Laser excision of labial leukoplakia with diode laser: A case report


ABSTRACT

A range of medical and surgical treatment modalities have been advocated for oral leukoplakia. Lasers are new preferred inclusion. Earlier CO2, Nd: YAG, Krypton and Argon lasers have been used. We present a case of labial leukoplakia which was ablated using a 7 watt diode laser of 810 nm (Picasso dental diode laser – AMD LASERS). The healing occurred uneventfully over a period of 3 weeks with minimal patient discomfort. The case establishes its efficacy in management of oral leukoplakia.

INTRODUCTION

Oral leukoplakia is a commonly seen premalignant lesion with varied clinical presentation. Most commonly it appears as a white patch anywhere in the oral cavity. Its global prevalence varies from 0.5 to 3.4% and malignant transformation rages between 0.17 to 17.5%. Oral leukoplakia may present as homogenous or non homogenous plaques. Those on the tongue and the floor of mouth; measuring larger than 200 sq.mm shows a higher tendency for malignant transformation. Histopathologically, the picture may vary from benign hyperkeratosis to dysplasia.

Scores of treatment modalities have been employed for its treatment including non invasive methods (carotenoids, Vitamins A, C and K, feretinide, bleomycin and photodynamic therapy) as well as invasive methods (conventional surgery, electro cautery, cryosurgery and lasers). The evidence lack in proving their efficacy in preventing malignant transformation or recurrences. The Lasers proves superior comparatively due to excellent haemostasis during the procedure, less electro contractility, minimal damage to the surrounding tissues which produces little inflammation and postoperative pain. Earlier Carbon dioxide, neodymium: yttrium-aluminium garnet (Nd: YAG), argon, and potassium-titanyl-phosphate (KTP) had been used. The diode laser used in dentistry have a wavelength spectrum of 800-980 nm wavelength which allow high levels to be absorbed by soft tissues, water and chromophores like melanin and oxyhaemoglobin. Being a contact laser, it provides a better control to the surgeon. The depth of tissue penetration could also be controlled by watt output of the laser device.

CASE REPORT

A male patient, aged 48 years reported to the department complaining white lesion over the right lower labial mucosa since 4 months. On examination, an irregular white patch, homogenously white, non scrapable and with well defined marginsirregular texture and without any induration or tenderness was observed located on the labial mucosa, vestibule and the labial gingiva on right lower side opposite to the 43, 44 and 45 teeth.[Fig 1].

The regional lymph nodes were non palpable. The lesion was previously small and had gradually increased to the present size over the past 4 months. He revealed of smoking about 15 cigarettes per day for last 25 years.

A clinical diagnosis of homogenous leukoplakia
was made and patient was offered an excisional biopsy with a diode laser. He was advised to quit smoking and to take lycopene, one tablet twice daily for 1 month. On one month follow up, detailed history was taken to rule out any systemic disease. Routine blood investigations and fasting blood sugar of the patient were normal. Complete protocol for surgical preparation of operative site was adopted. 2ml of Xylocaine 2% with 1:200000 adrenaline was infiltrated in the vicinity of the lesion. 3/0 silk sutures were passed above and below the lesion for retraction. With the help of 7 watt diode laser of 810 nm (Picasso dental diode laser – AMD LASERS) at 3 watts margins for excision were marked at 0.5 cm distance from the lesion all around using the curved disposable hand piece. The lesion was slowly peeled away as a single piece [Fig 2] at a sub mucosal level at 4.5 watts.

No bleeding was encountered. The wound was gently flushed with 10 ml of normal saline. Histopathological examination of the specimen confirmed to be leukoplakia, congruent to the clinical diagnosis. The patient was prescribed mild analgesic for 3 days and was advised to continue lycopene for 1 more month. The patient was followed up on 3rd, 7th and 21st day [Fig 3] which revealed uneventful progressive healing.

At 3 month follow up the operated area appeared very similar to adjoining oral mucosa with no other associated complaints [Fig 4]. The patient underwent oral prophylaxis at the 3 month follow up.

**DISCUSSION**

Conservative management of oral leukoplakia has failed to prevent malignant transformation and a long term recurrence free treatment according to many studies. There role as adjuvant therapy cannot be overruled though. Lasers have emerged as preferred tool of surgical management of oral leukoplakia. The benefits of laser treatment include the creation of a bloodless surgical field and thus improved visualization and accuracy, reduced postoperative pain, limited scarring and contraction.

Other lasers have also been used; a retrospective study demonstrated 89% cure rate using CO2 laser a mean follow-up period of 52 months, however, recurrence rate ranges between 7.7 to 66% and collateral damage zone on the border of excisional biopsies were found to be significantly smaller in CO2 as compared to diode laser. However, a similar study concluded differently. Diode laser can also be used as an alternative tool to other lasers for excisional biopsies and soft tissue procedures in oral cavity. The versatility and small size and weight (1kg/2 pounds) of the unit makes it portable and easy for the practitioner to perform variety of procedures at different places.
CONCLUSION

Diode laser as an alternative laser tool for surgical management for various premalignant oral lesions can be used. But this being just a case report it would be beneficial to carry out long term randomised controlled clinical trials to come to a definitive conclusion.

REFERENCES


AUTHOR NOTE

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