



Case Report

Contact Dermatitis due to Mango Sap - A Case Report

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ABSTRACT

Mango dermatitis is the common term referring to allergic contact dermatitis attributed to the sap, skin, bruised leaf, or stem of mango fruit (*Mangifera indica*). The mango plant, found in Asia, Hawaii, Florida, Mexico, and Central America, shares similar chemical compounds to other allergens of the Anacardiaceae plant family, along with the poison ivy group. Commonly mango dermatitis may present similar to poison ivy dermatitis, with linear papulovesicles characteristic of phytocontact dermatitis, but sometimes can be intriguing as they present with wide spectrum of clinical appearances. Since the common site of occurrence is the perioral region, dental practitioners can often be encountered with such cases. Therefore it remains crucial for the oral health care provider to be aware of this entity to avoid misdiagnosis and improper management. Here we report a case of contact dermatitis caused due to mango sap in a 5 year old child patient and provide a logical approach to the diagnosis of such lesions along with review of literature.

Keywords: Urushiol, delayed hypersensitivity, allergic contact dermatitis, vesiculobullous lesions.

INTRODUCTION

The fruit mango (*Mangifera indica*) belongs to the family Anacardiaceae and is often, regarded as the 'king of fruits'. It is taken in many forms, both during as well as off season. Native to southern Asia, mango has been cultivated in the Indian subcontinent for thousands of years and is consumed globally. ^[1]

Allergic reaction to this fruit is not uncommon and manifests in two forms viz. the immediate hypersensitivity reaction which presents as anaphylaxis, angioedema, erythema,

urticaria and the delayed reaction which presents as contact dermatitis. Zakonin 1939 was the first to describe delayed reaction in a 29-year-old female who developed acute vesicular dermatitis involving lips and circumoral area, 24 hr after eating a mango. ^[2] Such reactions have been termed as mango dermatitis. ^[3, 4] The dermal lesions are known to occur not only after injecting mango skin but in some cases after climbing the mango trees also. They may present as vesicles mostly limited to the angles of the mouth, and buccal mucosa but sometimes become severe with generalized eruptions. ^[5]

Diagnosis relies on the history of contact with the fruit, the sap or past history of allergic reaction to poison ivy. History of allergic reaction to poison ivy remains important as mango sap contains the same uroshiol allergen found in these plants and the diagnosis can be confirmed by skin prick test or a patch test using the fruit or its sap.

As the lesions mainly occur in the perioral region, patients may report to dental practitioners for opinion and management. Hence it becomes important for dentists to know the characteristics of these lesions and differentiate them from other similarly appearing lesions. Here we present a case of contact dermatitis to mango sap, along with review of literature, highlighting the

importance of history, clinical features, differential diagnosis, investigations and management of such lesions

CASE REPORT

A five year old patient reported to the Department of Oral Medicine with ulcerative lesions at the left corner of the mouth and lower lip noticed by parents since three days (Fig1) History revealed that the child had consumed mango three days back, following which he developed tingling sensation, itching, fluid filled blisters which ultimately burst leaving painful ulcers. There was no past history of such lesions and no other skin or mucosa was involved.



Fig 1-Child patient with lesions in the perioral region.



Fig 2- Ulcerative lesions noted at the left corner of the mouth and lower border of lower lip.



Fig 3- After 1 week healing noted with scarring.

All vital signs were within normal limits. On extra oral examination, shallow ulcers were noted at the left angle of the mouth and lower lip, three in number (fig 2). The ulcer at the corner of the mouth measured approximately 1x1cm, the ulcer present below the lower border of the lower lip infero-lateral to the ulcer at the corner of the mouth measured 1x1.5cm, the smallest ulcer noted at the middle of lower border of lower lip measured 0.5x0.5cm. The border of the ulcers were irregular, floor covered with whitish slough and spontaneous bleeding

was noted from the ulcer at the corner of the mouth. The surrounding area appeared normal. On palpation, the base was soft, mobile and not fixed to underlying structures and ulcers were tender and bled on touch.

The lesions were provisionally diagnosed as contact dermatitis due to mango sap. The differential diagnosis considered were traumatic lesions, herpes labialis, erythema multiforme and atopic dermatitis. Skin prick test and patch test was carried out using the mango sap and mango juice. The test with the sap gave positive results whereas with the juice gave negative results. Based on the history clinical examination and investigations, the final diagnosis of contact dermatitis due to mango sap was given. The patient was advised to apply topical betadine and mucogel twice daily for a week and complete healing with scarring was noted in a week (fig 3)

DISCUSSION

The "*big eight*" allergens are considered to be milk, peanut, wheat, seafood, fish, soya, tree nuts, and egg. Mango is not one of them and therefore not as much is known about it. Further, the frequency of adverse reactions to mango may be underestimated because of the low consumption of this fruit in the Northern Hemisphere. Four cases with immediate reaction, [6, 7, 8, 9] and six with delayed reaction were reported from geographical areas cultivating mango. [10, 11, 12] The cases were reported from Australia, Spain, India and Thailand. Twelve patients were reported from the countries where large scale mango cultivation does not occur. Six of these patients were documented from USA, [2, 5, 10] two each from Germany and Japan and one patient each from UK and Korea. [13, 11, 14, 15]

The main substance responsible for the allergic reaction is urushiol, other

sensitizing substances include cardol, limonene and B-pinene. [11] They are present in the skin, bark, pericarp as well as in the mango pulp up to five millimeters below the skin. [12] Delayed hypersensitivity to mango is CD-4 cells mediated, of which Th-I type are thought to be the prime mediators of this reaction. The sensitizing substances present in mango get deposited in the epidermal layer of the skin and sensitize the CD-4 cells. On repeated exposure, the sensitized CD-4 cells first accumulate in the dermis and then migrate towards the epidermis where they release cytokines damaging keratinocytes, causing separation of these cells and leading to epidermal spongiosis. Erythema and induration of the site occurs within 8-12 h of exposure, reaches a peak in 24-72 h, and then slowly subsides. This accounts for the later onset of symptoms in these patients. [5]

Cross reactivity of mango antigen has been shown to occur with artemesia pollen, birch pollen, poison ivy, poison oak, mugwort, celery, carrot, pistachio nut, tomato, papaya and banana [8] This cross reactivity is attributed to the fact that multiple antigens can bind to an IgE antibody at corresponding sites and result in an immune response. [16, 17] Allergy to mango has also occasionally been reported in people with latex (*Hevea brasiliensis*) hypersensitivity, a phenomenon common in health care professionals, who frequently wear latex gloves. [18] Oral allergy syndrome (pollen food syndrome) is a disorder characterized by tingling, burning sensation of lips, palate, tongue or oropharynx with or without swelling, within a few minutes of ingestion of a foodstuff. It is a type I hypersensitivity reaction and is IgE mediated. It occurs due to cross reactivity between certain food items and pollens, house dust mites, latex and other allergens and is only rarely manifested in patients without a previous sensitivity to pollen.

Fresh fruit, vegetables and nuts are also common causes of oral allergy syndrome. The basis of oral allergy syndrome is the presence of IgE antibodies that can recognize specific pollens as well as fruit allergens. [19,20]

Clinical manifestations of allergic reaction to mango can be varied. Facial erythema, urticaria, periorbitaloedema, rhino-conjunctivitis, nausea, vomiting and abdominal cramps, dyspnoea, asthma, anaphylaxis, burning sensation in the mouth, swelling of the lips, face and tongue, pruritus of the eyes, mouth, and contact dermatitis have been reported. [5, 6, 14, 18] In a case reported by wiwanitkit, a 42 year old female presented with pruritic erythema of face and extremities and periorbital edema after ingestion of mangoes. Intensely pruritic linear papulovesicular lesions on lower legs and urticarial plaques on forearm were the presenting symptoms in a case reported by Calvert et al as a result of contact dermatitis to mango. In our case the patient developed the lesions 24hrs after coming in contact with the mango sap which was preceded by itching and burning sensation in the region of contact. The patient did not develop any symptoms due to the ingestion of the flesh or juice of the mango fruit. The lesions were erosive with bleeding spots and present in the perioral region.

Lesions in the perioral region may be diagnosed following a simple algorithm (ill-1). In our case, herpes labialis was ruled out as there was no previous history of herpes infection or history of fever before the lesions developed, also herpes labialis is more common in adults. There was no history of trauma which ruled out the possibility of traumatic lesions. erythemamultiforme and atopic dermatitis were ruled out due to negative drug history and absence of any systemic lesions. In case of contact dermatitis due to mango sap, diagnosis is done mainly based on the

clinical presentation, the history of contact with the fruit and previous history of allergic reaction to the fruit. Patch testing can be done to elicit the delayed hypersensitivity reaction which is a confirmatory test.

Potential treatments are in two phases: stopping the urushiol contact causing a reaction with the skin (this must be done within minutes), and later in reducing the pain or pruritus (itching) of any blistering that has formed. Primary treatment involves washing exposed skin thoroughly with soap and water as soon as possible after exposure is discovered. Repeated application of vinegar, hydrogen peroxide and clean water to the exposed areas is ways to deactivate the toxicity of urushiol bonded to the epidermis of skin.

In our case also only symptomatic treatment was advised and healing of lesions with scar was noted in one week duration. In case of severe lesions, topical and systemic corticosteroids can be used.

Augmented betamethasone dipropionate, Clobetasolpropionate, Triamcino-loneacetonide can be used as topical agents. Prednisone: 0.5 – 2mg/kg/day (usually 1mg/kg/day) tapered over a 14 to 21 day is the commonly used systemic agent. Three week duration is recommended as reaction to urushiol can persist for 21 days or more. Amoral D, et al. conducted a study where Topical pimecrolimus was used in the treatment of human allergic contact dermatitis due to poison ivy and the results were insignificant. A study conducted by Kligman A, et al showed diphenhydramine 100mg per day, tripelenamine 200mg per day, and chlorpheniramine 16mg per day had no effect on urushiol induced dermatitis. In the case reported by wiwanitkit v the patient was administered a single 50mg dose of oral prednisone and was continued for 5 days, along with chlorpheniramine 8mg daily and improvement was seen in seven days [12] The

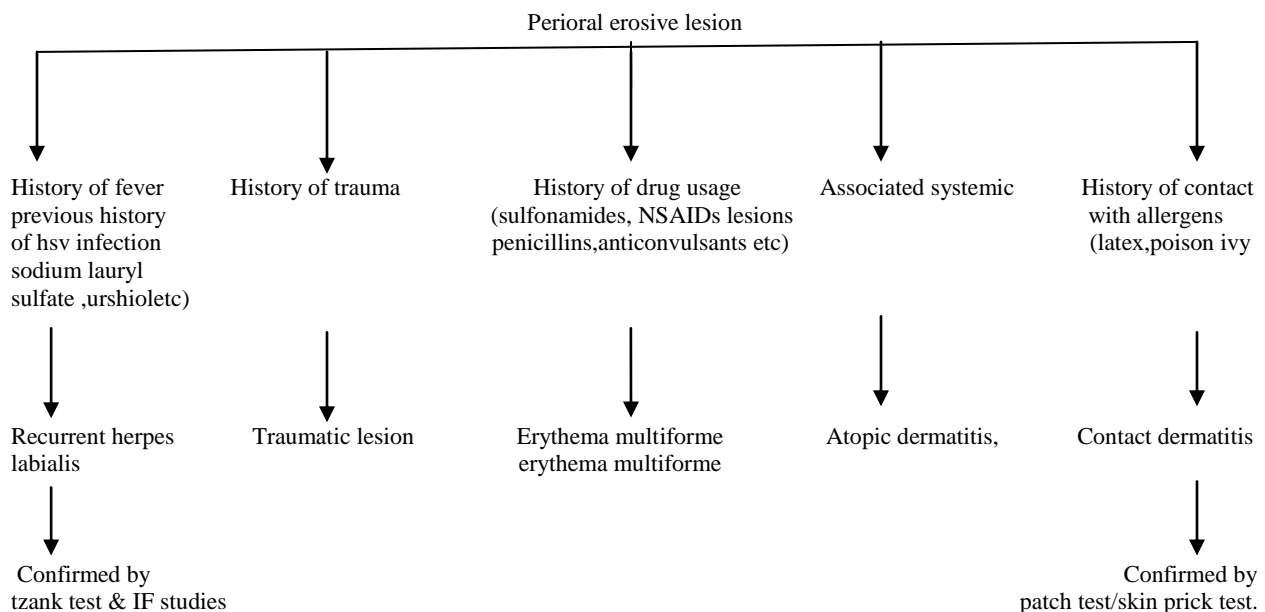
best treatment for urushiol induced contact dermatitis is not to come into contact with them .Treatment mainly depends on the severity of the condition. As the condition is self limiting, symptomatic treatment for pain and prevention of further secondary infections suffices in most of the cases.

CONCLUSION

The fruit mango can cause both immediate and delayed hypersensitivity

reactions which can even lead to a life threatening condition. It is important to recognize such manifestations early to avoid further complications. The mango fruit which is native to Indian subcontinent is consumed largely by the population and can result in untoward reactions in susceptible individuals. As dental professionals it is imperative to be aware of such condition to avoid misdiagnosis and thus improper management of the patient.

Algorithm for perioral erosive lesions



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