



Research Paper

## Oral Leukoplakia Management Using Diode Laser: A Case Report

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### ABSTRACT

Oral leukoplakia (OL) may be a potentially malignant disorder (PMD) of the oral mucosa which appears as a white lesion within the mouth. The management of oral leukoplakia should begin with the elimination of predisposing habits. Several treatment modalities are proposed for the treatment of Leukoplakia like excision of oral leukoplakia using LASER which offers comparative advantages over traditional scalpel excision. These advantages include homeostasis, precision in removal, good patient acceptance, low morbidity, and reduced postoperative complications. In this case report, the patient reported minimal intra-operative and post-operative discomfort following satisfactory wound healing.

### KEYWORDS

Excision, Homeostasis, oral leukoplakia, LASER

Received 01 June, 2023; Revised 08 June, 2023; Accepted 10 June, 2023 © The author(s) 2023.

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### I. INTRODUCTION

Leukoplakia may be a Greek word- Leucos means white and Plakia means patch. it had been first coined within the last half of the 19th century by the Hungarian dermatologist, Schwimmer in 1877.[1] Oral leukoplakia (OL) may be a potentially malignant disorder (PMD) of the oral mucosa. it's been defined as "a predominantly white lesion of the oral mucosa that can't be characterized as the other definable lesion." it's also defined as "A white plaque of questionable risk having excluded (other) known diseases or disorders that carry no increased risk for cancer," which may be a well-known PMD of the oral mucosa. it had been noted that 15.8–48.0% of oral epithelial cell carcinoma (OSCC) patients were related to OL during a few studies.[2]

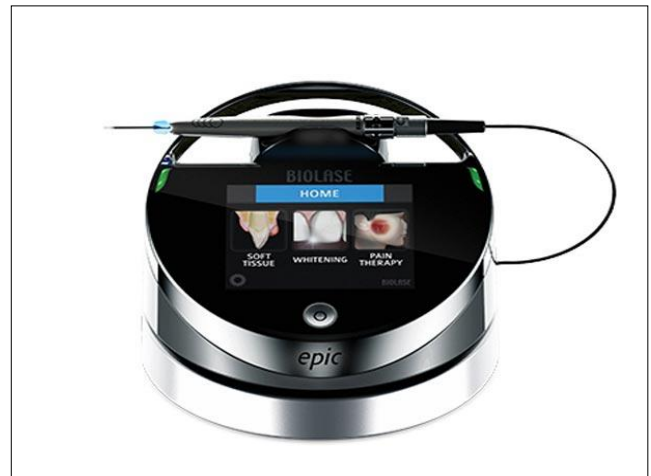
### II. CASE REPORT

A 37-year-old female patient reported to the Department of Periodontology with a chief complaint of a white patch on her left cheek for two years. No evidence of trauma or surgery was reported. The patient's medical and dental histories were non-contributory. The patient had a habit of chewing tobacco for the past 8 years and was within the habit of keeping tobacco on the left side of the cheek during daily routine activities. On clinical examination, a solitary white patch with a wrinkled surface and irregular margins was visible on the left buccal mucosa till the buccal vestibule extending from the second molar to the primary premolar, measuring approximately 6 cm posterior-anteriorly and 4 cm superior-inferiorly in dimensions. it had been tender on palpation due to which the patient experienced restricted mouth opening. The lesion was non-scrapable and, the encompassing mucosa seemed to be normal [Fig-1]. Patient counseling was done and therefore the patient was asked to completely quit the habit of chewing tobacco.9 The patient was kept on antioxidants for a 1-month duration. The patient didn't respond to conservative medical management after a month so complete excision of the lesion employing a Laser was planned. Routine Blood investigations were advised. the entire procedure was

explained to the patient and an informed written consent was obtained. On the day of surgery, local anesthetic was infiltrated around the lesion. The lesion was excised employing a 940 nm Diode Laser (Epilase) [Fig-2]. All protective measures were taken while performing the Laser surgery. The operator, assistant, and patient were wearing protective eyewear, and adequate suction was provided within the surgical field. The laser tip was utilized in continuous contact mode in a brushstroke manner. No sutures hence the wound was left to heal by secondary intention [Fig -3]. Photobiomodulation was done just after the procedure for five minutes which was followed by Vit E application. The patient was kept on medication; antibiotics and analgesics were prescribed for 3 days. The surgical area was reviewed after excision, after 1 week, and three months; no complications or recurrence were noted, and healing was good.



*Fig.1 Preoperative*



*Fig.2 Laser machine*



*Fig -3 Laser beam in continuous mode in a paintbrush manner*



*Fig -4: Immediate postoperative view*



*Fig.5 Photobiomodulation*



*Fig.6 Post vitamin E application*



*Fig.7 Healing after 1 month*

### **III. DISCUSSION**

Leukoplakia are often managed using different modalities including Cessation of predisposing habits. Topical management are often done using anti-inflammatory agents, carotenoids, retinoids, antimycotic agents and cytotoxic agents, etc. Chemo-preventive agents like vitamins (A, C, E), fenretinide (Vitamin A analog), carotenoids (beta carotene, lycopene), green tea, curcumin also are beneficial, Surgical excision of the lesion, electrocautery, cryotherapy, LASER surgery, Photodynamic Therapy (PDT) or combined treatment are often employed. Conventional surgery may cause certain side effects like scar formation, contraction of wounds, and contamination of the surgical field. Excision of precancerous lesions using LASER has comparative advantages over surgical excision. These advantages include a bloodless field due to the hemostatic effect, the procedure being less painful, precision in removal, favorable healing, less scarring, less postoperative pain, swelling, edema, and infection leading to good patient compliance, fewer complications, and low morbidity. As this procedure are often repeated, it's favored for oral leukoplakia treatment because it may be a recurring condition. due to these advantages, LASER removal by vaporization or excision appears useful within the treatment of oral leukoplakia. variety of studies are done on the excision of oral leukoplakia using LASER and have shown promising results.<sup>6,7,8</sup> within the present case, the patient reported minimal intraoperative and postoperative pain and discomfort.<sup>10</sup> These results are almost like the findings of Mohan R et al., within the year 2017 who reported minimal postoperative pain and discomfort. The wound healing was also satisfactory almost like the studies of Praveen KNS et al., and Mohan R et al., within the present case the patient didn't show any signs of recurrence on follow-up. Immediate postoperative view showing excision of the lesion using Diode LASER. Three months postoperative view showed no signs of recurrence and healing was satisfactory. the planet Health Organisation (WHO, 1978) defined leukoplakia as “a white patch or plaque that can't be identified, clinically, or microscopically as the other disease”. There are variety of white lesions that ought to be excluded before the clinical diagnosis of oral leukoplakia is formed. The medical diagnosis which was kept into consideration was candidiasis because the lesion was non-scrapable so, was ruled out. Another possibility of leukoedema and reticular lichen ruber planus were also excluded due to their unilateral nature, didn't disappear on stretching, and absence of white striae. After excluding the presence of any local chronic irritation and trauma within the area round the patch, frictional keratosis was omitted after performing on a medical diagnosis. On the idea of clinical history, a provisional diagnosis of Homogenous Leukoplakia was made and treatment was planned accordingly.<sup>4,5</sup>

### **IV. CONCLUSION**

The main purpose of treating oral leukoplakia is to prevent transformation into a malignant form because the patients are mostly asymptomatic. Avoiding tobacco and alcohol abuse is the initiative to prevent disease progression. The cases which don't respond to conventional medical management should be advised complete excision. Excision of precancerous oral lesions using Laser offers comparative advantages over traditional scalpel excision.

### **REFERENCE**

- [1]. Dr. Arif Mohiddin; Leukoplakia in the oral cavity:- a case report. Indian Journal of applied research,2022;12(2):1-2.
- [2]. Mahalaxmi L. Lature, Krishna Burde. Case report on oral leukoplakia with superadded fungal infection. Journal of Advanced Clinical & Research Insight,2019;6:60-62.
- [3]. Neha Aggarwal and Sumit Bhateja. “Leukoplakia- Potentially Malignant Disorder of Oral Cavity -a Review”. Biomedical Journal of Scientific & Technical Research (BJSTR);2018;5(4)4219-4226.

- [4]. Mariana de Pauli Paglionia et al Laser excision of oral leukoplakia: Does it affect recurrence and malignant transformation? A systematic review and meta-analysis. *Oral Oncology*,2020;109;104850.
- [5]. Shesha Prasad R1, Ramakrishna T2, Anuradha pai3, Sujatha D. Idiopathic Leukoplakia Report of a Rare Case and Review. *Journal of Clinical and Diagnostic Research*,2015, (9)3:11-12.
- [6]. Tatu R, Shah K, Palan S, Brahmakshatriy H, Patel R; Laser excision of labial leukoplakia with diode, LASER:-A case report: *IJRRMS | VOL-3 | No.4 | OCT - DEC | 2013*.
- [7]. Yilin Yao, Linjun Shi, Yufeng Wang, Xuemin Shen, Sai Ye Guoyao Tang a, Lan Wu. Ablative fractional laser-assisted photodynamic therapy vs. ablative fractional laser for oral leukoplakia treatment: A randomized, controlled pilot study. *ELSEVIER*,2021;36:1-7.
- [8]. J. Ishii, K. Fujita, T. Komori. Laser surgery as a treatment for oral leukoplakia, *ELSEVIER*, 2003( 39 ) 759–769.
- [9]. Jolán Bánóczy, D.Sc.; Zeno Gintner, Ph.D.; Csaba Dombi, Ph.D. Tobacco Use and Oral Leukoplakia. *Journal of Dental Education*,2001;65(4) :322-327.
- [10]. Giacomo Del Corso, Davide Bartolomeo Gissi, Achille Tarsitano, Enrico Costabile, Claudio Marchetti, Lucio Montebugnoli, Maria Pia Foschini. Laser evaporation versus laser excision of oral leukoplakia: A retrospective study with long-term follow-up. *Journal of Cranio-Maxillo-Facial Surgery*,2015;1 -6.