

Betel Quid–Induced Oral Lichen Planus: A Case Report

Eric T. Stoopler, DMD; Ernesta Parisi, DMD; Thomas P. Sollecito, DMD

The social use of betel nut is relatively common in certain geographic areas, especially India and Southeast Asia. The term betel nut does not truly describe the product that is chewed; rather, the term quid is more accurate because it refers to a substance or mixture of substances, including the areca nut, that are chewed and remain in contact with the mucosa. Betel quid is a type of quid that contains betel leaf. Chewer's mucosa and oral submucous fibrosis are clinical entities that have been associated with betel quid use. We report a case of oral lichen planus induced by betel quid use in a 79-year-old Cambodian woman.

There have been a variety of oral mucosal lesions and conditions reported in the literature that are associated with the chewing of exogenous materials such as tobacco and areca nut. A workshop held in Malaysia in 1996 classified and described specific clinical entities associated with areca nut use and reported their characteristics. Quid was defined as a substance or mixture of substances that usually contain raw or processed tobacco and/or areca nut, the 2 basic ingredients, which are placed in the mouth or chewed and thus remain in contact with the mucosa.¹ It was recently recommended to use the term *areca nut* instead of *betel nut* because this is the actual name of the nut used in various types of quid. Three types of quid are areca nut only, tobacco only, and mixed areca nut and tobacco.¹ Another type of quid is called *betel quid*, which refers to any quid that contains betel leaf. Other ingredients that can be used in the quid are lime paste, mishri (burned

tobacco), niswar (tobacco snuff), and nass (a stronger form of niswar).

The habit of chewing quid is found mainly in India and Southeast Asia; however, it may be found in other geographic regions as a result of population migration.² Conditions associated with quid use are chewer's mucosa and oral submucous fibrosis (OSF). An infrequent clinical finding associated with betel quid usage is oral lichen planus (OLP) lesions. To our knowledge, few cases have been reported in the literature.³ We report an unusual case of OLP induced by betel quid use in a 79-year-old Cambodian woman.

Case Report

On the recommendation of her physician, a 79-year-old Cambodian woman presented for evaluation of oral lesions. The patient's knowledge of the English language was extremely limited, and her history was obtained via an interpreter. The patient stated she lived in Cambodia most of her life and emigrated to the United States about 10 years previously. She also reported frequent daily use of betel quid for approximately the past 50 years. Although there are several commercial preparations of betel quid, she made her own mixture using slaked lime, areca nut, betel leaf, and mishri (Figure 1). The patient was aware that her oral mucosa and tongue were stained orange from using the betel quid but was unaware of any white lesions in her mouth. The patient's medical history was noncontributory. She was not currently taking medications nor did she have any drug allergies. The review of systems was negative for dysphagia, trismus, and glossitis.

On physical examination, the patient appeared well-nourished and well-developed. Extraoral examination revealed no lymphadenopathy, thyromegaly, or salivary gland enlargement. Intraoral examination revealed heavily orange-brown stained buccal and alveolar mucosa and dorsum of the tongue (Figures 2 and 3). A mixed white-red lesion was observed on the left buccal mucosa. The lesion consisted of a central area of leukoplakia and was painless and of unknown duration (Figure 4). The

Accepted for publication September 9, 2002.

Drs. Stoopler and Sollecito are from the Department of Oral Medicine, University of Pennsylvania School of Dental Medicine, Philadelphia. Dr. Parisi is from the Department of Diagnostic Sciences, University of Medicine and Dentistry of New Jersey, Newark.

The authors report no conflict of interest.

Reprints: Thomas P. Sollecito, DMD, 4001 Spruce St, Philadelphia, PA 19104 (e-mail: tps@pobox.upenn.edu).

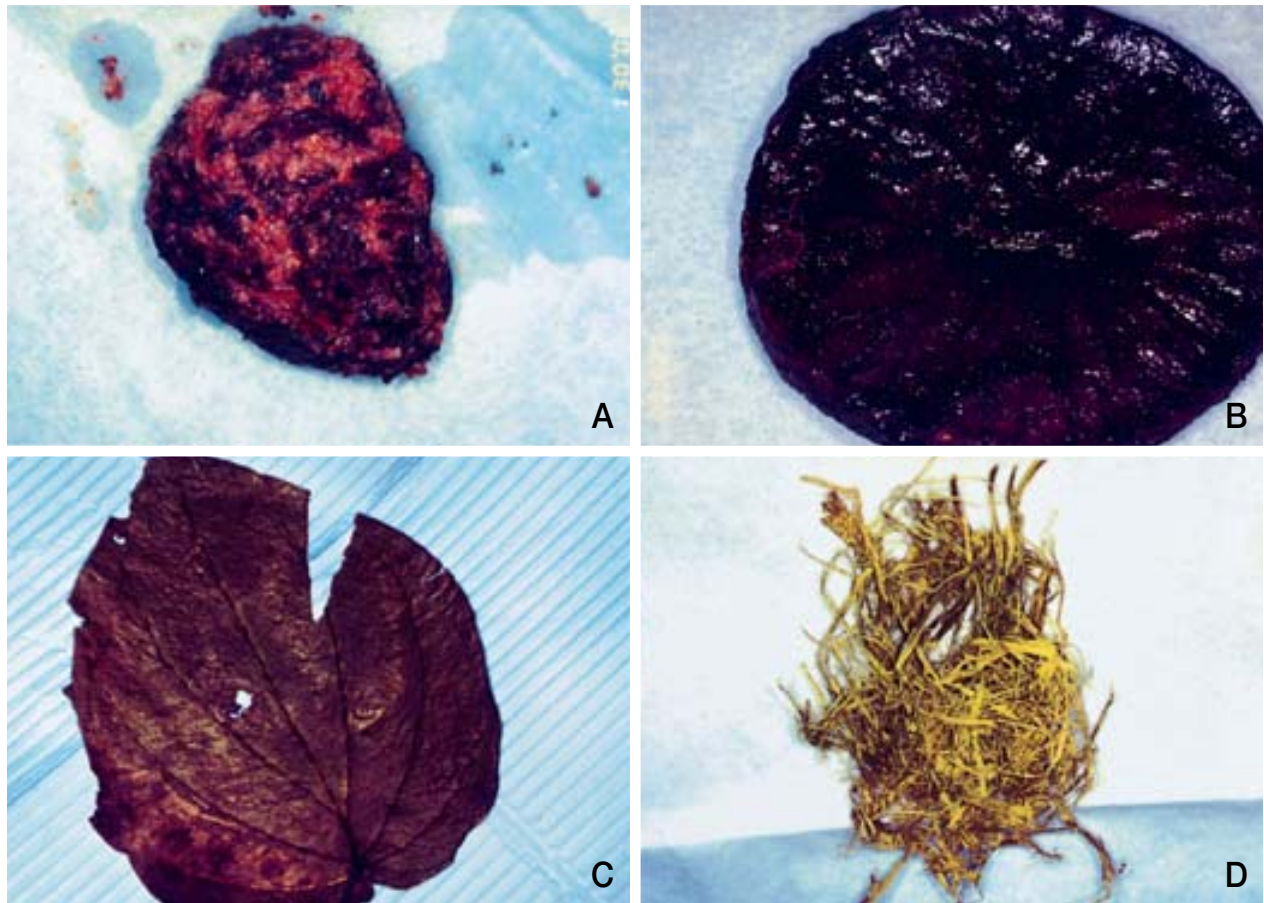


Figure 1. Ingredients of a betel quid consist of slaked lime (A), areca nut (B), betel leaf (C), and mishri (D).

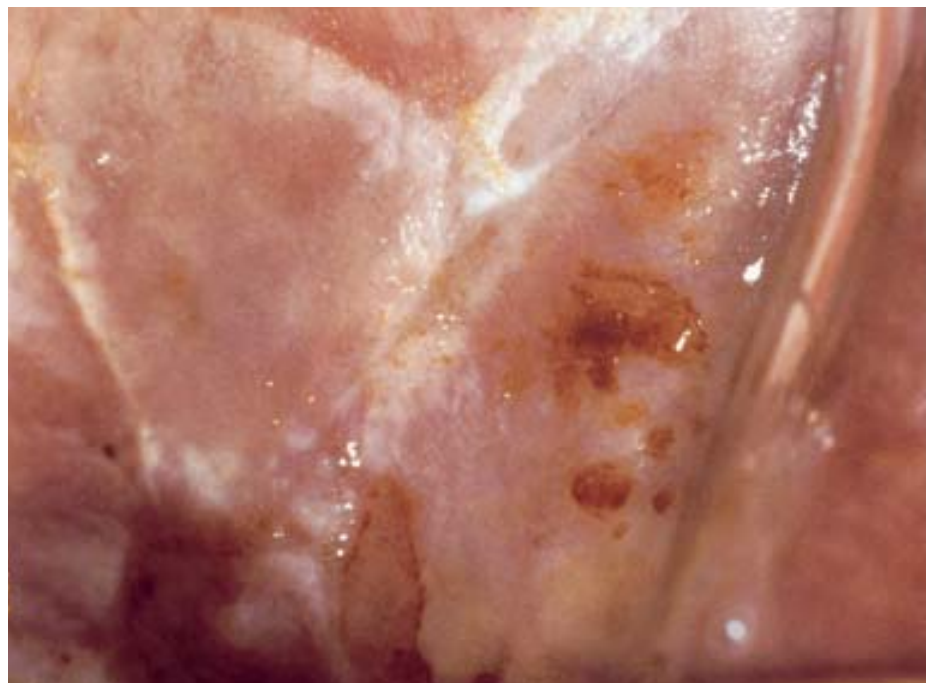


Figure 2. Staining and leukoplakia of buccal mucosa.

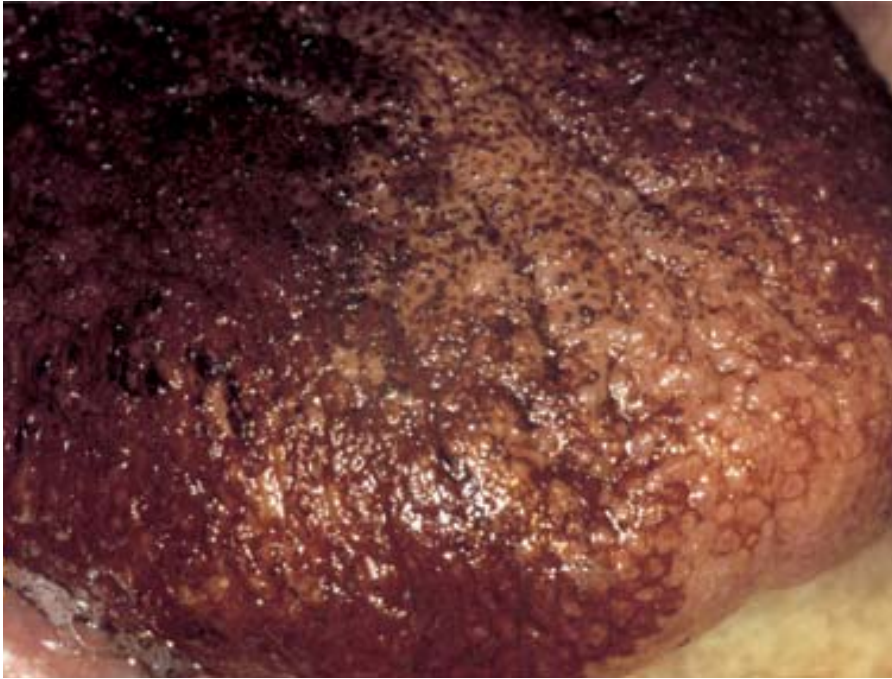


Figure 3. Heavy staining of the dorsum of the tongue.

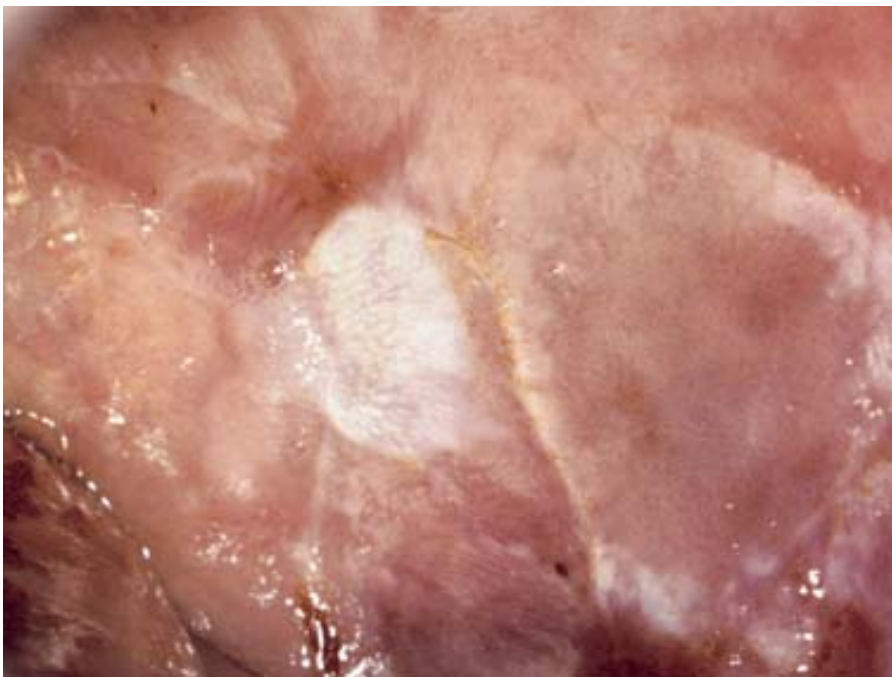


Figure 4. Leukoplakia of buccal mucosa.

patient was instructed to discontinue use of betel quid and to return to the clinic in 2 weeks for biopsy of the lesion.

Upon return to the clinic, the patient had a 95% reduction in staining of the mucosa and tongue and a 50% decrease in the size of the lesion on the buccal mucosa. Three distinct specimens of buccal mucosal tissue were taken via 3-mm punch biopsy under local anesthetic, and all samples included lesional and perilesional tissue from dif-

ferent areas of the involved buccal mucosa. The specimens were sent for routine hematoxylin and eosin staining, which revealed OLP. The patient was given a prescription for clobetasol gel 0.05% to be applied to the lesion twice a day, as well as for clotrimazole pastilles.

The patient returned to the clinic in 2 weeks and was observed to have complete resolution of mucosal and tongue staining (Figure 5). There was also a 99% reduction in the size of the lesion on the

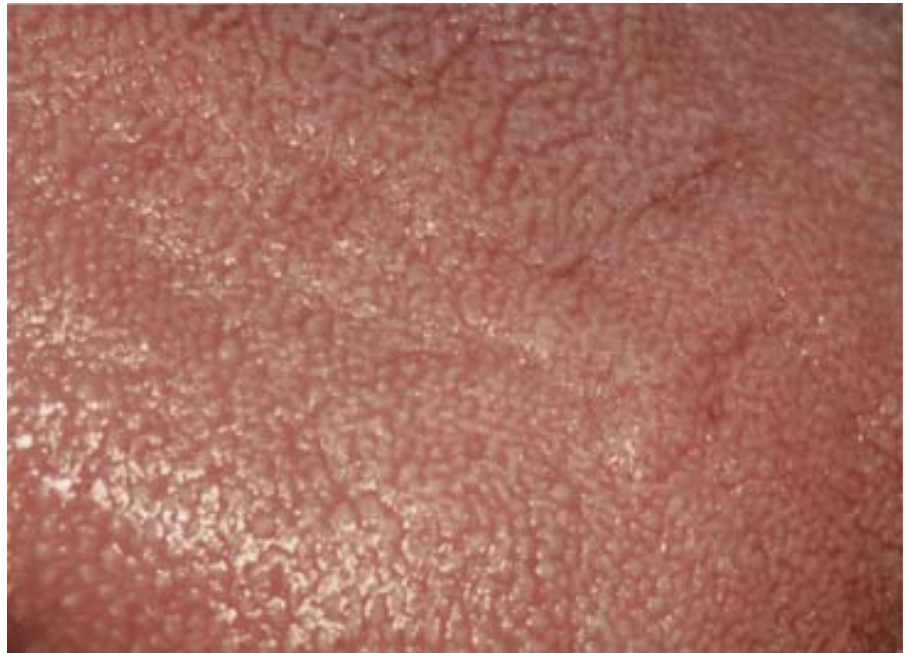


Figure 5. Resolution of staining of the dorsum of the tongue.

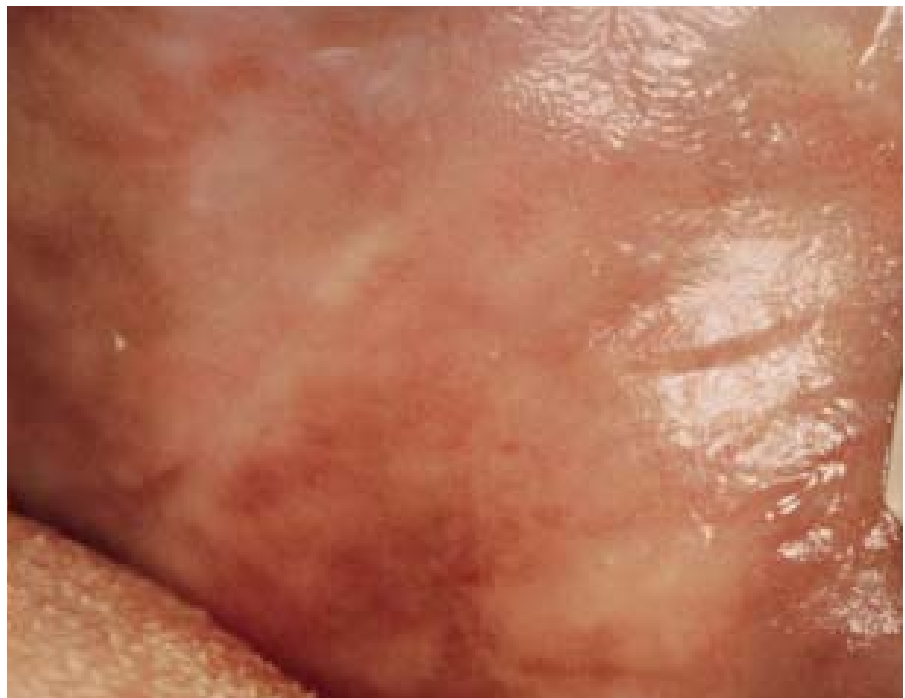


Figure 6. Resolution of leukoplakia of buccal mucosa.

buccal mucosa (Figure 6). The patient was requested to return for follow-up in one month, at which time she had complete resolution of the staining and the lesion on the buccal mucosa. The patient was instructed not to use betel quid again and to return for a 3-month follow-up.

Comment

The habit of using areca nut in the form of betel quid is common in India and Southeast Asia,

although a decline has been noted in some areas, particularly Thailand.⁴ Several studies have demonstrated the association of oral mucosal lesions with betel quid use, and classification of these lesions has been established.¹⁻³ Chewer's mucosa is described as a peeling of the oral mucosa with underlying areas that assume a wrinkled or pseudomembranous appearance. There may be areas of reddish-brown wrinkled incrustations that can be scraped off, leaving behind nonelevated mucosal alterations.¹ This

condition is due to either the direct action of the quid and/or the traumatic effect of chewing the quid. Areca nut-related lesions may cause orange-brown staining, but may also demonstrate whitish-gray discoloration that cannot be rubbed off the buccal mucosa. Localized leukoplakia and/or erythroplakia are rarely seen in chewers of quid containing areca nut only.

Quid-induced lesions are characterized by one or more of the following characteristics: thickening of the mucosa, wrinkled appearance, change of normal color, scrapable or nonscrapable epithelial surface, and presence of ulceration that usually corresponds to the site where the quid is regularly placed.¹ Encrustations of betel quid ingredients may be observed in the outermost cell layers of the epithelium or retained in small pits when viewed under light microscopy.²

Our patient had a quid-induced lesion of the buccal mucosa. She stated that every day she placed the betel quid in the same area of her mouth, which was the area that corresponded to the site of the lesion. The biopsy result indicated the patient had OLP in addition to hyperkeratosis, which is the characteristic histologic appearance of quid-induced lesions.¹ Routine histology results demonstrated hyperplastic surface epithelium and a subepithelial inflammatory infiltrate consistent with OLP.

OLP and lichenoid-type lesions, although relatively uncommon, have been previously reported in the literature. One study reported a 1.8% prevalence of "lichen lesions" in a population of Cambodian natives with a maximum prevalence noted in the 60- to 69-year-old age group.⁵ Interestingly, the "lichen lesions" were only found in women in this study. This finding corroborates an earlier study conducted in a region of India that demonstrated a higher prevalence of OLP-like lesions in women who used betel quid.³ Further epidemiologic studies are needed to determine the basis for increased incidence of betel quid lichenoid lesions in women.

OSF, a progressive fibrosing and scarring of the connective tissue in the oral cavity, is another possible sequela of betel quid use. OSF is considered a malignant condition with a 7.6% transformation rate.⁶ Clinically, the earliest sign of OSF is mouth soreness with constant burning when eating spicy foods. The mucosa appears inflamed, and vesicles

may be present that quickly rupture and form ulcers. The ulcers heal and the submucosa undergoes progressive fibrosis, which gives the cheeks a taut, thickened appearance and may severely limit maximum opening.⁶ Therefore, any lesions associated with areca nut or betel quid use must be adequately diagnosed and managed aggressively to decrease the risk of malignant transformation. Although malignant transformation of OLP remains somewhat controversial, these lesions must be monitored periodically for dysplastic changes.⁷

Our case is unique because the lesion was diagnosed via biopsy as OLP, a diagnosis that is atypical of most quid-induced lesions. In addition, discontinuation of betel quid use for a 2-week period yielded a dramatic decrease in staining of the oral mucosa and tongue, as well as in the size of the quid-induced lesion. It is therefore recommended to encourage patients to stop habitual quid use because it may improve prognosis of a quid-induced lesion and decrease the possibility of malignant transformation. A biopsy is required of any lesion that does not respond to or resolve after discontinuation of betel quid use.

REFERENCES

1. Zain RB, Ikeda N, Gupta PC, et al. Oral mucosal lesions associated with betel quid, areca nut and tobacco chewing habits: consensus from a workshop held in Kuala Lumpur, Malaysia, November 25-27, 1996. *J Oral Pathol Med.* 1999;28:1-4.
2. Reichert PA, Phillipsen HP. Betel chewer's mucosa—a review. *J Oral Pathol Med.* 1998;27:239-242.
3. Daftary DK, Bhonsle RB, Murti RB, et al. An oral lichen planus-like lesion in Indian betel-tobacco chewers. *Scand J Dent Res.* 1980;88:244-249.
4. Reichart PA, Schmidtberg W, Scheifele C. Betel chewer's mucosa in elderly Cambodian women. *J Oral Pathol Med.* 1996;25:367-370.
5. Ikeda N, Handa Y, Khim SP, et al. Prevalence study of oral mucosal lesions in a selected Cambodian population. *Community Dent Oral Epidemiol.* 1995;23:49-54.
6. Aziz SR. Oral submucous fibrosis: an unusual disease. *J N J Dental Assoc.* 1997;68:17-19.
7. van der Meij EH, Schepman KP, Smeele LE, et al. A review of the recent literature regarding malignant transformation of oral lichen planus. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 1999;88:307-310.