



## Treatment of Oral Lichen Planus with Photobiomodulation using 1064 nm Nd:YAG

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### Introduction:

Idiopathic oral lichen planus (OLP) is a chronic inflammatory disease that affects stratified squamous epithelium. It occurs within 1-2% of the population and has a higher incidence in women than men. Most patients with a form of OLP are over 40 years of age, although cases are seen in younger patients.

The clinical presentation of OLP can be broadly divided into three main categories: reticular, atrophic and ulcerative. The most common intra-oral sites for OLP are the posterior buccal mucosa, gingiva, lower labial mucosa/vermillion border and the ventral-lateral margins of the tongue. It is seen as bilateral and symmetrical in most cases.

OLP has thus far been poorly controlled with steroid based topical creams that have never totally removed the pain of the lesions and never left the patient without raw reddened mucosa somewhere in the mouth. Photobiomodulation (PBM) with Nd:YAG was chosen for this treatment due to its greater penetration depth into tissues and both its curative and analgesic properties.

Lasers	LightWalker AT
Wavelength	1064 nm Nd:YAG
Handpiece	Genova
Power Density	0.5 W/cm <sup>2</sup>
Mode	MSP
Frequency	10 Hz
Passes	Stamping, 60 sec per point
Spot size	1 cm <sup>2</sup>
Sessions	3 sessions



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## CLINICAL CASE:

A 59 year old female patient presented to my practice with a 35 year history of oral lichen planus (OLP). Diagnosis was made 35 years ago with biopsy and reconfirmed 4 years ago again with biopsy. The patient is a diet-controlled diabetic, allergic to pethidine and penicillin, and has a very stressful life due to family issues.

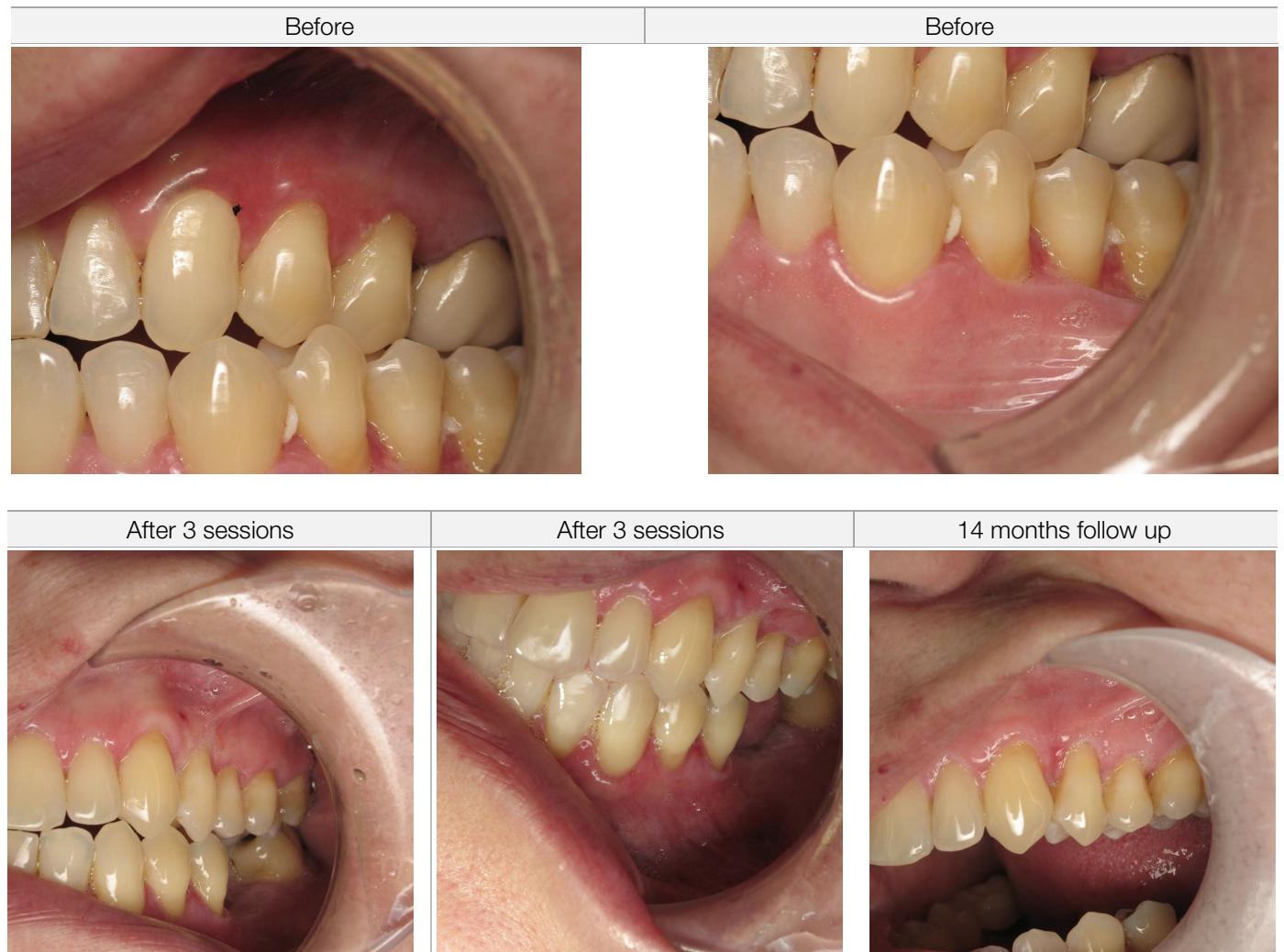
Lichen planus in all three of its forms (reticular, atrophic and ulcerative) were present in her mouth. The patient does not have other parts of the body affected by the condition. An offer of any type of treatment that might alleviate her symptoms was met with enormous gratitude. The aim of the treatment was to reduce the level of pain that the patient was suffering and if at all possible to heal the areas of ulcerative lichen planus that were the most painful and problematic areas.

The treatment plan was to have a minimum of 3 sessions on alternate days of PBM therapy over the atrophic and ulcerative areas of the lesions to see if we could firstly gain comfort and to see if we could also get better healing of these lesions than the cream was achieving. PBM using the Genova handpiece to achieve 30 J/cm<sup>2</sup> of energy delivered to the tissues (500 mW for 60 seconds per point in MSP modality, 10 Hz) proved to be an optimum level of energy for these results.

The patient described the pain before treatment as 8 on a scale of 0-10. After the first session, pain was reduced to zero. After the third session the tissues were already showing considerable healing.

Fourteen months post treatment, the patient was still pain free with no further treatment involving laser or steroid creams. No adverse effects were observed during or after this treatment.

Biomodulation therapy using the flat-top collimated Nd:YAG handpiece has proved to be a safe and quick therapy to provide analgesia within the oral lichen planus affected areas, and the three-visit course of treatment has been highly therapeutic for this long-term sufferer in all three of its oral manifestations. Fourteen months post treatment the patient is still pain free, without the need for additional laser therapy, and has not used steroid creams at all in that time.



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