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Leukoplakia of the buccal mucosa is considered a premalignant lesion according to the WHO classification with a malignant transformation rate of 0-20%, especially among men above 40 years of age with a smoking history. Along with the active screening procedures, there is also growing brilliance in surgical interventions aimed at the eradication of such fatal diseases. Laser ablation using diode lasers is one such well-accepted prophylactic treatment modality among clinicians and patients along with low recurrence rates. We have aimed to support this article with the case report of the patient with leukoplakia, who was being treated with a diode laser that unveiled the brilliance of this technique with enhanced healing.

Keywords: Buccal mucosa, Diode laser, Leukoplakia, Oral cavity, Potentially malignant lesion

INTRODUCTION

Oral leukoplakia: A premalignant lesion is described by the WHO as “a predominant white lesion of the oral mucosa which cannot be defined as any other known lesion.”¹ This is the most common oral lesion that has a premalignant potential, but malignant transformation is not the same for all leukoplakias. It depends on the characteristics, etiology, form and location of the lesion. Hence, according to this potential leukoplakias are classified as premalignant, precancerous or potentially malignant disorders.²

The advent of lasers started in 1917 with the theory of “stimulated emission” put forward by Albert Einstein, stating that photons could “stimulate” the emission of another photon that would possess identical properties to the first. Townes and Schawlow worked on this study together which led to the development of light amplification by stimulated emission of radiation (LASER).³

We are also giving the case report of a 60 year old patient with leukoplakic patch treated with diode laser.

CASE REPORT

A 60-year-old male patient had come to our department with a chief complaint of mild burning sensation with respect to the right buccal mucosa. Personal history revealed that he was a chronic smoker for the last 10-15 years and he consumes almost 15 bidis per day.

On examination, there was the presence of the white nonscrapable patch present with a cracked mud appearance (Figure 1). Anteroposteriorly, it extended 1 cm from the corner of the mouth to 3 cm posteriorly. Superiorinferiorly, it extended 2 cm from the upper vestibule to 1.5 cm to the lower vestibule. Leukoedema was present on the left buccal mucosa.

Figure 1: Presence of a white nonscrapable lesion of the right buccal mucosa

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Provisional diagnosis was given as leukoplakia. The patient was advised for biopsy for confirmation of the lesion, which was affirmed. The patient was then subjected for diode laser therapy (Figures 2 and 3) after that he was given medications for topical applications. Initially the patient was on 1 week review (Figure 4), but when the patient was reviewed after almost a month there was satisfactory healing which showed a good prognosis (Figure 5).

**DISCUSSION**

The etiopathogenesis of oral leukoplakia can be categorized as follows: Leukoplakias of unknown etiology, idiopathic, or associated with tobacco use.\(^1\) History of our patient revealed that he was a chronic smoker for the past 15 years.

This deadly lesion often affects the male population above 40 years of age mostly due to the tobacco consumption.\(^3\) Initially, it occurs as a white-gray patch that increases in thickness if the habit is discontinued. If such lesions are removed, it can pave way for the regeneration of new and healthy tissues.\(^3\) Our patient was almost 60 years of age.

Histologically leukoplakia is an intraepithelial lesion with epithelial hyperplasia with or without hyperkeratosis and varying degrees of epithelial dysplasia.\(^2\) The rate of malignant transformation is considered to be 0.13-17.5% which is related to the clinical and histological classification and the site of the lesion such as the tongue and the floor of the mouth.\(^2\) Verrucous and erosive types have a higher rate of malignant transformation than the homogenous types of leukoplakia. The biopsy was advised for our patient, which confirmed, that the lesion was leukoplakia.

In moderate to severe dysplasia cases surgical intervention is recommended.\(^1\) Low to moderate malignant risks should be completely removed depending on the site and size of the lesion. Conventional forms of treatment are the scalpel excision and cryosurgery, but these can cause scarring and contraction.\(^2\)
A noninvasive method considered nowadays for the treatment of premalignant lesions is the laser ablation using diode lasers. It is indicated mostly for soft tissue lesions of approximate size of 3-4 mm³ that are selectively removed by minimal thermal changes to the adjacent tissues resulting in excellent homeostasis, minimal scarring and reduced inoperative and post-operative pain and edema and reduced operating chair time. This treatment modality also has an additional advantage of bactericidal properties hence only reduced intake of antibiotics is recommended after laser therapy. Thus, laser surgeries are commonly used for intraepithelial lesions. Soft tissue lasers which utilize diode lasers are used as they stimulate the cellular activity. Laser therapy was recommended for our patient with 1.2 W power at pulsed rate. He also commended that this form of treatment freed him of his despair of pain.

Wound healing takes place by epithelialization from the borders of the wound. In almost all cases wound healing is almost completed in 4 weeks. Recurrences can also take place in a span of within 8-10 years in laser treated cases, but it was comparatively lesser when compared to the other treatment options. Such recurrences were highly prevalent in those who continued with the smoking habit and if the lesion had previously occurred in high-risk sites such as the tongue and the floor of the mouth. However, there are also studies that validated the secondary prevention of oral cancer with the early diagnosis and the management of the so-called potentially malignant lesions with the best available technology available to us. Even in our case when the patient was reviewed after 1 month there was regeneration of the new epithelium and showed satisfactory healing. The patient was also symptom-free and had a better outlook to life.

Laser capture microdissection and low level laser therapy have also been used for the treatment of such lesions.

CONCLUSION

Laser therapy has proved to be superior to all the other treatment modalities due to its rapid progress in the last few decades including selective removal of the affected epithelium, minimal damage to the surrounding healthy tissues with a resultant improved wound healing, no scar formation providing excellent functional and aesthetic effect. The only disadvantage observed was the in availability of the tissue sections for histological purposes. Therefore with a thorough knowledge of the etiological factors, biological behavior of the lesion and histological diagnosis diode lasers in experienced hands has proved to be the advocated prophylactic treatment for oral leukoplasias.

REFERENCES