**INTRODUCTION**

Lichen planus is considered as an autoimmune chronic mucocutaneous disease which can affect skin, scalp, genital mucosa, and oral cavity. In oral cavity the common sites are buccal mucosa, tongue and gingiva. Oral lichen planus is diagnosed more commonly in middle aged women with female to male ratio 1.5:1. Skin lesions in lichen planus usually resolve with in 1 or 2 years, where as in oral lichen planus it may persists for 20 years or more. In oral cavity keratotic (white) and Non keratotic (atropic/ulcerative/erosive) forms has been described. Keratotic lesions are usually asymptomatic and need no therapy, while red lesions are to be treated for symptoms like pain and burning sensation as well as their malignant potential. Many treatment modalities like topical /systemic corticosteroids, immunomodulators are used to treat symptoms but refractory cases incidence is increasing, recently treatment with LASERS made a proper path for treatment of such cases. Lasers used in previous studies to treat various types of lichen planus are CO2, ND:YAG and some wavelength of diode lasers. In our study we use a wavelength of 980nm diode lasers for treatment of erosive lichen planus. Symptoms were measured and analysed by VAS scale and clinical assessment.

**Case report:** This article aims to report of two cases of erosive lichen planus of oral cavity in a 68 year old female and in 28 year old male with emphasis on histopathology.

**Conclusion:** This study showed successful use of 980nm diode laser for treating OLP with complete remission of symptoms rapidly with no adverse effects.

**Keywords:** Erosive Lichen Planus, Topical Corticosteroids, Low Level Laser Therapy.

Management of Pain In Erosive Lichenplanus using Low Level Lasertherapy (LLLT): A Report of Two Cases

S.V. Suman¹, Nagajyothi Peta², Vijaykumar Bokkasam³, Sathish Babu. D⁴, Sunil. Y.V⁵, Yamini Puchalapalli⁶

¹Professor, Department of Oral Medicine and Radiology, ²Post Graduate, Department of Oral Medicine and Radiology, ³Professor and HOD, Department of Oral Medicine and Radiology, ⁴Reader, Department of Oral Medicine and Radiology, ⁵Post Graduate, Department of Oral Medicine and Radiology, ⁶Post Graduate, Department of Oral Medicine and Radiology, CKS Theja Dental College, Renigunta Road, Tirupathi, India

**Corresponding author:** Nagajyothi Peta, Post Graduate, Department of Oral Medicine and Radiology, CKS Theja Dental College, Renigunta Road, Tirupathi, India

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months of treatment, no recovery was seen in signs and symptoms. So the patient was treated with laser therapy. The patient was asked to stop taking drugs to evaluate the efficacy of laser therapy. Firstly the 980nm diode laser (ZOLAR) was used for photobiomodulation (PBM), 0.3W, 6J, 20sec, continuous wavelength (CW) mode, energy density of 6J/cm², 2mm away from the lesion, after 4 sessions and with complete remission of pain and slight decrease of burning sensation. The setting changed to 0.2W, 4J, 20sec, CW, 2mm away from the lesion, energy density of 4J/cm², then the treatment continued upto 8 sessions (3 sessions in a week) as a result, the patient symptoms were relieved, no pain and burning sensation also the saliva showed significant increase. The visual analogue scale (VAS) was used to measure the efficacy of the treatment and severity of the symptoms; the score of this scale varies from 0 (no pain) to 10 (maximum
pain). As a result of laser therapy pain and burning sensation were treated.

| Before treatment | After 4 sessions (1-8 days) | After 8 sessions (16 days) |
|------------------|-----------------------------|---------------------------|
| VAS              |                             |                           |
|                  | 8                           | 4                         | 0                         |

The patient was recalled for follow up after one month, three months, and six months after laser therapy showed no signs of recurrence. The patient was not under medication during this period.

**Case 2:** A 28 years old male patient with a chief complaint of pain and burning sensation on the left retromolar area was referred to C.K.S theja institute of dental sciences and research, tirupati. On examination of oral cavity the lesion was erosive interspersed with white striae (wickham’s striae). These signs and symptoms were suggestive of erosive lichen planus. In conventional and biochemical investigations no abnormality detected. Therefore incisional biopsy was performed under local anesthesia. The histopathological investigation confirmed the diagnosis of OLP. The patient was prescribed triamcinolone ointment and chlorhexidine. After 2 months of treatment, no recovery was seen in signs and symptoms. So the patient was treated with laser therapy. The patient was asked to stop taking drugs to evaluate the efficacy of laser therapy. Firstly the 980nm diode laser (ZOLAR) was used for photobiomodulation (PBM), 0.3W, 6J, 20sec, continuous mode (CW) mode, energy density of 6J/cm², 2mm away from the lesion, after 4 sessions and with complete remission of pain and slight decrease of burning sensation. The setting changed to 0.2W, 4J, 20 sec, CW, 2mm away from the lesion, energy density of 4J/cm² then the treatment continued upto 6 sessions (3 sessions a week). As a result, the patient symptoms were relieved, (no pain and burning sensation).

| Before treatment | After 4 sessions (1-8 days) | After 6 sessions (12 days) |
|------------------|-----------------------------|---------------------------|
| VAS              |                             |                           |
|                  | 5                           | 2                         | 0                         |

The patient was recalled for follow up after a month, 3 months, 6 months after laser therapy showed no signs of recurrence. The patient was not under medication during this period.

**DISCUSSION**

OLP is a potentially malignant disorder of oral cavity which causes pain and burning sensation. Till date corticosteroids are the first line of treatment which can help to reduce the symptoms but can cause side-effects and also can’t be used in patients with systemic diseases. So in recent times LLLT has been introduced specifically for mucocutaneous diseases such as OLP (14-16). Early and traditional use of laser with CO2 has acceptable clinical results. Symptoms were relieved immediately and long term follow up showed decreased recurrence rate (17). Another study used ND:YAG and CO2 laser simultaneously was proved to be effective with advantages being conservative, site specific and minimally invasive.(18).

In the study by kollner et al., 75 to 150 mJ/cm² power of 308 nm excimer laser were emitted to OLP lesions three times a week, up to 32 sessions. One patient showed remission after 12 sessions with no signs of relapse on the four months follow up period. Another patient had relative remission after 9 sessions, but with relapse one month later. Four patients were relative and 2 patients were absolute non-responders.10 On the other hand 308nm excimer laser emits ultraviolet B (UV-B) rays with a tissue penetration of less than 0.3mm. The UV-B excimer laser is potentially carcinogen. Besides, erythema, erosion and soreness are probable side effects of its use.10

In the study by jajarm et al. 630nm diode laser was used for LLLT, the results showed LLLT was as effective as topical corticosteroids with fewer side-effects. Pain score, lesion severity and appearance were reduced in both groups. Based on the findings mentioned, LLLT could be an appropriate alternative for treatment of erosive–atrophic OLP.14 630nm lasers penetrates tissue several millimeters deep reduce inflammation, pain relief and ulcer healing effects.14 Soleiman et al. evaluated the efficacy of 980nm diode laser in the treatment of OLP, the results were remarkable, no serious side effects was reported and recurrence was recorded in 3 out of 25 patients only. So the method was suggested as an appropriate alternative for local and systemic treatment using drugs.19

In our study using 980nm diode laser was aimed to decrease pain and burning sensation. In Case 1 after 8 days (4 sessions) we have observed marked regression of symptoms (VAS score 8 to 4) and after 16 days (8 sessions) we have observed complete remission of pain, burning sensation, ulcer healing (VAS-O). In CASE 2 after 8 days (4 sessions) we have observed marked regression of symptoms (VAS score 5 to 2) and after 12 days (6 sessions) we have observed complete regression of symptoms (VAS –O).

The results was satisfactory. At 48 hours follow up marked remission of pain and burning sensation. After 1 week follow up, reduction in size was obvious and after 2 weeks follow up lesion disappeared completely. On a month, 3 months, 6 months follow up no signs of recurrence was seen.

**CONCLUSION**

This study showed successful use of 980nm diode laser for treating OLP with complete remission of symptoms rapidly with no adverse effects. Further investigations with large number of patients and longer follow up are needed to approve this method as a standard clinical treatment.

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