



## A FAMILIAR ALLERGENE: POMEGRANATE

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### ABSTRACT

We aimed to present a case which was admitted to emergency department with pomegranate intake. Case report: A 61-year-old man was admitted to emergency department with swollen lips and difficulty breathing. He disclosed that he had drunk half glass of pomegranate juice half an hour before his emergency department admission. He was administered an antihistaminic and methyl prednisolone 2mg/kg. He was discharged after treatment. A detailed history should be obtained to elucidate the etiology of angioneurotic edema. Possible offending medications, foods, food additives, physical triggers, and insect venoms should be questioned.

### INTRODUCTION

Pomegranate is the fruit of *Punica granatum*, a small tree belonging to the Lythraceae family that grows in either a Mediterranean winter rainfall climate or in summer rainfall climates. The fruit contains fleshy seeds of red to dark blue color that are aligned in clusters [1-2]. The plant's root and stalks are used for their antihelminthic and hemostatic properties. Dried flowers are used for treatment of hematuria, hemorrhoids, and dysentery. Powdered flower buds are used for bronchitis. The plant's seeds have gastroprotective effects while its extract exerts both gastroprotective and cardioprotective effects. Its outer shell has some hemostatic properties while the gel form of its green leaves has beneficial effects in conjunctivitis. Studies have shown that its outer shell has many antibacterial effects, especially against *Bacillus Anthracis*, *Bacillus Subtilis*, *Salmonella Paratyphi*, and *vibrio cholera* [3]. Despite the lack of any scientific information about its immunostimulating effect, one study reported that the pulverized form of its outer shell also had immunological effects. [3] Recently, serious reactions to pomegranate have been reported, including anaphylactic shock and larynx edema [1,4,5].

Pomegranate hypersensitivity of that child was considered to be of breastmilk origin [1]. We aimed to present a case which was admitted to emergency department with pomegranate intake.

### Case report

A 61-year-old man was admitted to emergency department with swollen lips and difficulty breathing. His past history was remarkable for hypertension for which he had been taking medications regularly. He had known allergy against beetroot. He disclosed that he had drunk half glass of pomegranate juice half an hour before his emergency department admission. On physical examination his blood pressure was 169/84 mmHg, pulse rate 98 bpm, respiratory rate 24 breaths per minute, and body temperature 36.5 °C. His uvula and upper lip were slightly edematous (Figure 1). Respiratory sounds were normal on auscultation. He was administered an antihistaminic and methyl prednisolone 2mg/kg via IV route. However, angioneurotic edema did not regress over time and he was re-administered methyl prednisolone at a dose of 3 mg/kg. Subsequently his uvula edema vanished but lip edema persisted and therefore he was infused methylprednisolone 1mg/kg for a third time. The last methylprednisolone dose made angioneurotic edema disappear and upon checking stability of vital signs he was discharged.

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## DISCUSSION AND CONCLUSION

Angioneurotic edema is usually seen with urticaria although both conditions may also separately occur (4). Angioneurotic edema involves deep layers of skin that are poor in mast cells and sensory nerves and thus causes no or minimal itching. Swelling is described as “painful” or with “burning sensation”. No redness or warmth is observed, nor there is any abnormality in skin appearance in the region of swelling [1,5].

When the above changes occur in superficial dermis, urticarial plaques are formed, characterized by itchy raised skin lesions that fade upon pressure. In contrast to urticarial plaques being found all over the body, angioneurotic edema is usually seen in face, lips, periorcular region, genital region, oral cavity, larynx mucosa, and extremities. Among them, lips and periorcular region are most commonly affected, where subcutaneous tissue is loose to facilitate penetration of edema fluid. Gastrointestinal mucosa can sometimes become edematous, leading to abdominal pain, nausea, and vomiting. Edema may be fatal when it occurs in upper airways. Patients may complain of hoarseness, difficulty swallowing, and intermittent coughing. When lower airways are involved, dyspnea, wheezing, and cough may ensue [1-3].

In contrast to other causes of edema, angioneurotic edema is independent of gravity, asymmetrical, and temporary. Urticaria and angioedema are seen in combination in 50% of cases [4].

In angioedema not accompanied by urticaria hereditary or acquired C1 inhibitor deficiency should be considered [5,7]. IgE-mediated reactions are usually characterized by angioedema in conjunction with urticaria.

Food, medications, and insect venoms (particularly bee venom) are usually the allergens that cause IgE-mediated reactions. IgE antibodies activate mast cells that are responsible for clinical manifestations by release of vasogenic mediators such as histamin, tryptase, and leukotriens [3].

It has been reported that pomegranate (*Punica granatum*) induces IgE-mediated allergy, contact hypersensitivity, and cross-reactivity with nut. In addition, a recent study reported that pomegranate contains 2 lipid transfer protein (LTP) triggering allergic reactions [1,3].

Acute, full-blown clinical picture of pomegranate allergy and associated angioedema are treated by antihistaminics and steroids as necessary [1,6,7]. Oral antihistaminics should be used for a while after intravenous therapy. This should be accompanied by avoidance of triggers of acute urticaria and/or angioneurotic edema since clinical picture does not improve unless the offending medication or allergen is eliminated. Antihistaminic agents and steroids can be then added to therapeutic regimen as necessary [1,6,7].

In conclusion, a detailed history should be obtained to elucidate the etiology of angioneurotic edema. It should be questioned if urticaria contributes to clinical picture in angioneurotic edema and vice versa. Possible offending medications, foods, food additives, physical triggers, and insect venoms should be questioned. It should also be determined whether other family members had experienced such attacks. Presence of any systemic disease should be questioned and addressed.

## Conflict of Interest

We declare that we have no conflict of interest.

**Figure 1. Edema in the upper lip of the patients**



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