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## CASE REPORT

### A RARE CASE REPORT OF EROSIVE LICHEN PLANUS OF TONGUE TREATED WITH LYCOPENE

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#### ABSTRACT

Erosive mucosal lichen planus is a painful and disabling inflammatory skin disease that is highly resistant to topical treatment. Treatment is difficult: topical corticosteroids are usually prescribed first, but antimalarial agents, oral retinoids, systemic corticosteroids, immunosuppressive drugs, and even extracorporeal photo chemotherapy can be necessary in severe cases. There is a need for novel therapies that are effective and produce less morbidity. Lycopene's role in the management or prevention of oral lichen planus (OLP) has not been investigated. However, as significantly decreased levels of lycopene have been reported in patients with atrophic and erosive OLP, its role in the disease pathology needed further investigation. Further, by virtue of its antioxidant and anticancer properties, it may be useful in the prevention of malignant transformation in the OLP. In this case report, we present a case of 55 yr old Indian female with erosive lichen planus of tongue successfully managed with systemic lycopene.

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#### INTRODUCTION

Lichen planus (LP) is a chronic inflammatory mucocutaneous disease of unknown etiology that occurs in about 0.2-4% of the adult population, affecting the skin and/or oral mucosa<sup>1</sup>. Lichen planus may also occur concurrently or independently in the skin and the genital, anal, esophageal, nasal and laryngeal mucosae. The prevalence of oral lichen planus in general population varies from 1-2%<sup>2</sup>. Clinically, lichen planus appears in keratotic, atrophic or erosive form. The atrophic and erosive forms are usually symptomatic<sup>3,4,5</sup>. Erosive OLP is the second most common type. It presents as a mix of erythematous and ulcerated areas surrounded by finely radiating keratotic striae. Patients with this form of OLP often present with symptoms ranging from episodic pain to severe discomfort that can interfere with normal masticatory function. Patients with oral ELP have a 1% risk of malignant transformation to squamous cell carcinoma in the 3 years following diagnosis compared with 0.5% for cutaneous lichen planus (LP) and a 0.036% lifetime prevalence for all cancer types of the oral cavity<sup>6,7</sup>. In this case report we report a case of a 55 yr old Indian female with erosive lichen planus of lateral border of tongue treated with systemic lycopene.

#### Case Report

A 55yr old female patient reported to YMT Dental College with a chief complaint of severe burning sensation on consumption of hot and spicy food on the lateral border of the tongue on the right side posteriorly since 6 months. Patient

reported that the burning sensation had increased in the duration of 2 months. Local deposits were inconsistent with the corresponding lesion. No cutaneous lesions were present. Medical history revealed that the patient was diabetic and was under medication for the same since past 15 years. Past dental and family history was non contributory. Intra-oral examination revealed a erosive area on the right lateral border of the tongue posteriorly Fig-1. The erosive patch extended in a linear fashion along the lateral border of the tongue and was around 1.5 cm in size. The surface of the patch appeared to be ulcerated with necrotic base. The area surrounding the patch was keratotic and revealed white striae around it. The patient was partially edentulous and teeth were missing bilaterally posteriorly. There were no oral findings on the left side of the tongue. Based on the clinical appearance, it was diagnosed as erosive lichen planus of the lateral border of the tongue. A biopsy was advised to confirm with the diagnosis. A incisional biopsy was done.



Fig. 1. Erosive Lichen Planus

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The histopathology revealed saw tooth retepegs with denuded epithelium in some areas along with basal cell degeneration along with zone of inflammation surrounding the basal cell layer. The histologic findings were characteristic of lichen planus and the final diagnosis of erosive lichen planus was given. Patient was treated with systemic lycopene in the form of soft gel capsules lycostar manufactured by mankind twice a day for 15 days. Patient was recalled after 15 days. A marked improvement was seen clinically and she reported of the complete resolution of the burning sensation Fig-2. Patient was advised to continue with the medication for 3 months more and followed up for 6 months. There was no recurrence of the lesion.



Fig. 2. Follow Up After 15 Days

## DISCUSSION

The history of LP dates back to 1869, when Erasmus Wilson first delineated and named the disease. In 1895, Thieberg identified the oral lesion. About 1-2% of world population suffer from LP. 1.5%-of Indians suffer from this disorder, age range of occurrence is 30-70 years, with female predilection Male: Female-1:1.4<sup>8,9</sup>. The prevalence of oral lichen planus (OLP) in the general population ranges between 0.5-2.6%<sup>10</sup>. The occurrence in children is uncommon, and the disease is more common in females<sup>11</sup>. In our case also the patient was in fifth decade and was a female. A review of previously published studies concluded that the risk of developing squamous cell carcinoma in patients with Oral Lichen Planus is approximately ten times higher than that in the unaffected general population<sup>12</sup>. The role and importance of oxidative stress has been suggested in the pathogenesis of Lichen Planus (LP). A study done on erosive vulval LP tissues showed increased oxidative stress and decreased antioxidant enzyme expression<sup>13</sup>. Bernanan *et al.*, found increased expression of inducible nitric oxide synthase in 9 out of 30 OLP cases studied.<sup>14</sup> Vahlaquist *et al.*, reported lower levels of serum carotenoids in LP patients,<sup>15</sup> and Nagao *et al.*, reported a significantly lower level of serum lycopene in the erosive and atrophic OLP cases<sup>16</sup>. Treatment of Erosive LP has been difficult as complete eradication of the disease is rare. Although high-potency topical corticosteroids are the first line of treatment, they have not been universally successful in reducing ulceration or pain.<sup>17</sup> Hence in our case we have used lycopene which is a carotenoid in the treatment of erosive lichen planus which requires long term treatment with topical

and systemic corticosteroids. Lycopene is a red colored fat soluble carotenoid, discovered by Earnest *et al* in 1959, which gives tomatoes & several other fruits their deep red colors<sup>18</sup>. More recently lycopene has attracted substantial interest among researchers due to its biological and physiochemical properties especially its antioxidant properties. It has been shown to have several potent anti-carcinogenic and antioxidant properties and has demonstrated profound benefits in chronic diseases. Lycopene, a carotenoid, is a most efficient antioxidantizing and immunomodulating agent, and is known to modify intercellular exchange junctions. It is the most promising candidate in reducing hyperkeratosis of oral mucosa and can be used effectively in management of oral lichen planus lesions<sup>19</sup>. Capsule Lycostar contains a combination of lycopene, vitamin E, and retinoids. It was found to be very effective in the current case to reduce the erosive area along with burning sensation.

## Conclusion

The therapeutic effect of a potent antioxidant like lycopene also indirectly substantiates the hypothesis of the role of oxidative stress in the pathogenesis of Lichen Planus. The result in our case report justifies the need to consider lycopene as one of the therapeutic regimen to the armamentarium for the management of Oral Lichen Planus.

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