

Allergic Contact Cheilitis and Perioral Dermatitis Caused by Propolis: Case Report

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SUMMARY We report a case of propolis allergy in an 18-year-old female patient. Medical history revealed self-prescribed topical use of propolis spray as a medication for gingival swelling caused by orthodontic molar bands. After 24 hours, the patient developed lip edema and erythema of the perioral skin accompanied by burning pain in her lips. Discrete erosions were present in the corners of her lips. Erythema of the right infraorbital region was also observed. The patient was prescribed betamethasone propionate cream two times daily. Complete recovery was observed after 10 days. Propolis allergy was confirmed by a patch test. We believe that the use of propolis for the treatment of oral diseases should be avoided due to sparse evidence of its efficacy and numerous cases of allergic reactions.

KEY WORDS: perioral dermatitis, contact allergy to propolis, allergic cheilitis

Received: December 13, 2011

Accepted: May 25, 2012

INTRODUCTION

Propolis is a substance used by bees to seal walls, repair defects and preserve aseptic conditions in their hive (1). The chemical composition of propolis is very complex. It varies from area to area due to differences in the vegetation used for bees' pasture (2,3). A large scale of biological functions such as anti-inflammatory, antibiotic, antioxidant, antifungal and anticancer are the main reason propolis has been used in folk medicine for more than 2000 years (4). Today, propolis is available in many products for the treatment of various diseases (5). It can also be found in a number of over-the-counter products and it is increasingly used as a dietary supplement (6). However, propolis is also known for its allergenic potential. The most pow-

erful sensitizers in propolis are caffeic acid esters (3-methyl-2-butenyl caffeate and phenylethylcaffeate). Other sensitizing components of propolis are isoferulates, free aromatic acids and flavonoids (7). The prevalence of propolis allergy has been reported to vary between 1.2% and 6.6% (8). Cross reactions between propolis and other substances, most commonly food additives such as balsam of Peru, benzyl benzoate, cinnamyl cinnamate, and benzyl cinnamate have also been observed (9).

We report an interesting case of contact sensitivity developing on the lips, perioral skin and infraorbital region of the face as a result of topical propolis

application for the treatment of gingivitis caused by orthodontic bands.

CASE REPORT

An 18-year-old female patient was referred to our Department by an orthodontist due to intensive burning of her lips. Physical examination revealed lip edema and erythema of the perioral skin (Fig. 1). Discrete erosions were present in the corners of her lips. Erythema of the right infraorbital region was also observed. Patient's history revealed epilepsy for which she was taking carbamazepine and oxcarbazepine for 14 years and lamotrigine and levetiracetam for one year. The patient also reported self-prescribed topical use of propolis spray as a medication for gingival swelling caused by orthodontic molar bands four days before. Her first symptoms, accompanied by burning pain in her lips, started to appear 24 hours after the use of propolis spray.

Clinical examination and medical history suggested an allergic reaction to propolis. The patient was advised to stop using propolis. Betamethasone propionate cream two times daily was prescribed. Complete recovery of the skin and lip lesions was observed after 10 days and no symptoms were present anymore.

To confirm propolis allergy, we performed a patch test using the original propolis solution used by the patient. The solution was mixed with orabase powder (Stomadhesive[®], ConvaTec Ltd.) (first patch) to form a paste for easier application to patches. Fifty percent dilution was prepared by mixing the original solution with saline in 1:1 ratio (second patch). Pure orabase mixed with 0.9% saline (third patch), 70% ethanol mixed with orabase (fourth patch) and patch

alone (fifth patch) were applied as positive controls. All patches were applied in triplicate. Patches were removed after 48 h. Positive reaction (++) was observed to the original propolis solution and 50% dilution (first and second patch) after 48 and 72 hours. Other patches tested negative (Fig. 2). The diagnosis of contact sensitivity was established.

DISCUSSION

Even though different biological properties of propolis have been reported in numerous studies, it needs to be emphasized that the majority of these studies were conducted *in vitro* or in animals.

The use of propolis for the treatment of various oral diseases in humans has also been reported (10-17). Antifungal activity of propolis for the treatment of denture stomatitis was investigated in three studies (10-12). In one study, the authors have reported no significant difference in the antifungal activity between propolis and miconazole (11). The other two studies (10,12) have reported success of propolis in the treatment of denture stomatitis, but these stud-



Figure 1. Lip edema and erythema of the perioral skin.

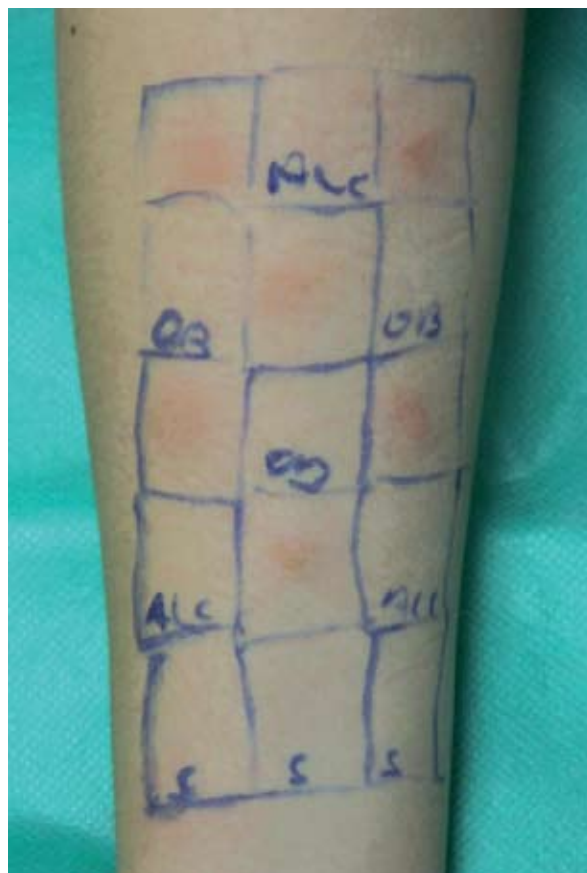


Figure 2. Patch test results.

ies were open label. Reduction in the number of aphthous ulcer outbreaks and improvement in the patient quality of life after systemic ingestion of 500 mg of propolis *per day* for 6 to 13 months has also been reported. The authors point out that these findings need to be evaluated in a larger sample clinical trial, as this was a pilot study with 19 participants (13). Effectiveness of propolis mouthwash in the inhibition of plaque accumulation and reduction of gingival inflammation has also been reported. As stated by the authors, these findings need to be confirmed in larger randomized controlled trials as well (14-17).

The existing evidence in the literature does not justify frequent use of propolis for the treatment of various oral diseases.

Allergic reaction to propolis is known for a long time and the first case was reported nearly 100 years ago, in 1915 (6). Until now, more than 250 cases of propolis allergy have been reported (5). The most common form of allergic reaction is contact dermatitis, which usually occurs in beekeepers. However, beekeepers now represent less than a quarter of patients with sensitization to propolis due to its increased use in folk medicine and cosmetics (1). Even though propolis is a known allergen for a long time, cases of allergy in the orofacial region are not frequently reported. Topical application of propolis caused intensive mucosal inflammation and ulcerations in two cases (4,18). Propolis oral sprays often contain alcohol (ethanol), which enhances the allergic action of the propolis itself. Propolis in food and cosmetic products induced cheilitis and flare up of face dermatitis in two cases (19,20), while in two cases oral edema with speech and breathing difficulties has been reported (7). There are also reports on more life threatening reactions such as anaphylactic shock or laryngeal edema caused by propolis allergy (21-23).

CONCLUSION

Due to the limited evidence for its efficacy and numerous cases of allergic reactions, we believe that propolis should not be used for the treatment of oral lesions.

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