

CASE REPORT

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Angioedema Due to Lamiaceae Allergy

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ABSTRACT

We present a 13-year-old male child allergic to three different plants (*Salvia officinalis*, *Mentha piperita* and *Origanum onites* L.) of Lamiaceae family. The patient developed angioedema 20-30 minutes after eating chicken meat with cheddar cheese. There was no history of allergy. Oral food challenge (OFC) with both cheddar cheese and chicken meat was negative. Skin tests for inhalant allergens were negative. 3 weeks later, the patient was admitted with angioedema after drinking sage tea. OFC with sage was applied and angioedema was observed. It was recognized that the first trigger, chicken meat with cheddar cheese, included oregano (*Origanum onites* L.). OFC for oregano was positive. Prick to prick test for Lamiaceae herbs (oregano, sage, mint) was performed. A positive reaction was observed only to mint. OFC was repeated with fresh mint and angioedema developed after 16 hours. Diagnose of Lamiaceae allergy is complicated and cross-sensitivity is common. Skin prick test (prick to prick) revealed a positive response only to mint but not to oregano and sage. Commercial radioallergosorbent (RAST) tests are available only for a few members of the family. Finally, the diagnose is based mainly on OFC. Spices from Lamiaceae group should be considered as potential triggers of allergic reactions.

Keywords: Angioedema; Lamiaceae; Oregano; Sage

INTRODUCTION

Lamiaceae (formerly Labiatae) is a family of flowering plants including mainly fragrant herbs and some shrubs or trees. Flowers belonging to this family, including mainly mint, basil, thyme, sage and lavender

are consumed as tea or spices because of their nice smell. Many cases of contact dermatitis associated with the plants belonging to lamiaceae family have been reported. Although these plants are frequently consumed in many foods as seasonings, only one systemic reaction was reported due to ingestion of oregano and thyme.¹ There is no literature for angioedema in children due to these plants. A patient who developed angioedema with oregano (*Origanum onites* L.) and sage (*Salvia officinalis*) is presented below. Informed consent was taken from parents.

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CASE REPORT

A 13-year-old male patient was admitted to hospital with angioedema after eating chicken meat with cheddar cheese. It was reported that, 20-30 minutes after eating meal (chicken meat with cheddar cheese) at the ciosk, itching and swelling of the face and tongue had occurred and the patient was consulted to our Allergy Clinic following antihistamine application at the hospital they had immediately referred. Angioedema was apparent at the pictures taken meanwhile. There was no history of food allergies, urticaria, angioedema or any atopic diseases ever before in the medical records. There was no significance in family medical history. Cheese and chicken meat was eliminated for 2 weeks and the patient was asked to come back for oral food challenge (OFC) test 2 weeks later. OFC with both cheddar cheese and chicken meat (first with boiled chicken meat and then with cheddar cheese) was applied but there was no reaction. 3 weeks later, the patient admitted with angioedema again but this time after drinking sage tea. Questioning the plants belonging the same family with sage individually revealed that the first trigger, chicken meat with cheddar cheese, included oregano (*Origanum onites L.*). The family reported that they did not ever use oregano at home and also the patient did not drink sage tea ever before. The patient was tested with aeroallergens commonly encountered in our environment (mites, molds, pollens, epithelium). Skin tests for inhalant allergens were negative. Firstly OFC with sage was applied to confirm the diagnosis. Angioedema was observed about 25 minutes after the patient drank sage tea (Figure 1). Prick to prick test for these herbs (oregano, sage, mint) was performed. A positive reaction was observed for only mint. Thinking that could be a false positive reaction, OFC was repeated with fresh mint and angioedema developed after 16 hours. Finally, the patient was thought to be allergic to Lamiaceae plants. The written names of the food components belonging Lamiaceae family were given to the patient and strict elimination was proposed.

DISCUSSION

Here we present a child allergic to three different plants (*Salvia officinalis*, *Mentha piperita* and *Origanum onites L.*) of Lamiaceae family. To the best

of our knowledge, this is the first child case in the literature. Patient developed angioedema with ingestion of oregano and sage and mint allergy was detected by OFC. Limited number of cases with allergic reactions to plants of Lamiaceae family is reported in the literature. Vast majority of the reported cases are adults. Most of the reported cases are type IV hypersensitivity reactions caused by contact.² Angioedema due to food allergy to Lamiaceae is extremely rare and all the reported cases are adults.³⁻⁵ Interestingly, extracts of Lamiaceae plants have been reported to be protective against allergic reactions in some experimental animal models. Shin et al⁶ reported that aqueous extracts of *Schizopeneta Tenuifolia* was protective on mast cell-mediated immediate-type hypersensitivity. Also, inhibited the plasma histamine levels in rats. Similarly, aqueous extracts of *Salvia Plebeia* dose dependently inhibited plasma histamine levels, passive cutaneous anaphylaxis, mast cell-mediated immediate-type allergic reactions in rats.⁷ The extract also had anti-inflammatory effects by reducing tumor necrosis factor (TNF) alpha levels. In mice, Kim et al.⁸ showed beneficial effects of extracts of *Teucrium Japonicum* as protective against mast cell-mediated immediate-type allergic reactions and some anti-inflammatory effects related with intracellular calcium, TNF alpha and nuclear factor (NF)-kB. Zhu et al also reported anti-allergic activities of rosmarinic acid extracted from *Perilla* leaves.⁹ Diagnose of Lamiaceae allergy is complicated. Lamiaceae is a wide plant family including a large number of true species and numerous hybrids. Cross-sensitivity both among Lamiaceae plants and with other allergens is common. Food allergy to Lamiaceae is reported as being closely related to pollen allergy.³ But in our patient skin prick test for aeroallergens was negative. Angioedema developing by OFC revealed that the trigger was lamiaceae plants. However, we had to determine whether the observed angioedema was a type I hypersensitivity reaction or an anaphylactoid reaction. Thus, we applied a skin prick test too. We performed prick to prick technique using dried commercial herbs. However, we observed a positive response only to mint but not to oregano and sage.

The reason might be related with the extracts we prepared. Using more specific extract methods such as Frugoni method might change the results.¹ Commercial radio allergosorbent (RAST) tests are available only for a few members of the family. There is a commercially



Figure 1. Angioedema after oral food challenge test with sage tea. The patient who had developed angioedema after eating chicken with cheddar cheese; however, oral food challenge with both cheddar cheese and chicken was negative. 3 weeks later, the patient was admitted again with angioedema after drinking sage tea. The patient was diagnosed as allergic to Lamiaceae herbs. Finally, it was recognized that the first trigger, chicken with cheddar cheese, included oregano (*Origanum onites* L.).

available serum thyme-specific IgE but not for sage. Serum thyme-specific IgE was unavailable in our clinic. Finally, the diagnosis is based mainly on OFC as it was in our patient. Spices from Lamiaceae group should be considered as potential triggers of allergic reactions in children who increasingly develop eating behavior outside the home in recent years. Probable late diagnose may be associated with the idea that

these spices are presumably innocent.

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