



Letters

Intentional poisoning with peanut as a cause of recurrent anaphylaxis

Anaphylaxis is a serious, potentially life-threatening allergic reaction. Most episodes of anaphylaxis are triggered through an immunologic mechanism involving immunoglobulin E (IgE) that leads to the activation of mast cells and basophils and the subsequent release of inflammatory mediators.¹ Anaphylaxis typically involves the cutaneous, respiratory, cardiovascular, and gastrointestinal systems, targeting organs all heavily populated with mast cells.² Death due to anaphylaxis usually occurs as a result of respiratory obstruction or cardiovascular collapse, or both.

Recurrent anaphylaxis is a rare phenomenon because most life-threatening allergies can be prevented with strict allergen avoidance.³ This avoidance is generally self-motivated because anaphylaxis is an incredibly traumatizing event that is associated with an overwhelming sense of doom. It becomes a diagnostic challenge when these episodes of recurrent anaphylaxis manifest with no clear pattern or an idiosyncratic nature.

A 44-year-old man with a known peanut allergy presented with recurrent anaphylaxis that required several episodes of epinephrine administration in the emergency department. These episodes had been associated with consumption of food, though he had fastidiously avoided any ingestion of peanuts. Initial skin testing revealed positive test results for peanuts, wheat, almonds, shrimp, and scallops, although his clinical history did not correspond with objective findings from testing.

His medical history was significant for allergic rhinitis, for which he was receiving subcutaneous immunotherapy for grass, trees, ragweed, mold, and dust mites. He had not demonstrated any reactions to these injections, and the only medications he was receiving were ranitidine and omeprazole.

He experienced an episode of anaphylaxis that required epinephrine administration in the emergency department. Skin testing revealed a positive reaction to peas and corn, although this did not correlate with what he had ingested before his previous episodes of anaphylaxis. Because he continued to have episodes of anaphylaxis despite avoiding the known triggers, he was advised to cease his immunotherapy because his most recent anaphylactic reaction occurred 1 day after his injection. He was then assessed with oral food challenges to the skin test–positive foods over the following 3 months, which confirmed true allergies to peanuts and shrimp.

In the following year, he returned to us having experienced several recurrent episodes of anaphylaxis with the consumption of specific foods at lunchtime. He reported having avoided peanuts, almonds, shrimp, scallops, wheat, pork, chicken, onions, tomato, and eggs and had lost a substantial amount of weight (80 lb).

However, his previous skin tests revealed a negative reaction to chicken, egg, tomato, and soya, which lowered our index of suspicion for a true allergy to these foods. We therefore suspected that his symptoms might have been caused by mastocytosis or idiopathic anaphylaxis. Carcinoid syndrome and adrenal pheochromocytoma were also considered, but investigations for all of these conditions yielded negative results.

He was seen again 2 years later, after having experienced symptoms such as diarrhea, throat tightness, urticaria, and dyspnea, which were relieved with an epinephrine autoinjector. These symptoms manifested after he ate a sandwich at lunch, though an observed food challenge revealed that he could eat these foods in our clinic with no reaction. It was at this point that we strongly suspected a possibility of contamination of his food.

We discussed with the patient the possibility of contamination on a subsequent visit. He self-reported that his wife, who has bipolar affective disorder, was sprinkling peanut dust on his lunches to “induce an anaphylactic reaction and kill him.” The patient and his wife have since separated, and since their separation, he has not experienced any form of food allergy.

The patient returned 19 years after his initial presentation, at the age of 63 years, for an unrelated allergic reaction (*Hymenoptera* sting anaphylaxis). At this visit, he stated that he continues to be averse to certain foods, given his episodes of recurrent anaphylaxis despite the length of time that has passed. Furthermore, his skin test result for peanuts was negative, and this result was confirmed with serum-specific IgE testing for peanut. He continues to avoid peanut because he is not yet psychologically prepared to complete this challenge.

This is the first report of intentional poisoning with peanut identified in a case of recurrent anaphylaxis. Although factitious anaphylaxis has been reported,⁴ this appears to be the first case of factitious disorder by proxy from our patient's spouse. Her bipolar affective disorder may have contributed to her actions. The main confounding features of this case were the repeated visits by this patient to us and our inability to correlate the clinical features from the history of presenting illness with the objective findings on skin testing and food challenges. We determined that contamination was the most probable diagnosis because our rigorous testing helped rule out the more likely explanations for his recurrent anaphylaxis. Unfortunately, the patient continues to have debilitating beliefs and anxieties because of the traumatic experience of recurrent episodes of anaphylaxis, which is a known phenomenon among patients with life-threatening allergies.^{5,6}

On his most recent allergy testing, skin testing and serum-specific IgE revealed negative results for peanut allergy. As revealed previously, the patient's spouse had been intentionally

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contaminating his food with peanut dust for at least 5 years. Although he had at least 7 documented anaphylactic reactions that required epinephrine administration either by an autoinjector or emergency department staff, the exact number or frequency of contamination events is unknown and will likely remain unknown. It is possible that this individual may have resolved his peanut allergy from the repeated exposures^{7,8}; however, this phenomenon tends to occur most predominantly in children and young adolescents.^{9,10} Regardless, this pattern of repeated exposure seems to be associated with the amelioration of his immunologic response to peanut antigen. It would be ironic if his spouse's intentional contamination unintentionally mimicked the immunomodulatory effects of food desensitization.

Overall, the incongruence between subjective and objective findings led to the prolonged inability of attaining a cause for this individual's allergic reactions. This unusual case reinforces the importance of taking an accurate history, trusting the results of objective testing, and having a broad differential diagnosis for the cause of life-threatening anaphylactic reactions. Intentional poisoning with food allergens should be considered in recurrent and unexplained anaphylaxis.

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References

1. Simons FE, Ebisawa M, Sanchez-Borges M, et al. 2015 Update of the evidence base: World Allergy Organization anaphylaxis guidelines. *World Allergy Organ J*. 2015;8(1):32.
2. Lieberman P, Nicklas RA, Randolph C, et al. Anaphylaxis—a practice parameter update 2015. *Ann Allergy Asthma Immunol*. 2015;115(5):341–384.
3. O'Keefe A, Clarke A, St Pierre Y, et al. The risk of recurrent anaphylaxis. *J Pediatr*. 2017;180:217–221.
4. Wong HC. Factitious anaphylaxis and pre-varication anaphylaxis. *J Allergy Clin Immunol*. 2005;116(3):710.
5. Confino-Cohen R, Melamed S, Goldberg A. Debilitating beliefs, emotional distress and quality of life in patients given immunotherapy for insect sting allergy. *Clin Exp Allergy*. 1999;29(12):1626–1631.
6. Confino-Cohen R, Melamed S, Goldberg A. Debilitating beliefs and emotional distress in patients given immunotherapy for insect sting allergy: a prospective study. *Allergy Asthma Proc*. 2009;30(5):546–551.
7. Abrams EM, Sicherer SH. Diagnosis and management of food allergy. *CMAJ*. 2016;188(15):1087–1093.
8. Savage J, Sicherer S, Wood R. The natural history of food allergy. *J Allergy Clin Immunol Pract*. 2016;4(2):196–203.
9. Fleischer DM, Conover-Walker MK, Christie L, Burks AW, Wood RA. The natural progression of peanut allergy: resolution and the possibility of recurrence. *J Allergy Clin Immunol*. 2003;112(1):183–189.
10. Bégin P, Paradis L, Paradis J, Picard M, Des Roches A. Natural resolution of peanut allergy: a 12-year longitudinal follow-up study. *J Allergy Clin Immunol Pract*. 2013;1(5):528–530.e1–4.