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Toothpaste-induced anaphylaxis caused by mint (*Mentha*) allergy

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Keywords: allergy; anaphylaxis; menthol; mint; toothpaste.

To our knowledge, the present report is the first description of an IgE-mediated anaphylaxis to mint (*Mentha piperita*) related to the use of toothpaste.

We present a clinical case of a 46-year-old woman, nonatopic and without relevant past medical history, referred to our Immunoallergy outpatient clinic for suspected nonsteroidal anti-inflammatory (NSAIDs) hypersensitivity. The patient had a first episode of anaphylaxis, characterized by generalized urticaria and laryngeal oedema, 30 min after oral intake of metamizol 575 mg (Nolotil®, Boehringer Ingelheim, Ingelheim, Germany), in June 2008. She was treated in the emergency room with i.m. epinephrine and i.v. corticosteroid and H_1 antihistamine, with regression of the symptoms, and was discharge with indication to avoid metamizol and other NSAIDs. She had three more anaphylactic episodes, after 12 h, 3 and 5 days, respectively. The patient reported a relationship between these episodes and the use of toothpaste (Colgate®, Colgate-Palmolive, New York, NY, USA, and Sensodyne Pro-Esmalte®, GlaxoSmithKline, London, UK).

We report a rare case of IgE-mediated anaphylaxis after exposure to toothpaste.

At the Immunoallergy Department, a challenge test was performed with Sensodyne Pro-Esmalte® toothpaste use, being strongly positive and characterized by immediate (< 5 min) facial urticaria, abdominal colic and bronchospasm, requiring immediate treatment with i.m. epinephrine. The patient performed skin prick tests (SPT) that were positive to all tested toothpastes (including Colgate® and Sensodyne Pro-Esmalte®). Consulting the toothpaste's laboratories for further information about the toothpaste's ingredients, menthol was found to be the common 'flavour' probably related to the reactions. The patient performed SPT with 100% peppermint oil that was strongly positive (48 mm mean diameter wheal) and accompanied by symptoms of rhinitis and conjunctivitis. The same skin test was negative in 10 adult atopic controls. Mint-specific IgE measurements by two different methods (UniCAP®, Phadia, Uppsala, Sweden; and Immulite®2000, Siemens Healthcare Diagnostics, Deerfield, IL, USA) were negative. SPT and challenge test with a menthol-free toothpaste (Elmex menthol-free®, GABA International, Therwil, Switzerland) were both negative. Regardless indication for avoidance of metamizol, 4 months after the first reaction, the patient had a new anaphylactic episode, with loss of consciousness, after administration of i.v. metamizol prescribed for severe pain. The patient performed SPT with metamizol i.v. solution, at a concentration of 0.4 g/ml, which was positive (9 mm mean diameter wheal). CAST®, (Bühlmann, Schönenbuch, Switzerland) to metamizol was negative. Single-blind placebo-controlled oral challenges were performed with etoricoxibe, meloxicam, ibuprofen and diclofenac, being all negative.

There are few reports of IgE-mediated allergy to toothpaste, being mint or its cyclic alcohol derivative menthol, the usual responsible. The first immediate reaction was described in 1964 in a woman with recurrent urticaria after exposure to different menthol-containing products that was reproducible in a challenge with a menthol solution (1). In 1990, Spurlock et al. (2) described a patient with asthma triggered by menthol-containing toothpaste. Since then some other cases were published referring to immediate hypersensitivity to mint or menthol, with different clinical presentation including urticaria, rhinitis and asthma (3–5). After performing challenges with menthol-containing toothpaste, Kawane found a significant decrease in FEV_1. The same test was performed in four patients with asthma but no menthol induced symptoms and the result was negative to all. Challenges were negative with menthol-free toothpaste (3).

This is a rare case, with an IgE-mediated anaphylaxis to mint (*Mentha piperita*) and also an IgE-mediated anaphylaxis to metamizol, a pyrazolone drug, often associated with IgE-mediated reactions (6), with tolerance to other NSAIDs. A self-injectable epinephrine device has been prescribed, as well as avoidance of metamizol, daily use of menthol-free toothpaste and strictly avoidance of mint and menthol-containing products. This case emphasizes the importance of being aware about any possible allergen, even those presumably innocent.

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Anaphylaxis to *Raphanus niger*

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Keywords: allergy; anaphylaxis; food supplement; radish; *Raphanus niger*.

Immunoglobulin E (IgE) mediated food allergy to members of the *Brassicaceae* family is uncommon. The first case was described in 1980 by Panconesi et al. (1) and was attributed to mustard in a pizza. Since then, several mustard allergy cases have been reported (2, 3), being allergic to other crucifers is exceedingly rare, namely to the *Raphanus* gender. To our knowledge, only two cases of possible allergic reactions to *Raphanus* have been reported, one patient with contact dermatitis (4) and another one with acute urticaria (5).

This is the first description of anaphylaxis to foodstuff of the *Raphanus* gender.

Nowadays, adverse events related with dietary supplements intake are increasingly reported, but the majority of the consumers are not aware of the potential dangers of these natural health products (6).

The authors report the case of a 56-year-old female patient, with a history of nonatopic asthma and allergic rhinitis since childhood. The patient initiated generalized urticaria, facial angioedema, and severe bronchospasm (O_2 saturation in room air = 88%), 10 min after the ingestion of a 15 ml ampoule of Hepatocomplex® (Biocol Laboratórios, Alcoitão, Portugal), a food supplement used for weight loss. She was medicated in the emergency room with i.m. adrenalin, as well as i.v. corticosteroid and H_1 anti-histamine, with regression of the symptoms. No other food was ingested in the previous hours. There was also no strenuous exercise after the ingestion. The patient had taken this food supplement previously with no adverse reaction.

Skin prick test with Hepatocomplex® was performed. Not only was the skin test positive (5-mm mean diameter wheal), but it was accompanied by dry cough that promptly reverted with inhaled salbutamol. The composition of this food supplement was analyzed to find the culprit foodstuff. It contained rosemary (*Rosmarinus officinalis*), artichoke (*Cynara cardunculus*), and black radish (*Raphanus niger*), as well as sorbitol, glycerin, lecithin, choline, arginine, vitamin E, and several oligoelements. Prick-prick tests with the first three fresh foodstuffs were performed and were clearly positive for the black radish (10.5-mm mean diameter wheal); the remainders were negative; the patient also had a positive prick-prick test (5-mm mean diameter wheal) to radish (*Raphanus sativus*). The same skin tests were negative in 10 adult atopic controls. The patient has no recollection of purposely eating any type of radish. Ingestion of other members of the *Brassicaceae* family did not elicit symptoms, namely mustard, broccoli, and cabbages. Avoidance of the *Raphanus* gender has been indicated, as well as an adrenaline auto-injector was prescribed for possible hidden allergens, taking into account the severe nature of the reaction.

To our knowledge, this report constitutes the first anaphylactic IgE-mediated reaction to foodstuff of the *Raphanus* gender. Our patient presented a positive skin test with the raw *Raphanus niger*, as well as *Raphanus sativus*, a closely related species. An irritant effect can be ruled out, because the same skin test was negative in 10 atopic controls. Although also suggestive of an IgE-mediated reaction, in the report of Sayed et al. (5), they did not perform skin prick or prick-prick tests and only had a late moderately positive scratch test at 40 min. Oral provocation test is formally contra-indicated in our case, given the clear cut history of severe anaphylaxis and positive skin test. Allergy to other constituents of the food supplement was ruled out. Considering the extensive use of herbal and food supplements, a comprehensive risk-benefit analysis including a surveillance system for monitoring the adverse health effects of these products is essential, allowing the identification of unpredictable adverse reactions, namely allergic, which are potentially severe (6).

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