

## CASE REPORT



# Betel quid lichenoid lesion: A case series and review of literature

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**Abstract**

Betel quid lichenoid lesion (BQLL) refers to a specific entity of oral mucosal lesion associated exclusively with quid chewing habit which mimics oral lichen planus (OLP) clinically but lacks the crisscrossing pattern of striae commonly noted in OLP. This lesion may be misdiagnosed as OLP or lichenoid contact reaction or other quid-associated oral mucosal lesions; however, BQLL should be considered as a separate entity. There is a scarcity of case reports pertaining to this entity; although few prevalence studies have been reported. The prevalence rate of BQLL among quid chewers was found to be 9.5% in a north Indian population in 2015 which was higher than that reported in 1980 (0.7%). This shows the increasing trend of this lesion possibly due to the easy availability of quid in recent times. Hence, it is essential for oral physicians to have a sound knowledge of this entity, and it should be considered in the differential diagnosis.

**Keywords:** Betel quid lichenoid lesion, gutkha lichen, lichen planus-like lesion, oral lichen planus, quid

**Introduction**

Quid is defined as “a substance, or mixture of substances, placed in the mouth or chewed and remaining in contact with the mucosa, usually containing one or both of the two basic ingredients, tobacco or areca nut, in raw or any manufactured or processed form.” The term “betel quid” refers to a specific variety of quid that includes betel leaf.<sup>[1]</sup> The term *paan masala* denotes a dry powdered mixture composed of areca nut, lime, catechu, and some other ingredients without a betel leaf; the same ingredients with tobacco are called *gutkha*.<sup>[2]</sup>

An oral lichenoid lesion induced by quid has been reported exclusively among quid users. It clinically resembles oral lichen planus (OLP) but with some differences.<sup>[3]</sup> The main difference is the presence of fine, white, wavy, and parallel lines that do not overlap or crisscross, are non-elevated, and in some instances radiate from a central erythematous area.<sup>[3]</sup> Some cases may also resemble a plaque like or a papular variety of lichen planus.<sup>[4]</sup> This is considered to be a Type IV contact hypersensitivity-type lesion and may be unilateral in nature.<sup>[5]</sup> The lesion generally always occurs on the buccal mucosa, tongue, and mandibular vestibule; locations directly opposing the quid.<sup>[6]</sup> This lesion was initially referred to as a lichen planus-like lesion, but it is now termed as, “betel quid lichenoid lesion.”<sup>[6]</sup> Regression of this lesion may be noted with decrease in frequency, duration, or change in site of placement of the quid. Furthermore, with cessation of the quid habit, the lesion may resolve completely. Intervention studies of

this lesion have revealed a different natural history from lichen planus and therefore its recognition as a specific entity.<sup>[6]</sup>

**Case Report****Case 1**

A 34-year-old male patient reported with the chief complaint of stains on his teeth for 1 year. The patient also complained of burning sensation in his mouth (VAS = 8) on eating hot and spicy food for 6 months. On eliciting personal history, the patient had the habit of chewing paan with areca nut, tobacco, and slaked lime for 6 years, 5 times/day, which he chewed for 10 min. He also had the habit of chewing gutkha for 6 years, 3 packets/day; chewed for 15 min; and chewing tobacco (Hans) for 6 years, 7–8 times/day, used to place in the left inner cheek region for ½ h.

On examination, white striae interspersed with erythematous areas noted in relation to the right and left buccal mucosa and lower labial mucosa. White striae were noted on the lateral borders and ventral surface of the tongue. On palpation, it was non-scrapable, non-tender, and smooth in texture. Based on the history and clinical findings, a provisional diagnosis of erosive lichen planus was rendered [Figure 1]. A differential diagnosis of betel quid lichenoid lesion (BQLL) and erythroleukoplakia was given.

The patient was counseled to quit the habits and advised for complete scaling and recalled after 15 days for follow-up. After

17 days, there was complete regression of the lesions noted [Figure 2]. Hence, a final diagnosis of BQLL was given. The patient was followed up for 6 months and no recurrence was reported.

### Case 2

A 27-year-old male patient reported with complaint of pain in lower right back tooth region for 1 month. On eliciting personal history, the patient had the habit of chewing gutkha for 4 years, 3–4 packets/day, which he chewed for 1 h and then expectorated. On examination, white radiating striae noted in relation to the left and right buccal mucosa. Furthermore, an erythematous area interspersed with white striae noted in the left retromolar region. On palpation, it was non-scrapable, non-tender, and smooth in texture [Figure 3]. Based on the history and clinical findings, a provisional diagnosis of reticular lichen planus in relation to the left and right buccal mucosa and erosive lichen planus in relation to the left retromolar region was rendered. A differential diagnosis of BQLL was given.

The patient was counseled to quit the habit and recalled after 1 week for follow-up. However, the patient reported 3 days later and complete regression of the lesions was noted [Figure 4]. A final diagnosis of BQLL was rendered. The patient was kept under regular follow-up for 3 months, wherein no recurrence was observed. However, after 3 months, he started the habit of gutkha chewing, 1 packet/day for 1 week; after which the lesions recurred. The patient was again counseled to quit the habit and recalled after 1 week for follow-up; the lesions had completely regressed. The patient was followed up for 6 months, and no recurrence was reported.

### Case 3

A 33-year-old female patient reported with complaint of pain in upper left back tooth region for 6 months. On eliciting personal history, the patient had the habit of chewing tobacco (Hans) for 4 years, 3 times/day, which she kept in the right inner cheek region for ½ h and then expectorated. On examination, a white patch was noted in relation to the right buccal mucosa. A provisional diagnosis of BQLL with a differential diagnosis of leukoplakia was rendered.

The patient was counseled to quit the habit and recalled after 15 days for follow-up. The patient reported 1 month later with decrease in the habit frequency to once/day; there was partial regression of the lesion noted. A final diagnosis of BQLL was given.

## Discussion

Oral lichenoid reactions due to dental materials and drugs have been frequently reported in literature. A corrugated white lesion mimicking OLP (termed as BQLL) but without crisscrossing has also been occasionally reported in betel quid and gutkha users.<sup>[7]</sup> The prevalence of such lesions was found to be 0.683% among all the tobacco users in a North Indian population.<sup>[7]</sup> This prevalence rose to 5.94% among the quid users and 15% among the gutkha



Figure 1: Case 1 - first visit



Figure 2: Case 1 - follow-up



Figure 3: Case 2 - first visit

users.<sup>[7]</sup> In their study, the individuals who quit the habit showed rapid resolution of the lesion, thereby, confirming the cause and effect hypothesis.<sup>[7]</sup> In a study conducted by Arya *et al.*,<sup>[2]</sup> the prevalence of BQLL among quid chewers was 9.5% in contrast to that reported by Daftary *et al.*<sup>[8]</sup> (0.7%). Furthermore, BQLL



**Figure 4:** Case 2 - follow-up

along with other quid-induced oral mucosal lesion (QOML) was more common in females when compared to males; though the basis for this is not known.<sup>[2]</sup>

For uniformity in the reporting of “betel quid” and tobacco chewing habits and associated oral mucosal lesions, a workshop was held in Kuala Lumpur, Malaysia, during November 25–27, 1996.<sup>[1]</sup> According to them, “quid” or any other type of chewing mixture should be described by listing out the specific ingredients to clearly outline the three basic categories mentioned below:

1. Quid with areca nut but without tobacco products (areca nut quid);
2. Quid with tobacco products but without areca nut (tobacco quid);
3. Quid with areca nut as well as tobacco products (tobacco and areca nut quid).

It should be noted that these three categories are contradictory and a person with quid chewing habit can belong to only one category. Many tobacco products are not chewed, but smeared on parts of the oral mucosa or just kept in the mouth in contact with the oral mucosa. However, all these should be considered as a part of the “quid” habit, for the sake of uniformity.<sup>[1]</sup>

In the study by Arya *et al.*, BQLL as well as BQLL + QOML were more common in patients who used quid containing both areca nut and tobacco as opposed to patients who used tobacco alone.<sup>[2]</sup> Tobacco along with areca nut has a synergistic action, leading to more deleterious effects on the mucosa, i.e., causing the oral mucosa to become dry, thereby, accelerating the systemic absorption of metabolites and provoking the development of BQLL.<sup>[2]</sup>

BQLL + QOML occurred more commonly in individuals who chewed both unprocessed and processed forms of quid, as opposed to those who chewed the processed form alone.<sup>[2]</sup> Processing of areca nut and tobacco involves boiling followed by sun drying, which may affect the chemical concentration of these products. Moreover, the release of nicotine is faster from fine-cut varieties of tobacco, due to the larger surface area, thereby increasing toxicity to the oral mucosa.<sup>[2]</sup>

Further, the concentration of tobacco-specific nitrosamines is very low in green tobacco, but it increases during the procedures of curing. Furthermore, the antioxidant trait of tobacco is modified during the processing and inclusion of flavoring agents and preservatives, along with spices and condiments. The concentration of copper in processed areca nut is 2.5 times greater than the raw forms, thereby, indicating the contribution of areca nut constituents in causing Type IV hypersensitivity reaction.<sup>[2]</sup>

According to Arya *et al.*, the patients who chewed quid more number of times per day were more prone to developing BQLL.<sup>[2]</sup> Similarly, the increase in duration of quid usage was related to increased plausibility of developing the oral lesions.<sup>[2]</sup> Conversely, Dang and Nagpal found no correlation between the frequency or duration of gutkha use and the occurrence of oral lesions.<sup>[7]</sup>

It has been propounded that BQLL may wane following a decrease in the frequency or duration of quid use, or a change in the site of placement of the quid.<sup>[2]</sup> In the present case series, there was rapid resolution of the lesions noted in two patients who had discontinued the habit. However, in one patient, only partial resolution of the lesion was noted due to the fact that the patient had merely decreased the habit frequency and not quit the habit. This is in accordance to the study conducted by Arya *et al.* where rapid remission of the lesion was noted in six patients following habit cessation, suggesting the revocable nature of the lesion.<sup>[2]</sup>

The diagnosis of BQLL is reached on the basis of patient history, clinical and histopathological examinations. BQLL has similar clinical and histopathological features as OLP, but the striae in BQLL do not overlap or crisscross as in typical OLP.<sup>[2]</sup> In addition, histopathologically, compared to OLP, BQLL shows hyperkeratosis and plasma cells in the juxtaepithelial region and some lesions coexist with oral submucous fibrosis.<sup>[9]</sup>

BQLL must be differentiated from “quid-induced lesion;” this denotes a localized lesion of the oral mucosa congruous to the regular site of placement of quid and characterized by one or more of the following five characteristics:<sup>[1]</sup>

- a. Color change
- b. Wrinkled appearance
- c. Mucosal thickening
- d. Scrapable or non-scrapable epithelial surface
- e. Ulceration.

The examples of such lesions include - tobacco and lime user’s lesion, snuff-induced lesions, and areca quid lesions.<sup>[1]</sup>

According to Krutchkoff and Eisenberg (1985), “lichenoid dysplasia” is the terminology used to denote lesions resembling OLP but with dysplastic features and possess a malignant potential.<sup>[2]</sup> The study by Arya *et al.* found lichenoid dysplasia in four cases on histopathological examination, indicating the possibility for malignancy in BQLL.<sup>[2]</sup> The lichenoid inflammatory infiltrate exerts a chronic action on the oral mucosa causing genetic aberrations in keratinocytes, leading to the occurrence of leukoplakia.<sup>[2]</sup> Since BQLL can be seen in conjunction with other potentially malignant disorders, further research is required to estimate its malignant potential.<sup>[2]</sup>

## Conclusion

Very few studies have reported lichenoid lesions in quid users. This case series throws light on a specific type of lichenoid lesion associated with the use of quid, which has been termed as BQLL. Due to the uncertainty of the definitive causes and pathogenesis in the development of these lesions, further studies in this regard are recommended. Moreover, its reversibility and malignancy potential warrant further evaluation.

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