Case Report
J Nepal Soc Perio Oral Implantol. 2025 Jan-Jun;9(17):33-6.
DOI: 10.3126/jnspoi.v9i17.85960

Submitted: Oct 30, 2024
Accepted: May 30, 2025
Published: Oct 15, 2025

Desquamative Mucosal Reactions: A Potential Side Effect of Chlorhexidine Gluconate Mouthwash

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ABSTRACT

Chlorhexidine gluconate is most commonly used mouthwash in dentistry. Though infrequent, adverse reaction to the use of chlorhexidine compounds have been reported which range from teeth staining, altered taste, parotid gland swelling, mucosal erosions, anaphylaxis, and sometimes even death. Immunologic reactions which are commonly seen involve type I hypersensitivity reaction and contact stomatitis (type IV hypersensitivity reaction). Desquamative mucosal and gingival lesions have been previously observed with 0.2% of chlorhexidine compounds. This case report also involves a presentation of desquamative mucosal and gingival lesions in a patient with chlorhexidine gluconate mouthwash prescription.

Keywords: Adverse reaction, chlorhexidine gluconate mouthwash, hypersensitivity.

INTRODUCTION

Chlorhexidine (CHX) is considered the most effective and the most common mouthwash used in dentistry.[1] Chemically, it is a synthetic bisbiguanide compound, effective against gram positive and negative bacteria, facultative aerobes, anaerobes, fungi, and viruses.[2,3] Because of its cationic nature, chlorhexidine binds to anionic cutaneous protein of bacteria demonstrating bacteriostatic activity lasting for up to 12 hours. Due to this substantivity effect, chlorhexidine has become routine choice as a chemical plaque control agent.[2] However, its use has been correlated with side effects like teeth staining, taste disturbances, desquamative mucosal reactions, parotid swelling, and increased calculus formation.[4]

CASE REPORT

A 30-year-old male patient reported to Periodontology and Oral Implantology unit, Department of Dental Surgery, Bir Hospital, National Academy of Medical Sciences with the chief complaint of gingival swelling in upper and lower front region for two months. The patient was systemically healthy and had no deleterious habits like smoking or alcohol consumption. On examination, the patient was undergoing fixed orthodontic treatment for correction of malocclusion. Moderate amount of plaque and calculus was evident with enlarged gingiva on maxillary and mandibular anterior region.

Oral prophylaxis with proper oral hygiene instructions was planned. After oral prophylaxis, patient was prescribed with 0.2% mouthwash, 10 ml, twice per day, to be rinsed for one minute for 14 days. Follow-up was scheduled after two weeks.

On sixth day of prescription, patient reported back to the department with burning sensation and pain on various areas of mouth. Upon investigating, he reported using the mouthwash three times a day along with vigorous brushing. On extraoral examination, submandibular lymph nodes were palpable on both side. On intra oral examination, generalised erythematous and oedematous gingiva with areas of ulceration were present (Figure 1-3). On buccal and labial mucosa and vestibule, areas of whitish scrapable slough was present (Figure 4). These lesions were painful but had no signs of bleeding.

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Citation
Basnet J, Gorkhali RS, Koirala PK, Pradhan S, Karanjit A, Koju A, Ghimire G. Desquamative Mucosal Reactions: A Potential Side Effect of Chlorhexidine Gluconate Mouthwash. J Nepal Soc Perio Oral Implantol. 2025 Jan-Jun;9(17):33-6.

Figure 1: Front view after use of CHX on sixth day.

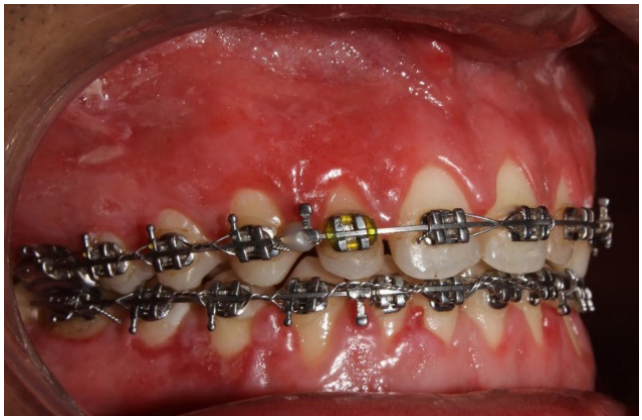

Figure 2: Right lateral view after use of chlorhexidine on sixth day.

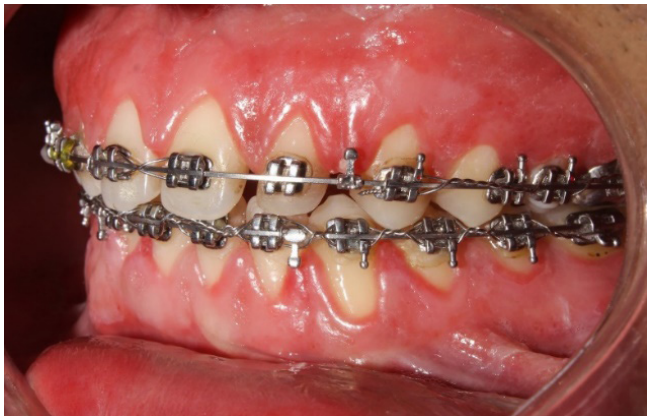

Figure 3: Left lateral view after use of chlorhexidine on sixth day.

Figure 4: White scrapable slough on buccal vestibule.

After obtaining detail history and clinical examination of patient, hypersensitivity reaction to chlorhexidine was suspected and the patient was advised to discontinue the mouthwash and to gargle with lukewarm salt water three to four times daily for one week.

On one week follow-up, all the signs and symptoms had significantly reduced after which the necessary periodontal treatment was resumed (Figure: 5-8).

Figure 5: Front view one week after discontinuation of chlorhexidine.

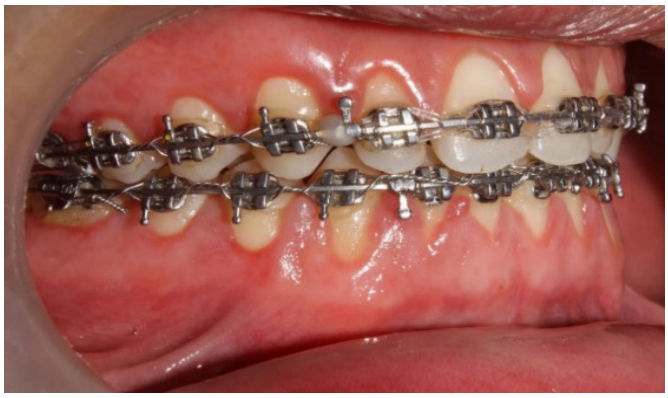

Figure 6: Right lateral view one week after discontinuation of chlorhexidine.

Figure 7: Left lateral view one week after discontinuation of chlorhexidine.

Figure 8: Resolution of white scrapable lesion after discontinuation of chlorhexidine.

DISCUSSION

Chlorhexidine mouthwash is generally used in 0.12% and 0.2% concentration as a plaque control agent. Its use has been associated with various adverse effects as reported in literature. In addition, hypersensitivity reactions to chlorhexidine based products have also been widely discussed by various authors. Although, these reactions are rare, they are significantly increasing in frequency. Among the cases that have been reported, the time of appearance of signs and symptoms and location of the lesions were variable. The signs and symptoms started from few days or even took weeks.[1] In this case, the symptoms appeared after six days of chlorhexidine rinse.

With use of chlorhexidine, immediate type 1 hypersensitivity reaction mediated by immunoglobulin E (IgE) has been reported with clinical features such as itching, angioedema, and anaphylaxis.[1] Similarly, contact dermatitis, a type IV hypersensitivity reaction has also been reported in both adults and children.[5] Two cases of death have also been reported due to chlorhexidine use.[1]

The clinical symptoms observed in this case can be explained by such delayed type of hypersensitivity reactions. In vitro study had also revealed cytotoxic reaction of chlorhexidine compound to gingival cells.[6] The cytotoxic effect is enhanced when chlorhexidine reacts with cells of connective tissue or cells not covered with intact epithelium, which might be the reason for lesions in this case as the patient used vigorous brushing technique along with chlorhexidine mouthwash.[7]

For confirmatory test of hypersensitivity, skin patch test is done, however for mucosal lesions, it is of limited value.[8] The resolution of the symptoms and lesions after withdrawal of chlorhexidine alone suggests that the allergen might be chlorhexidine in this case. The withdrawal of chlorhexidine was proved to be therapeutic in this case. In cases of certain intense signs and symptoms, administration of anti-histaminic drugs was recommended which was not required for this case.

SUMMARY

Hypersensitivity to chlorhexidine containing mouthwash, gels, or toothpaste have been frequently observed in current scenario due to increasing use of chlorhexidine compounds. To avoid such conditions, judicial use and prescription of chlorhexidine along with proper instructions of use and possible side effects should be explained to the patients. In addition, the prescribing clinician must be aware of the clinical presentation of various side effects in order to manage them properly.

Conflict of interest: None.

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