

Verrucous Leukoplakia of the Buccal Mucosa - A Case Report

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Abstract

Proliferative verrucous leukoplakia (PVL) is a potentially malignant white lesion. Most commonly appears on the buccal mucosa and tongue. PVL starts as a homogenous white plaque of hyperkeratosis and converts to a verrucous appearance with exophytic and proliferative features. Prognosis is poor for this seemingly harmless appearing white lesion of the oral mucosa. The etiology remains unclear about the PVL also the tobacco use does not seem to have much influence on the development of the lesion. It can be reported in smokers as well as non-smokers as well. This case report will discuss the clinical and histopathological features, diagnosis, traditional treatment, and the management of the disease.

Keywords: Carcinoma, Leukoplakia, Malignant transformation, Proliferative verrucous leukoplakia.

INTRODUCTION

Leukoplakia is the most common potentially malignant lesion of the oral mucosa and is generally defined as a predominantly white lesion of the oral mucosa whereas, proliferative verrucous leukoplakia (PVL) lesions have always been difficult to diagnose since their first description by Warnakulasuriya *et al.*^[1] It develops initially as a white plaque of hyperkeratosis that eventually becomes a multifocal disease with confluent, exophytic, and proliferative features showing different degrees of dysplasia. PVL presents with specific characteristics, mainly with an aggressive biological behavior than other forms of leukoplakia expressed by A the tendency toward multifocality, a high probability of recurrence, and with a high rate of malignant transformation ranging between 40% and 100% in a follow-up period of 4.4–11.6 years.^[2] In this case, the report will give a brief about the development of PVL in a tobacco and smoker user and how well the treatment results were seen after the medication and regular follow-up.

CASE REPORT

A 25-year-old male tobacco user presented with an asymptomatic growth involving the left cheek region for 10 months along with this he also complained of discomfort on the same side on eating and taking spicy food for 16 months and a history of recurrent ulceration on left cheek for the past 10 months. History reveals that a small growth on the left

side of buccal mucosa. While eating spicy food which slowly progresses and involved the left side of buccal mucosa and sulcus. The patient gradually started feeling intolerant to spicy food after 4 months. Since the burning was becoming intolerable on taking spicy food. The patient visited a private dental clinic where he was prescribed some medications. The patient took those medications for 10 months but didn't get much relief.

Intraoral examination revealed a multifocal verrucous growth unilateral predominately white lesion on the left buccal mucosa, which measured approximately – 8 cm*6 cm in size extending anteroposteriorly from the left commissure of lip up to the left retromolar pad area and superior-inferiorly from the depth of the maxillary buccal vestibule to the depth of the mandibular buccal vestibule. The surface was granular, white in some areas with some pale pink area, surrounding mucosa had white plaque-like areas and its surface presented with cracked mud-like appearance (Figure 1).

These multiple verrucous growths were arranged in clusters, their surfaces were irregular and rough on examination.

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On palpation, it was firm and the surface was roughed and non-tender (Figure 2).

Since the patient has a history of tobacco chewing and gave a history of the lesion on the left buccal mucosa, a provisional diagnosis was made of verrucous leukoplakia. The patient was advised for an incisional biopsy with the necessary hematological investigations.

Differential Diagnosis – verrucous vulgaris, verrucous carcinoma on the left buccal mucosa, and squamous cell carcinoma on the left side of the buccal mucosa were thought of.

Histological findings

Histopathological examination revealed hyperkeratotic epithelium showing dysplastic features such as basilar hyperplasia and hyperchromatic cells extending up to the lower third of epithelium. The stroma was made up of collagen fibers with plump to spindle-shaped fibroblasts along with

patchy distribution of inflammatory cells predominately lymphocytes, and plasma cells were seen in the juxta-epithelial region. Furthermore, the histopathological section showing Figure 3, increased mitotic figures, presence of keratin pearls, increased nuclear: cytoplasmic ratio, cellular pleomorphic, loss of cohesiveness, and hyperchromatic nuclei. The basement membrane is intact after the PAS staining was done successfully.

Final Diagnosis – correlating the clinical and histopathological findings the diagnosis of verrucous leukoplakia of the left buccal mucosa was made.

Management

For the management of the lesion, the patient was kept on the following medication

- Combination of multivitamin (Vitamin A, beta-carotene, C, E), selenium, zinc, manganese, copper
- Lycopene – 20 mg/day for 1 month
- Curcumin – 300 mg/day for 3 months
- Mixed/green/black tea – 3–4 times a day for 3 months.

On follow-up patient reported a decrease in burning sensation, intolerance to spicy food, and reduction in the size of the growth. The VAS score improved to 6 from 9.

On intraoral examination, it was appreciated that the erythematous area was reduced and the finger-like projection was reduced in size. Further, the patient was asked to continue on the same medicinal management and asked to report after 10 days. Due to the pandemic, the patient could not report to the department and is on the telephonic consultation.

DISCUSSION

PVL, a rare form of oral leukoplakia, was first reported in 1985 by Warnakulasuriya *et al.* as a long-term progressive condition that develops initially as a white plaque of hyperkeratosis that eventually becomes a multifocal disease with confluent, exophytic, and proliferative features.^[3] The same has been seen in our case of the left side of the buccal mucosa.



Figure 1: The surface was granular, white in some areas with some pale pink area, surrounding mucosa had white plaque-like areas and its surface presented with cracked mud-like appearance



Figure 2: Multiple verrucous growths were arranged in clusters, extending up to the labial vestibule area

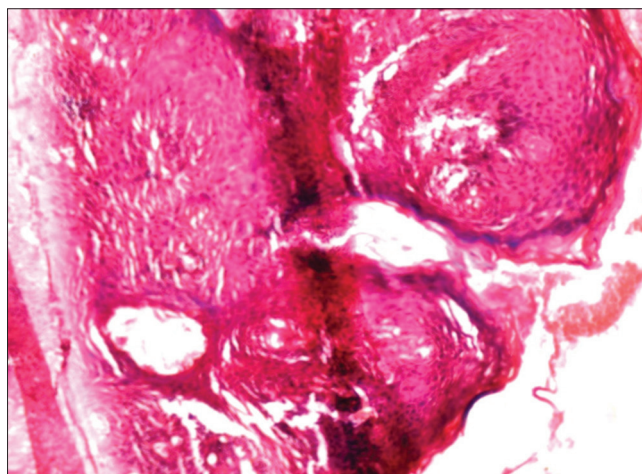


Figure 3: Revealed hyperkeratotic epithelium showing dysplastic features such as basilar hyperplasia and hyperchromatic cells extending up to the lower third of epithelium

Silverman and Gorsky in 1997 studied 54 patients, and the mean age of their group was 62 years with a ratio of women: men of 4:1.^[3] Almost similar age groups were reported by Bagan *et al.* (2003) in his study of 30 cases of PVL with a mean age observed by 70.9 ± 12.73 years and of the 80% were women but in our own case, it was of a young male of 26 years which is a rare finding.

The buccal mucosa, gingiva, and alveolar ridges were most commonly affected in the report by Reichart and Philipsen in 2003.^[4] Others have found lesions more frequently on the gingiva and tongue.^[5,6] Bagan *et al.* (2003) in their series found that 87% had lesions on the gingiva. Gandolfo *et al.* studied 47 patients with PVL. Lesions were most frequently observed on the alveolar crest (87.2%), with gingival involvement in 46.8% of cases.^[7] It has been shown that almost all lesions occur bilaterally, mainly affecting the lower alveolar ridge and buccal mucosa.^[8] Clinically, in this case, the lesion was present extending anteroposteriorly from the left commissure of lip up to the left retromolar pad area and superior-inferiorly from the depth of maxillary buccal vestibule to depth of mandibular buccal vestibule. The surface was granular, white in some areas with some pale pink area, surrounding mucosa has homogenous white plaque as this was the special feature seen in this case.

Because of the lack of specific histological criteria, the diagnosis of PVL is based on combined clinical and histopathologic evidence of progression. There are few studies that apply a set of diagnostic criteria that are mentioned as follows: Ghazali *et al.* established the following criteria: The lesion starts as homogenous leukoplakia without evidence of dysplasia at the first visit. With time, some areas of leukoplakia become verrucous. The disease progresses to the development of multiple isolated or confluent lesions at the same or a different site with time. Gandolfo *et al.* established the following criteria for the diagnosis:^[8] An initially innocuous lesion characterized by a homogenous plaque that progresses over time to an exophytic, diffuse, usually multifocal, a lesion with a verrucous epithelial growth pattern.

Based microscopic findings linked to PVL are the site and adequacy of the biopsy at the point of the illness. Bagan *et al.* (2010). reported that areas ranging from simple hyperkeratosis to less differentiated oral squamous cell carcinoma were found in PVL. Bagan *et al.* (2010) similarly suggested four growth phases the sickness.^[9] In our case, histopathological examination revealed hyperkeratotic epithelium showing dysplastic features such as basilar hyperplasia and hyperchromatic cells extending up to the lower third of the epithelium. The stroma was made up of collagen fibers with plump to spindle-shaped fibroblasts along with patchy distribution of inflammatory cells predominately lymphocytes and plasma cells seen in the juxta-epithelial region.

Due to the progressive nature of PVL, there are several types of therapy used for conventional leukoplakia treatment. Laser-carbon dioxide, radiation, intestinal retinoids, beta-carotene, and topical bleomycin solution have failed to

achieve permanent healing but in this case, the medications played a crucial role in relieving the patient's complaints. For the management of the lesion, the patient was kept on following medication – a combination of multivitamin (Vitamin A, beta-carotene, C, E), selenium, zinc, manganese, copper, Lycopene-20 mg/day (the mechanisms underlying the inhibitory effects of lycopene on carcinogenesis could involve ROS scavenging, upregulation of detoxification systems, interference with cell proliferation, induction of gap-junctional communication, inhibition of cell cycle progression. Lycopene has been reported to increase p53 protein levels in cancer cells) for 1 month, curcumin – 300 mg/day for 3 months (found to arrest carcinomatous cells in the G2/M phase of cell cycle, in which cells are more susceptible to cytotoxic effects of radiotherapy), mixed/green/black tea – 3-4 times a day for 3 months. Although improvements have been noted with some of these modalities, recurrence rates after cessation of therapy are high, often within months of discontinuation of treatment. Prognosis – depending upon the severity of the disease on the global rate, in our case the prognosis is fair.

CONCLUSION

Proliferative verrucous leukoplakia is an uncommon but aggressive variant of leukoplakia that necessitates extra caution on the side of the clinician. As a result, it is advised to schedule an appointment as soon as feasible. The purpose of describing this case was to present a typical clinical scenario and PVL histologic characteristics in order to sensitise the oral cavity physicians. Because these patients have a greater recurrence rate and are known to undergo malignant transformation, care should be made to follow them up for a long time even after surgical management.

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