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Acute allergic angioedema of upper lip

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Abstract

Mishaps can occur during dental procedures, some owing to inattention to detail and others are totally unpredictable. They usually include anaphylaxis or allergic reactions to materials used for restorative purposes or drugs such as local anesthetics. A patient reported to our department with moderate dental fluorosis, and the treatment was planned with indirect composite veneering. During the procedure while cementation acute allergic reaction occurred, the specific cause could not be identified after allergic testing. During the procedure while cementation acute allergic angioedema of upper lip. Anaphylaxis, urticaria, allergy, hereditary atopic eczema, cellulitis, cheilitis granulomatosa, and cheilitis glandularis. The patient was reassured and given prednisolone 10 mg and cetirizine 10 mg orally, once daily for 3 days after which the symptoms subsided. This paper will discuss the pathogenesis, classification, identification, and management of angioedema during dental procedures.

Keywords: Allergic reaction, anaphylaxis, angioedema, dental allergens, fluorosis, patch test, test reagents

INTRODUCTION

Unfortunate or unexpected occurrences may happen during dental treatment. The common dental office mishaps are anaphylactic reactions to local anesthetics, allergic reaction to dental materials and devices, allergic reaction to antibiotics, nonsteroidal anti-inflammatory drugs, etc.[1] For the dental practitioner encountering a patient with a complaint of orofacial edema (swelling) following dental treatment, several routine possibilities come to mind. However, rare diseases may mimic or present similarly to common diseases, resulting in an apparent “medical mystery.” Such diagnostic dilemmas can be disconcerting for both the patient and the dentist providing care. Angioedema is a unique disease characterized by repeated bouts of noninflammatory edema in the subcutaneous tissues or mucosa that can present with life-threatening airway obstruction. The disease can be either hereditary or acquired. The nonfamilial (acquired) form was first described in 1972[2] and the hereditary form was described in 1882[3] and named by Osler in 1888.[4] The two types are similar in clinical presentation and both are caused by a deficiency or qualitative defect of, or antibody against C1 esterase inhibitor, a component of the complement system; unlike edema, angioedema has a rapid onset (minutes to hours) and is asymmetric in distribution. It often involves the lips, throat, or bowel and is usually not found in dependent areas. Because trauma is one of the most common triggers, elective operations, especially head and neck surgery or dental procedures are usually preceded by proper medical management.

CASE REPORT

A 23-year-old female patient reported to our department [Figure 1a] with the chief complaint of discolored

teeth in the form of yellowish stains present from her childhood, history revealed no usage of tetracycline in the past, similar discolorations and stains were also present in her family and neighborhood. Medical history not relevant. On intraoral examination, all the teeth were affected in the form of yellowish chalky white patches, pitting of enamel was noted, but morphology of teeth was normal [Figure 1b]. Oral hygiene was good and gingival tissue was in a healthy condition. According to Deans fluorosis index,[5] the patient had a moderate form of dental fluorosis.

Indirect composite veneering for upper anterior teeth and direct composites (Filtek Z 250K, 3M ESPE) for lower anterior teeth was planned.

Teeth to be restored were prepared with 0.5-0.75 mm reduction on labial surfaces [Figure 1c]. After application of retraction cord [Figure 1d], elastomeric impressions (Aquasil-Dentsply) were taken and sent to the laboratory.

When the patient reported on the next day, cheek retractor was placed, acid etching (N-etch, Ivoclar Vivadent) was done [Figure 1e], and bonding agent (Tetric-N-Bond, Ivoclar Vivadent) was applied to the prepared teeth surfaces and cured [Figure 1f].

Indirect composite veneers were luted (Calibra, Ivoclar Vivadent) on upper teeth (13-23) and direct composites (Tetric N Ceram, Ivoclar, Vivadent) were given in lower teeth.

An hour after the procedure, localized swellings were noted on the upper lip [Figure 2a and b]. On examination, diffuse painless edematous swellings were present on either side of upper lip, more prominent on the right side. It was pale, soft, nontender and measured approximately 3 cm × 2 cm in the right side and 2 cm × 1 cm in the left side. It was nonpruritic, nonpitting, and no evidence of erosion or ulceration were noted.

Vital parameters were normal, there was no respiratory difficulty excluding laryngeal involvement. Further examinations revealed no other signs and symptoms, so the patient was kept under observation. In that observation period, she was once again enquired about her detailed family history which was not relevant. She was then reassured and given prednisolone 10 mg and cetirizine 10 mg orally, once daily for 3 days.

As the patient was stable, she was discharged and scheduled for follow-up 24 h later. At the recall visit the following day, the patient was totally asymptomatic. To identify the cause of swelling the following investigations were done such as complete blood picture, absolute eosinophil count, erythrocyte sedimentation rate, IgE antibodies, complement levels (C3 and C4), C1 esterase inhibitor levels, and patch test. Volar region of the forearm was selected for patch test. Three circular markings were followed by the application of test materials [Figure 2c and d] (etchant, bonding agent, and resin luting cement) [Figure 2e]. The tested skin was evaluated after 24 and 48 h for any reactions. No sign of any positive reactions on the skin after 24 and 48 h [Figure 2f]. All investigations were tested negative except absolute eosinophilic count and IgE antibody levels were elevated.

The patient is diagnosed to have acute allergic angioedema of upper lip.

The diagnosis of angioedema was made based on the following criteria, the swelling was sudden in onset, limited to oral mucosal regions, absence of pain, pruritus, pitting, and erythema and the symptoms subsided in 24 h.

DISCUSSION

It is not rare for the dental practitioner to encounter a patient developing orofacial edema (swelling) during dental procedure. The common etiologic factors could include trauma, infection, allergy, or the condition can be entirely idiopathic.[6] In the majority of cases, no underlying cause can be identified.

Angioedema is the clinical manifestation of transient, localized, nonpitting swelling of the subcutaneous layer of the skin or submucosal layer of the respiratory or gastrointestinal tracts.[7] Maxillofacial angioedema is a diffuse swelling of the oral submucosal tissues[7] which is more common in young women that last between 24 and 96 h.[8] It can be classified as allergic, pseudoallergic, or nonallergic atopic eczema (AE). Allergic AE is IgE mediated reaction that is typically observed within 30 min to 2 h after

exposure, pseudoallergic AE is non-IgE mediated but has a similar presentation to allergic, and the nonallergic AE may be due to C1 inhibitor deficiency,[9] Angiotensin-converting enzyme-inhibitor induced, and idiopathic or physically induced.[10] Angioedema results from vascular leakage due to release of vasoactive mediators such as histamine, serotonin, and bradykinin with extravasations of fluid into the superficial tissues causing edema. Its significance lies in its potential to partially or totally obstruct the upper airway secondary to acute sudden swelling.[11] In severe cases, edema of the larynx can progress rapidly to asphyxiation leading to death.[12] Hence, having emergency drugs available in the dental operatory is mandatory.

Cheilitis granulomatosa and cheilitis glandularis present with lip swelling as the initial symptom, followed by linear ulceration in the buccal vestibule, erythematous swelling of the gingiva, a cobblestone appearance of the buccal mucosa, and hyperplastic papules on the palate. In our case, the patient did not show any sign of ulceration hence excluded this diagnosis.

The first line of treatment is oral antihistamines, if there is laryngeal involvement, laryngoscopy may be required and epinephrine intramuscular is given, if does not help corticosteroids/antihistamines intravenous should be administrated, frequent monitoring of the patient should be done till the symptoms subside.[13] Precautions must include the identification, as well as the exclusion of possible trigger factors.[14] Patient education and a personalized management plan are essential to effectively manage such cases. Methacrylates, epoxy acrylates, BISGMA, TEGDMA, 2-HEMA, benzoyl peroxide, fissure sealants containing acrylics, diglycidyl ether of bisphenol A, and epoxy resin are some of the allergens reported in dentistry.[15]

CONCLUSION

Having realized its potential life-threatening complications, we as dentists should be prepared to expect the unexpected situations when confronted and to render the most efficient patient care possible.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

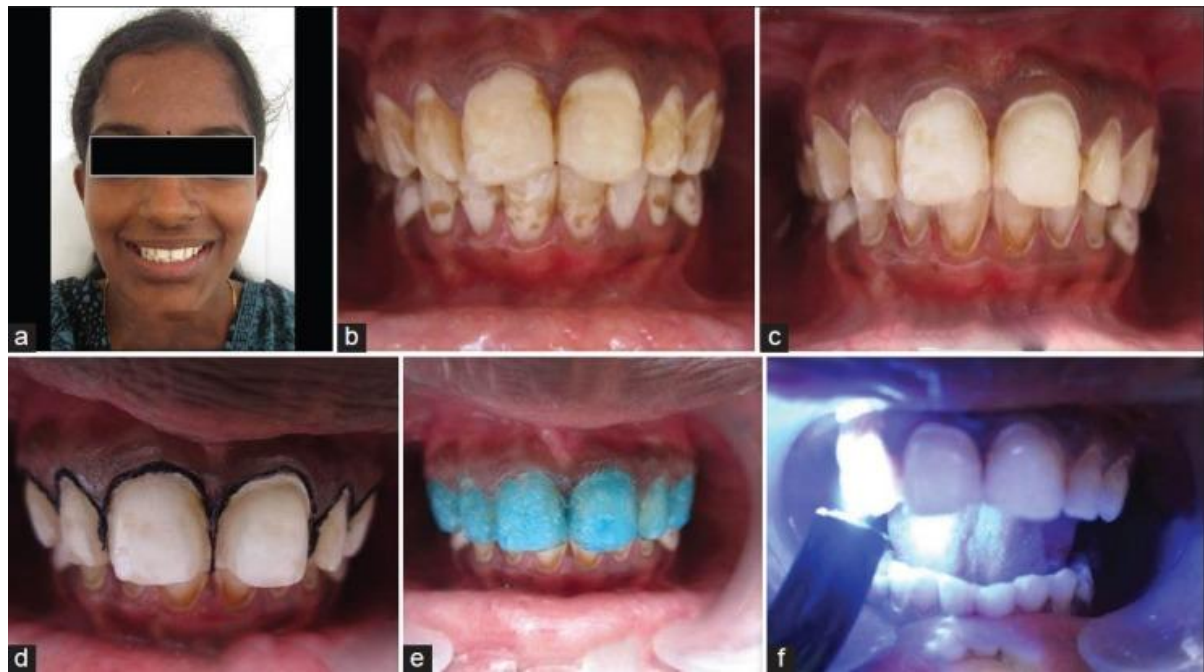
There are no conflicts of interest

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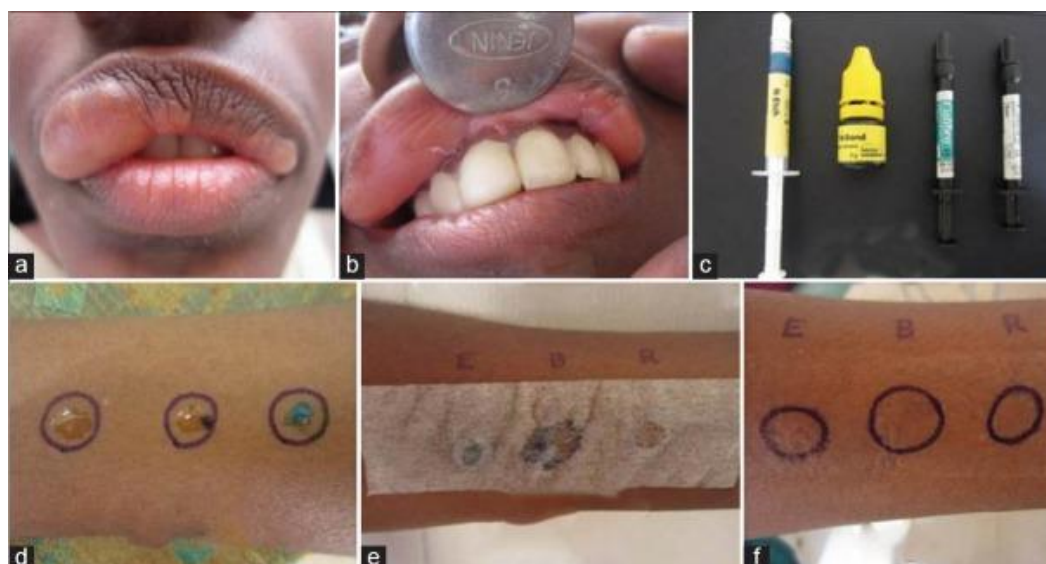
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Figures and Tables

Figure 1

(a) Preoperative-extraoral view. (b) preoperative-intraoral view with discolored teeth in the form of yellowish stains. (c) Teeth preparation done with 0.5–0.75 mm reduction on labial surface. (d) Placement of retraction cord. (e) Application of etchant. (f) Bonding agent applied to teeth surfaces and cured

Figure 2

(a) Localized swellings in the upper lip. (b) Intraoral view of angioedema (c) Etchant, bonding agent, and resin luting cement used. (d) Three circular markings made on volar region for patch test. (e) Application of test materials (f) Negative reaction to patch test

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