Case Report

Sesame Induced Angioedema in A Child

Yilmaz Seçilmiş*
Department of Pediatrics, Erciyes University, Turkey

Abstract

Angioedema presents with swelling related to subcutaneous or submucosal edema and is generally seen on the tongue, base of the mouth, lips, larynx and face. Angioedema is a rare entity, it can be a potentially life-threatening condition. Sesame seed is a common allergen source. Sesame is commonly used in the food industry. Especially, it’s used on bread, wheel and other bakery products. When sesame allergy is detected in a patient he/she should avoid sesame seed and also the oil obtained from sesame seeds.

Because processed sesame products are used in many food items, patients with sesame allergies should be careful when choosing and eating food. A 7-month-old girl, who developed angioedema due to intake tahini accidently, is presented with a review of the literature reports.

INTRODUCTION

Angioedema is a reversible localized swelling of the deep cutaneous layers caused by mediators that enhance vascular permeability. Angioedema is a rare entity and it can be a potentially life-threatening condition. It generally occurs on the skin, particularly on the face, but it can also involve in the mucosa of the upper respiratory and/or digestive tracts, the extremities and genitals. It is a non-pitting, skin-colored edema, and it shows a predilection for areas where the skin is lax rather than taut, especially on the face and genitalia. Heat and pain are variable additional symptoms, itching is common; there is no desquamation or staining of the skin although scratching or rubbing may cause bruising [1,2]. Angioedema may be hereditary or acquired, with the overwhelming majority of cases induced by various precipitating factors such as extreme temperature exposure, trauma, food sensitivity, and exposure to such diverse drugs as aspirin, indomethacin (and other nonsteroidal anti-inflammatory drugs), penicillin, and angiotensin-converting enzyme inhibitors [1-3]. Sesame seed is a common allergen source. Sesame is commonly used in the food industry both for decoration on bagels, bread, baked products and in the drug industry or cosmetics. Sesame allergy is a rising problem in the US, though it is not considered as one of the top 8 allergens (milk, eggs, peanuts, tree nuts, fish, shellfish, soy and wheat). In Canada, sesame is considered a major allergen and it is required to be shown on labels [4].

When the clinical history is supported by skin prick test or specific IgE positivity for the ingested food, it is easily diagnosed and when sesame allergy is identified the patient should avoid sesame seed and also the oil, obtained from sesame seeds. Sesame oil is not refined and can be rich in sesame protein [4,5].

Sesame food allergy was first reported in 1950, but only a small number of cases have been diagnosed. Over the last ten years, the number of patients who have been diagnosed with sesame seed allergy has increased. Humus, tahini, halva and tahini molasses are the most well known sesame products. Sesame content in other food products can be learned from the pocket. On the other hand, products including vegetable oil can have sesame proteins [6]. Patients diagnosed with sesame allergy should not only eat sesame seeds but also foods that have the potential to contain sesame seeds. A 7-month-old girl, who developed angioedema due to tahini is presented with a review of the literature reports.

CASE PRESENTATION

A 7-month-old girl presented to the child emergency service with acute swelling on the lips (Figure 1). She had a history of positive skin prick test for sesame, wheat, egg, hazelnut, and house dust mite allergy which was done because of eczema in allergy polyclinic. However oral food challenge (OFC) test was not done. She does not have drug allergy or familial atopy history. On physical examination edema on the top and lower lip and eczema on two cheeks were determined. There was no edema on the uvula, vomiting, diarrhea or additional findings. In her medical history, there was no angioedema previously and we learned that her mother gave her tahini accidentally about 1 hour before her application. When detailed questioning were made to parents, we learned that the family did not know tahini was made from sesame seeds. The patient was hospitalized with a diagnosis of angioedema due to sesame. There was no pathology in hematologic
or biochemical tests. Following this, chlorpheniramine maleate with a dosage of 1 mg/kg and methylprednisolone with a dosage of 1 mg/kg were given as treatment. After that, antihistaminic therapy was continued. By the next day her clinical findings were completely regressed (Figure 2). When the patient was discharged, a list of foods containing sesame seeds was given to the parents. No medication was given. The parents were warned for sesame and other allergens. Allergy polyclinic control was recommended to the patient 2 days later.

**DISCUSSION**

Angioedema presents with swelling related to subcutaneous or submucosal edema and can present at any location. Angioedema is a rare entity, and it can be a potentially life-threatening condition. If the gastrointestinal system is affected, severe nausea and vomiting can occur. Or if the respiratory system is affected, it can cause airway obstruction and death. Angioedema is classified as hereditary, acquired, allergic (i.e., venom hypersensitivity, latex allergy and food allergy), drug-induced and idiopathic [7]. Angioedema is primarily caused by mast cell activation in allergic angioedema and degranulation with the release of vasoactive mediators (e.g., histamine, serotonin, bradykinins), resulting in postcapillary venule inflammation, vascular leakage, and edema in the deep layers of the dermis and subcutaneous tissue [7].

Angioedema treatment is started by stopping exposure to the trigger agent. Following this, parenteral antihistaminic and corticosteroid therapy and if necessary, adrenaline therapy must be given to the patient. When the right therapy is applied, angioedema completely regresses within 24 to 48 hours. If severe obstruction develops in the air passage, the patient may need urgent intubation or tracheotomy [7]. In this case, the taking of sesame and its products stopped. After 24 hours giving of intravenous corticosteroid and antihistaminic therapy, her condition returned to normal. She did not need urgent intubation or tracheotomy.

Food allergy especially in children can be seen at all ages. It often occurs in people who also have eczema or hay fever [8]. In Turkey, in an epidemiological study which was reported by Hacettepe University Child Allergy and Asthma Unit, egg (57.8%), cow’s milk (55.9%), hazelnut (21.9%), peanut (11.7%), walnut (7.6%), lentils (7.0%), wheat (5.7%), and beef (5.7%) were the most common food allergies in children [9].

In foods mostly glycoproteins which are resistant to heat and proteolytic enzymes are allergens. When antibodies come into contact with allergens in foods, various chemical agents are released. One of these agents is histamine which is the reason for erythema, swelling, dyspnea, itching, and pain. Food allergy symptoms can be different for all patients. The time between the start of complaints and determining the responsible food is wide. For children and infants, the symptoms of allergy can be atypical like colic, nausea, anorexia and diarrhea [9].

For detecting food allergy, skin tests, serum specific IgE level, radio allergo sorbent test (RAST) are used. But gold standard test is oral challenge tests [10]. In serum specific IgE level, identify food-specific IgE antibodies. It can be done quickly and simply. But it is not diagnostic. If the diagnosis is suspected with IgE antibody test, oral food challenge test should be performed to definitive diagnosis. OFC test is to administer the suspected food in gradually increasing doses under a medical setting [11]. The provocation dose should be adequate to provoke symptoms. However, should be avoided any severe reactions [11,12]. Sesame consists of several major allergen classes, including seed storage proteins, vicillins and oleosin [9]. Testing for sesame allergy is potentially tricky. Oleosin is a major sesame allergen and is not present in the hydrophilic fraction of the extracts, which is used for commercial prick testing and ImmunoCAP IgE determination. So, these two techniques potentially lack these proteins. Ruling out oleosin sensitization requires prick x prick technique which is more sensitive or a specific ELISA performed with in-house made extract containing the oil fraction [13]. There may be differing amounts of allergens contained among the 3 varieties of sesame seeds. White sesame seeds contain the most allergen compared to brown or black seeds. However, all seeds are allergenic. Sesame oil is considered highly allergenic, as is sesame flour [13].

Sesame allergy was first reported in 1950 but only a small number of cases could be diagnosed. Over the last ten years the number of patients with sesame allergy has increased. It is
thought that in England one in every 2000 people is affected from sesame allergy [14]. Sesame is being increasingly used in a variety of foods such as tahini, hummus, sesame crackers, cookies etc. Although parents are well-informed about peanuts, tree nuts and other major allergens, most parents are unaware of the allergic tendency of sesame. The use of sesame in other foods can be learned from the packet. Patients should read all product labels prior to the consumption of a new food product. Before consuming any products, it is important to always read labels carefully to ensure the safety of a food product. It is recommended to always carry at least two epinephrine auto-injectors at all times if a patient has been diagnosed with a sesame allergy[14]. For a food to be recognized as an allergen, one or more allergic symptoms must develop every time the food is eaten. Food allergies not only occur after consuming an allergen food but also from smelling, breathing or contacting it. When exposed to allergen food and if angioedema occurs, quick and effective treatment is important [14].

As a result, although sesame seeds are used on especially baked goods such as pasta, sometimes products obtained by processing sesame seeds can also be found in a variety of foodstuffs. In the case of patients with sensitivity to sesame, the content must be paid attention to the food intake and the physician should definitely warn the family in this respect.

REFERENCES