

CASE REPORT

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Chlorhexidine urticaria: A rare occurrence with a common mouthwash**Anamika Sharma, Harneet Chopra**

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Abstract

Chlorhexidine is a widely used antiseptic and disinfectant in medical and nonmedical environments. Compared to its ubiquitous use, allergic contact dermatitis from chlorhexidine has rarely been reported and so its sensitization rate seems to be low. The prevalence of contact urticaria and anaphylaxis due to chlorhexidine remains to be unknown. This case report presents a case of urticaria due to oral use of chlorhexidine. The adverse reaction was confirmed by skin prick test.

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Chlorhexidine gluconate is a cationic bis-biguanide, with a very broad antimicrobial spectrum. Chlorhexidine's antimicrobial effects are associated with the attractions between chlorhexidine (cation) and negatively charged bacterial cells. After chlorhexidine is absorbed onto the organism's cell wall, it disrupts the integrity of the cell membrane and causes the leakage of intracellular components of the organisms. The first report of its antiplaque activity was by Loe and Schiott. [1]

The major advantage of chlorhexidine over most of the other compounds lies in its substantivity. It binds to hard and soft tissues in the mouth enabling it to act over a long period after use. Bacterial counts in saliva consistently drop to between 10 and 20% of baseline after single rinses and remain at this level for at least 7 h [2] and probably more than 12 h. [3]

This paper presents a case report of immediate hypersensitivity reaction to chlorhexidine due to oral rinsing (topical application) of chlorhexidine gluconate mouthwash (Rexidin mouthwash).

Case Report

A 19-year-old female patient with the chief complaint of bleeding from the gums reported to the Department of Periodontics at Subharti Dental College, Meerut. After thorough oral examination, she was advised oral prophylaxis and was prescribed chlorhexidine mouth rinse (Rexidin), twice daily for a period of three weeks. Next day, patient presented with urticaria on her forehead and face, the front of the elbow and forearms, side and upper back region of the neck and on the lower abdomen. No oral changes were observed.

On questioning, the patient reported using chlorhexidine mouthwash (Rexidin) formulation in a 1:1 concentration and rinsed with it for at least 1 min. On rinsing with it for the first time she noticed reddening on her forehead, face and side of the neck (after about 12 h of using it) [Figure 1] and [Figure 2]. On waking up the next morning, she felt some burning sensation on the red spots, which she had noticed the previous night. Upon using the formulation again, after a couple of hours she observed marked redness on her upper back [Figure 3] neck region, lower abdomen, and on the front of the elbow and forearms [Figure 4]. This was accompanied with irritation. History of any previous such allergic reactions were also recorded.

To confirm the allergic reaction to chlorhexidine, skin prick test was performed in the following was:

The inner forearm of the patient was cleaned with soap and water and was coded with a skin marker pen. A drop of allergen (chlorhexidine) was then placed besides the mark. A small prick through the drop was made to the skin using a sterile prick lancet. The excess allergen solution was dabbed off with a tissue.

A reaction was seen within 30 min of performing the test. The skin under the drop of the chlorhexidine solution had become red and itchy and this was surrounded by a white raised wheal.

Discussion

The result of the skin prick test confirmed that the urticaria with which the patient reported was caused by the topical use of the chlorhexidine mouthwash in a 1:1 concentration. Though rare chlorhexidine can cause immediate hypersensitivity, sometimes taking the form of acute urticaria that may result in anaphylactic shock which is even rarer. [4],[5]

Urticaria was suspected to be caused by the mouthwash, and a skin test was conducted. Intradermal test was positive with the mouthwash and its component chlorhexidine gluconate. Scratch test showed positive result with chlorhexidine gluconate and chlorhexidine hydrochloride.

The various tests which can be used to confirm the allergic reactions to chlorhexidine are as follows:

Prick tests. Intradermal reactions. Sulfidoleukotriene stimulation test (CAST: Cellular antigen stimulation test). Patch test.

Similar reactions [6],[7] have also been reported after the use of chlorhexidine as a spray or as pre and postoperative antiseptic solutions. Goon et al. [8] reported five cases of allergic contact dermatitis from chlorhexidine, out of which three had positive patch test reactions to chlorhexidine.

A literature review of 66 case reports was done by Heinemann et al. [9] Twenty reactions occurred when chlorhexidine was applied to damaged skin surfaces and 27 patients showed an immediate type reaction when chlorhexidine was applied to mucous membranes. Similarly, two cases of mucosal sensitivity to contact with chlorhexidine were reported by Yusuf and Khoo. [10]

Kenrad [11] also reported major changes in the oral mucosa after an overdose of mouth rinsing with chlorhexidine gluconate, which included a thickening of the mucosa resembling leukoplakia but disappeared when the dose was reduced.

In a case report similar to the present one, anaphylaxis due to topical skin application of chlorhexidine was reported. This was confirmed by skin testing and CAST. Thus, the application of chlorhexidine especially to mucous membranes was discouraged as it could cause anaphylaxis. [12]

Hypersensitivity and other adverse reactions to chlorhexidine are rare, but its potential to cause anaphylactic shock is probably underestimated.

Conclusion

Chlorhexidine is the most effective and widely used antiplaque agent to date. Nevertheless, the present case report would remind the clinicians of an important potential risk of this widely used antiseptic and make them cautious before prescribing any chlorhexidine formulation as it may lead to local symptoms or even severe attacks.

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