed sensitized patient who was previously tolerant.

Previous tolerance to bee stings does not prevent hypersensitivity reaction; however, repeated exposure favors a higher risk of sensitization.

Our data enable us to conclude that measures to identify sensitized patients at risk should be implemented before each apitherapy sting. Patients should be fully informed of the dangers of apitherapy before undergoing it. Apitherapy practitioners should be trained in managing severe reactions and should be able to ensure they perform their techniques in a safe environment, with adequate facilities for management of anaphylaxis and rapid access to an intensive care unit in order to prevent suboptimal management, such as delays in treatment (the patient waited 30 minutes before receiving intramuscular adrenaline). However, these measures may not be possible. Therefore, the risks of undergoing apitherapy may exceed the presumed benefits, leading us to conclude that this practice is both unsafe and unadvisable.

Funding

The authors declare that no funding was received for the present study.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

References

1. Lim SM, Lee SH. Effectiveness of bee venom acupuncture in alleviating post-stroke shoulder pain: a systematic review and meta-analysis. J Integr Med. 2015;13:241-7.

2. Park JH, Yim BK, Lee J-H, Lee S, Kim TH. Risk Associated with Bee Venom Therapy: A Systematic Review and Meta-Analysis. PLoS ONE 2005;10:e0126971.
3. Casale TB, Burks AW. Hymenoptera-Sting Hypersensitivity. N Engl J Med. 2014;370:1432-9.
4. Siracusa A, Folletti I, Gerth van Wijk R, Jeebhay MF, Moscato G, Quirce S, et al. Occupational anaphylaxis - an EAACI task force consensus statement. Allergy. 2015;70:141-52.
5. Park JS, Lee MJ, Chung KH, Ko DK, Chung H. Live bee acupuncture (Bong-Chim) dermatitis: dermatitis due to live bee acupuncture therapy in Korea. Int J Dermatol. 2013;52:1519-24.

Manuscript received April 25, 2017; accepted for publication September 25, 2017.

Ricardo Madrigal-Burgaleta
Hospital Universitario Ramon y Cajal
Servicio de Alergia
Ctra Colmenar Viejo km 9,100
28034 Madrid, Spain
Email: ricardo.madrigal.md.phd@gmail.com

