

CASE REPORT

doi: 10.5455/medarh.2020.74.65-68

MED ARCH. 2020 FEB; 74(1): 65-68

RECEIVED: JAN 12, 2020 | ACCEPTED: FEB 12, 2020

A Case Report on Stomatitis Venenata Due to the Use of Lip Balm

Kaushik Prakash¹, Protyusha Guha Biswas², Manoj Prabhakar², Shanmugapriya Sankaravel³

¹Department of Orthodontics and Orofacial Orthopaedics, Meenakshi Academy of Higher Education and Research, Faculty of Dentistry, Meenakshi Ammal Dental College and Hospital, Chennai, India

²Department of Oral Pathology and Microbiology, Meenakshi Academy of Higher Education and Research, Faculty of Dentistry, Meenakshi Ammal Dental College and Hospital, Chennai, India

³Department of Oral Pathology and Microbiology, SRM Dental College, Ramapuram, Chennai, India

Corresponding author: Dr. Protyusha Guha Biswas, MDS, Assistant Professor. Department of Oral Pathology and Microbiology, Meenakshi Academy of Higher Education and Research, Faculty of Dentistry, Meenakshi Ammal Dental College and Hospital, Chennai, India. Phone: 08056033960. E-mail: drprotyushaguha@gmail.com. ORCID ID: <http://www.orcid.org/0000-0002-7672-0587>

ABSTRACT

Introduction: Allergic reactions can manifest in various forms ranging from mild, almost unnoticeable reactions to life threatening anaphylaxis. Stomatitis venenata or contact stomatitis is described as a contact allergy of the oral mucosa which can occur due to repeated contact with the causative agent. Dental and cosmetic products, dental materials and dental therapeutic agents are the common allergens of the oral cavity. These allergies show varied clinical presentations, from swelling, pain, burning sensations to vesiculation, ulcerations, crusting and sloughing. Contact stomatitis due to cosmetic products have been on a rise recently due to the ease of availability and increase in their usage among individuals. **Aim:** The aim of this article is to present a case reports on an allergic reaction in a 17-year-old female triggered by the use of cosmetics. **Case report:** In the present article, we report a case of stomatitis venenata due to lip balm in a 17-year-old female for its rarity. **Conclusion:** Stomatitis venenata is a rare allergic condition that causes significant morbidity in an affected individual. Prompt recognition and elimination of the causative allergen followed by an appropriate therapy would help in complete resolution of this condition.

Keywords: Stomatitis venenata, Contact stomatitis, Contact allergy, Lips, Oral mucosa.

1. INTRODUCTION

Stomatitis venenata, variously described as a contact allergy of the oral mucosa, is a delayed type of hypersensitivity reaction developed by the body against a particular substance of low molecular weight (haptens), as a result of contact (1).

The common substances causing contact allergy in oral cavity include dental and cosmetic products, dental materials and dental therapeutic agents (2). The clinical presentation of these allergies is usually varied ranging from erythema, burning sensation, swelling associated with pain to formation of vesicles, fissures, sloughing, ulceration and crusting (3).

Epidemiological survey reveals that more than 25% of Indian population suffer from various forms of allergy including anaphylaxis, air borne, drug, food and insect allergies. With the rising trend in terms of availability and usage of cosmetics, allergic reactions to one or more ingredients of cosmetics have become common. Studies reveal that 15-20% of cases of contact allergy are caused due to lipsticks and lip balms which are the most commonly used lip cosmetics and is frequently seen in females (4). The diagnosis

and treatment of patients with allergy is particularly challenging as they are usually non-specific, may mimic other lesions and can present either immediately, may be delayed or occasionally, can even be hereditary.

2. AIM

The aim of this article is to present reports of a case of an allergic reaction in a 17-year-old female triggered by the use of cosmetics.

3. CASE REPORT

A 17-year-old female reported with the chief complaint of pain, swelling and ulceration on her upper and lower lip for past one week. History of presenting illness revealed that patient developed small fluid filled boils on her lips following the use of a lip balm one week back. These blisters reportedly ruptured soon, followed by ulcerations and crusting on her lips. Patient also complained of stiffness and drying of her lips with occasional bleeding and fluid discharge. She further complained of inability to open her mouth and discomfort while chewing and swallowing of food. Patient had visited a dermatologist for the same problem one week back and was diagnosed

© 2020 Kaushik Prakash, Protyusha Guha Biswas, Manoj Prabhakar, Shanmugapriya Sankaravel

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.



Figure 1. Upper and lower lip showing swelling, extensive ulceration, crusting and sloughing on initial presentation



Figure 2. Upper and lower lip showing considerable improvement during the course of treatment

with herpes labialis. She was prescribed antibiotics for 5 days which further aggravated the condition.

Gross examination of the patient was unremarkable. Patient denied any history of prodromal symptoms or similar episodes of dermatological lesions or allergic reactions in the past. Family history, personal history or systemic manifestations of the patient was non-contributory. Patient gave no known history of food or drug allergy.

Clinical examination revealed swelling and eversion of lower lip with extensive ulceration and sloughing. Presence of yellowish areas with crusting and few brownish areas were also noted. On palpation, the lip was tender, rough with slight bleeding, pus and fluid discharge. Upper lip also revealed less extensive, but similar lesion in its vermilion border with multiple fissures which was tender, rough and stiff on palpation (Figure 1).

Based on the history and clinical examination, a provisional diagnosis of stomatitis venenata (contact stomatitis) was made with herpes labialis, cheilitis granulomatosa, erythema multiforme and oral lichenoid drug eruption as differential diagnoses. The lip balm used by the patient was thought to be the source of allergy as no other history elicited from the patient was relevant to the condition. In order to confirm the source of allergy, a small amount of the lip balm was applied on her tongue as a provocative test which showed the occurrence of a small bullae further confirming the cause.

In the initial visit, patient was prescribed antihistamines, topical corticosteroid and multivitamin tablets.

Patient was also advised to use Benzydamine mouthwash for a week and to avoid using lip products of any brand whether they caused allergies or not.

In the second visit, after two days patient showed symptomatic improvements with reduction in pain and swelling of her lips. However, the dryness, ulceration and crusting were still present. The mouth opening showed remarkable progress and the patient was advised to continue the previous medications as prescribed. Systemic corticosteroid- Prednisolone, 5 mg twice a day was further added. In the subsequent visit after five days, the lesion showed considerable improvement with visible reduction of crusting and ulceration of both her lips. There was no pain or stiffness of her lips and the patient could open her mouth completely, however mild dryness and pigmentation were noted. Patient was advised to continue with the medications with application of organic coconut oil (Figure 2).

In the final visit, there was complete resolution of the lesion on the lips with normal mouth opening. The dosage of systemic corticosteroid was gradually tapered and the patient was asked to discontinue the medications. She was also advised against the use of lip cosmetic products of any kind (Figure 3).



Figure 3. Complete healing of upper and lower lip

4. DISCUSSION

Stomatitis venenata or contact allergy is a type of hypersensitivity reaction (type IV) due to repeated contact with the causative agent (2, 5). It usually occurs in a localised area in an already sensitized individual. Contact allergies do not become evident until several hours of exposure to the allergen explaining the term delayed hypersensitivity reaction. There are two distinct phases in the allergic process: induction phase and effector phase (6).

The allergens responsible for stomatitis venenata are low molecular weight chemicals that infiltrate the mucosal epithelium and become effective only after binding with epithelial proteins. This process occurs by the help of intraepithelial Langerhans cell where the hapten gets converted into a competent antigen. On initial contact of the antigen during induction phase of the allergic process, they are engulfed by the macrophages and are

presented to the helper T lymphocytes for sensitization. They subsequently enter the stimulation and division phase and produce memory and cytotoxic T lymphocytes. During antigenic re-challenge, the memory T lymphocytes will trigger a more rapid and aggressive immune response as they are present in the body for life. In the effector phase however, the cytotoxic T cells produced in the induction phase secrete chemical mediators of inflammation (lymphokines) and bind to the epithelial cells that first presented the complexes causing damage and death of cells (2, 7).

Certain cosmetic products such as lipsticks, lip balms; dental preparations like dentifrices, mouthwashes, denture adhesives; food substances like chewing gums, candies; dental materials such as amalgam, eugenol, latex, acrylic; therapeutic agents like antibiotics, alcohols, cough syrups and procaine are known to cause oral lesions in stomatitis venenata (3-6).

The increased availability and usage of cosmetic products has led to an increase in the prevalence of contact allergy reactions. Lipsticks or tinted lip balms in particular are known to incite violent reaction of the lips in a sensitised individual characterised by severe edema and ulceration. The present case also demonstrates similar aggressive reaction on the lips of a young female following the usage of a coloured lip balm.

The clinical presentation of patients with stomatitis venenata may be varied much like its dermatological counterpart, dermatitis venenata. It may either be localised or diffused. On contact with the allergen, patients typically present with inflammation and edema of the mucosa with a smooth shiny surface. Gingiva shows uniform inflammation and even desquamation, with buccal mucosa exhibiting deep red areas to whitish areas or plaques. In chronic cases, the mucosa in contact with the allergen turns hyperkeratotic and white with extensive edema and erythema. Formation of small vesicles may be seen which rupture soon after, giving rise to erosion and ulceration that sometimes turn extensive (2, 9).

Swelling, erosion and ulceration is particularly common in lips with other features such as itching, burning, tingling, pain with scaling, dryness, crusting and formation of fissures. Secondary infection is also commonly seen. The clinical features of the present case corroborated with most of the aforementioned features. The causative agent responsible for the allergic reactions seen in the present case was narrowed down to the lip balm she had been using, based on the history and the provocative test (4, 9, 10). The reactions occurring on the lips are especially common in females due to the allergen in cosmetics which are mostly used by females.

Lip balms are the most frequent and common cosmetics that can cause stomatitis venenata. They are composed of fragrance, essential oils, eugenol, butylated hydroxytoluene, camphor, propolis, bees wax, lanolin, parabens, oxybenzone, octinoxate, chemical sunscreen agents, flavour and colour (9, 11). Fragrances, preservative like paraben and flavours found in lip cosmetics are the most common offending agents responsible for stomatitis venenata. Lanolin is another ingredient that

is added in most lip balms for their moisturising benefits which is also a potent allergen. Essential oils, butters, waxes or even the sunscreen agents present in lip balms have been known to cause allergy in individuals (12).

Yet another ingredient that is used to add colour to lip balms and lip sticks is carmine which is increasingly used in cosmetics. However, the above-mentioned ingredients may show slight variations in composition and concentration from one brand to another. The patient in our case may have been allergic to any of the components present in the lip balm. Due to poor socioeconomic status, the patient was unwilling for any further investigations and therefore the exact allergen could not be ascertained.

Oral mucosa varies significantly from skin due to its biologic and physiologic differences and is thus less prone to contact allergies than skin. Saliva present in the oral cavity limits the duration and number of allergens that contact the oral mucosa by acting as a solvent thereby diluting, digesting and eventually washing away the potential allergens. Lesser keratinisation in oral mucosa makes hapten binding difficult with fewer chances to recognise allergen due to lesser density of antigen presenting Langerhans cells or T lymphocytes. Furthermore, allergens are removed faster in oral mucosa than in skin owing to its higher vascularity and faster renewal rate of the epithelium (2).

Histopathologically, stomatitis venenata shows presence of intra and intercellular edema with formation of vesicles either in the epithelium or at the basement membrane. Numerous dilated and engorged blood vessels are also seen in the connective tissue with abundant plasma cells and eosinophils (2). However, elimination of the suspected offending agent is vital before advising the patient for biopsy.

The treatment modality for stomatitis venenata/ contact stomatitis essentially involves elimination of the offending allergen. The complete resolution of the lesions can take up to two weeks. Patients presenting with extensive and violent symptoms should be treated with antihistamines, topical or systemic corticosteroids and mouthwashes.

Stomatitis venenata clinically mimics several other lesions and should therefore be differentiated. Herpes labialis, a common viral infection affecting the oral cavity also presents with similar features. However, a positive history of allergic agents, absence of prodromal symptoms and yellowish fluid filled vesicles with an erythematous halo distinguishes it from stomatitis venenata. Cheilitis granulomatosa also resembles stomatitis venenata due to the swollen, cracked and fissured appearance of the lips. However, the episodic nature and presence of nodular swelling in cheilitis granulomatosa, without any association of allergic agents differentiates it from the former. Erythema multiformae is also a similar lesion that can be differentiated from stomatitis venenata by its characteristic "target" or "iris" like lesions. Yet another lesion that needs to be differentiated from the present case is angioedema which appears as a diffuse edema-

tous swelling which could be solitary or multiple without any ulcerations, fissures and crusting (2).

5. CONCLUSION

Contact allergic stomatitis, though not fatal, can however prove to be a cause for both physical as well as emotional stress for the affected individuals leading to a drastic fall in their well-being and lifestyle. Careful observation by the clinician is of paramount importance to establish a relation between the topographical appearance and distribution pattern, especially in cases of cosmetic allergies. Once diagnosed, the allergen should be immediately eliminated followed by appropriate therapeutic management which eventually leads to complete resolution of the lesions.

- **Patient Consent Form:** The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that name and initials will not be published, and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.
- **Authors contribution:** All authors were included in all steps of preparation of this article. All authors gave final approval for the version to be published and agree to be accountable for all aspects of the work.
- **Conflict of interest:** There are no conflicts of interest.
- **Financial support and Sponsorship:** None.

REFERENCES

1. Spiewak R. Patch Testing for Contact Allergy and Allergic Contact Dermatitis. *Open Allergy J.* 2008; 1: 42-51.
2. Sivapathasundharam S. Allergic and Immunologic Diseases of the Oral Cavity. Shafer's textbook of oral pathology. 8th ed. India: Elsevier; 2016: 177-178.
3. Miller RL, Gould AR, Bernstein ML. Cinnamon-induced stomatitis venenata. Clinical and characteristic histopathologic features. *Oral Surg Oral Med Oral Pathol.* 1992; 73: 708-716.
4. Ravitasari, Radithia D, Hadi P. Allergic contact cheilitis due to lipstick. *Dent. J (Majalah Kedokteran Gigi).* 2015; 48(4): 173-176.
5. Hepbar PB, Sheshaprasad R, Pai A. Stomatitis venenata—a diagnostic challenge. *Open Journal of Dentistry and Oral Medicine.* 2014; 2(1): 14-16.
6. Kimber I, Basketter DA, Gerberick GF, Dearman RJ. Allergic contact dermatitis. *Int Immunopharmacol.* 2002; 2(2-3): 201-211.
7. Banno T, Gazel A, Blumenberg M. Effects of tumor necrosis factor-alpha (TNF alpha) in epidermal keratinocytes revealed using global transcriptional profiling. *J Biol Chem.* 2004; 279(31): 32633-32642.
8. Morton CA, Garioch J, Todd P, Lamey PJ, Forsyth A. Contact sensitivity to menthol and peppermint in patients with intra-oral symptoms. *Contact Dermatitis.* 1995; 32: 281-284.
9. Shaw DW. Allergic contact dermatitis from carmine. *Dermatitis.* 2009; 20(5): 292-295.
10. Warshaw EM, Nelsen DD, Maibach HI, et al. Positive patch test reactions to lanolin: cross-sectional data from the North American Contact Dermatitis Group, 1994 to 2006. *Dermatitis.* 2009; 20(2): 79-88.
11. Heurung AR, Raju SI, Warshaw EM. Benzophenones. *Dermatitis.* 2014; 25(1): 3-10.
12. Sharma S, Rakesh N, Sharma S. Allergic contact stomatitis masquerading as aphthous stomatitis: a case report. *Int J Sci Rep.* 2017; 3(5): 144-148.