



## A STUDY OF LICHEN PLANUS: CASE REPORT

## Immunology

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## ABSTRACT

Lichen planus (LP) is a disease which affects stratified squamous epithelia of the skin or mucus membrane, this is a T-cell mediated disease. LP generally involves the skin or mucous membranes including the oral, esophageal, vulvovaginal, conjunctival and laryngeal mucosa. Several drugs, typically anti-hypertensive medication or infections, particularly viral hepatitis can be responsible for inducing LP. The current first-line treatment includes topical and/or systemic corticosteroids. In addition, immune-suppressants can also be used as corticosteroid sparing agents. Anyone can develop LP but middle-aged adults are affected most often whereas Oral Lichen Planus (OLP) most often affects middle-aged women. Here two case reports have been discussed focusing Lichen Planus of both skin and mouth. The case reports also provide the information regarding physical examination of the patients, results of their histological findings and other pathological tests (Biopsy, Haematology, Complete Blood Count, Liver Function Tests, Plasma Glucose, etc.) and their thorough treatment plan with its outcome. Both the cases showed improvement from the treatment provided for this autoimmune disorder and we can expect a permanent cure of this disease in times to come.

## KEYWORDS

Lichen Planus (LP), Oral Lichen Planus (OLP), T-cells.

## INTRODUCTION:

Lichen Planus is a chronic inflammatory autoimmune disorder in which stratified squamous epithelia gets affected. LP arises when cytotoxic CD8+ T-cells are recruited into the skin which subsequently leads to interface dermatitis. The characteristics of LP are lesions affecting skin, hair, nails and mucous membranes. The changes on mucous membrane of the skin such as pruritic, pinkish-purple, polygonal, flat-topped (planar) papules crossed by fine white lines along with erosions can be seen but it isn't contagious. When OLP is present, it becomes challenging for the patient while eating, drinking, and functioning because of the constant pain [1]. Consistent findings in OLP are increase in the number of mast cells with significant degranulation [2]. The mechanism of action that triggers LP appears to be mediated by an antigen-specific mechanism that activates T-cells. There is also a non-specific mechanism of mast cell degranulation [3, 4].

## Potential causes of LP:

Lichen planus generally can be triggered by;

- Hepatitis C infection
- Certain chemicals, metals and pigments (toxic or when taken in excess)
- Influenza vaccines (flu shots)
- Pain relievers/analgesics, such as ibuprofen (Advil, Combiflam, Motrin IB, others) and naproxen.
- Medications for heart disease, high blood pressure or rheumatoid arthritis

## LP and its treatment:

If the symptoms such as severe itching or sores are in mouth or genital area then treatment can help whereas if one have lichen planus on scalp then treatment is important to prevent permanent hair loss. Lichen planus has no permanent cure, but different treatments can help relieve symptoms and speed healing. Possible treatments of LP include:

- Applying steroids on skin or in mouth to fight inflammation (taking steroids in the form of pills for severe cases is recommended). Usually in case of skin corticosteroid cream or ointment is prescribed.
- An ultraviolet light treatment called PUVA (psoralen + UVA) can be considered. It has been confirmed that orally administered 8-methoxypsoralen (8-MOP) followed by administering UVA radiation intra-orally to the affected sites can successfully treat longstanding or severe OLP and oral lichenoid lesions [5, 6].
- Use of antihistamine medicines for relieve in itching
- Tacrolimus and pimecrolimus ointments for treating atopic eczema.

Although LP is definitely not a preventable disease but once getting it certain steps can be taken to avoid getting it worse;

- Avoid injuries, cuts or burns on the skin.
- Apply cool compresses such as ice packs and cold pads instead of scratching.
- Avoid taking stress in life.
- Stop smoking, avoid alcohol, maintain good oral hygiene, and

avoid any food that seem to irritate mouth in case of Oral Lichen Planus.

Lichen planus is not a dangerous or life threatening disease and usually goes away on its own. However, in some people it may come back or recur.

## ORAL LICHEN PLANUS (OLP):

Oral lichen planus may appear as white lacy patches, red, pink or purple swollen tissues or open sores. These lesions may cause burning sensation, pain or any other discomfort. OLP is a chronic condition and there is no cure for the same, so the treatment focuses on helping severe lesions by healing and reducing pain or other discomfort.

The doctor usually monitors condition of the patient to determine the appropriate treatment or stop treatment as per requirement. OLP may be triggered by certain mouth injury, medications, infection or allergy-causing agents such as dental materials. Stress is one of the factors which is involved in symptoms becoming worse or recurrent.

## SKIN LICHEN PLANUS:

The LP of skin appears to be shiny red, pink or purple bumps characterized by non-infectious and itchy rash causing inflammation of the skin. When it affects the skin, it usually clears by itself within several months. However, it can take up to 2 years.

The treatment focuses on easing symptoms until the rash clears. Most affected areas are the elbows, wrists, ankles, and lower back. However, other parts of the body may be affected such as shins can be affected by thickened lichen planus, while the armpits might have ring-shaped like LP. Once the rash is gone, there may be permanent brown or grey marks on the skin. These marks are more noticeable on darker skin.

## CASE 1:

A 60 year old patient suffering from diabetes from past 15 years showed unusual purplish patches in the inner oral mucosa along with white lacy appearances. The patient also complained about itching on lips that sometimes lead to bleeding and pus formation and had difficulty while having food. The patient was asked to get certain tests done like Biopsy, Liver Function Tests (LFT), Complete Blood Count (CBC), Plasma Glucose (postprandial and fasting). The examinations were done and it is interpreted from the reports; the presence of gram-positive bacteria was found in inner oral mucosal lining and inflammation of liver was also seen.

## Treatment-

As the disease was quite severe so the patient was prescribed some Intravenous injections, steroids, antibiotics, antiseptic mouthwash. Also the patient was instructed to avoid hot, sour, acidic food items as these can aggravate the disease. After a week the patient observed a slight relief in itching and bleeding from lips. The patient reported that after couple of months there was no difficulty while having sour, spicy, hot or acidic food.

**Side Effects-**

While taking steroids the patient became quite weak and suffered from Dyspnea. So at intervals the dosage of steroids were regulated in order to maintain physical health because fully terminating the medicine can lead to severe condition and recurrence.



**Figure 1: This image is showing inner oral mucosa after 3 months of medication.**

**Case 2:**

A 67 year old patient reported itching and pinkish-purple papules on skin (lower part of leg), after few days the irritation started in inner oral mucosa and purple patches and white lacy appearance were observed. The patient revealed of trouble while having salty, sour, spicy, acidic or hot food items. Patient was asked to get tests like CBC, Plasma Glucose, Urine Examination and Haematology done. From the reports it was interpreted that the disease was in initial stage and so there is not much to worry about.

**Treatment-**

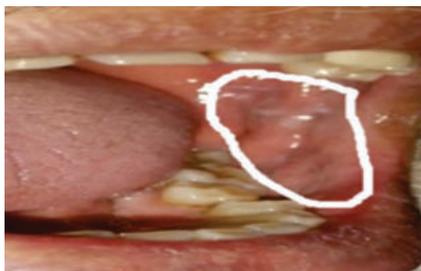
As this case not being much severe thus the medications were given accordingly which includes few antibiotic tablets, vitamins tablets, hexidine mouthwash and a mouth paint. The patient was asked to avoid food items that are too salty, spicy, acidic, citrus, sour or hot. As this condition is reversible hence the patient is advised for regular follow ups according to which the medication is regulated.

**Side Effects-**

For initial few days the patient felt the urge to itch in the infected leg area, tiredness, drowsiness and during oral clean ups the burning sensations were also felt.



**Figure 2: Image showing LP papules on shin area.**



**Figure 3: Purple and white patches on inner oral mucosa.**

**DISCUSSION:**

Lichen planus is thought to affect around 1-2% of the population across the globe. It is more common in adults who are over the age of 40. It has been observed that LP of the skin affects men and women equally. However, OLP is more common in women. The mouth is affected in around 50% of all cases reported of Lichen Planus. LP is thought to be caused by a T cell-mediated autoimmune reaction against basal epithelial keratinocytes in people with genetic predisposition. Most cases of LP of the skin clear up on their own within 6 to 9 months but the rash rarely lasts longer than 18 months. On the other hand Oral Lichen Planus and Lichen Planus that affect the genital area can be more persistent. The papules approximately measure around 3-5mm in diameter and may also have irregular white streaks which are also known as Wickham's striae. The foods that are

spicy, acidic or citrus and few beverages can aggravate Lichen Planus. In this condition it is advised to avoid eating food items made with chilli peppers, curry, having large amounts of ginger or garlic or any other spicy dishes. Also, tomato and tomato products may cause problems. Similar is the case with lemons, limes, oranges, and grapefruits. As there is no particular or permanent treatment thus one needs to take proper medicare.

**CONCLUSION:**

LP is an irritable disease and it affects 1 in every 100 people making it uncommon, awareness among people is thus required. Although, LP on the outer skin is not that dangerous but on the other hand the untreated OLP increases the risk of oral cancer. Also the LP of the ear canal may lead to hearing loss if left untreated. There is no single treatment that can cure lichen planus completely. Few researchers have reported cases that off-label treatment of LP with Janus kinase (JAK) inhibitors (JAKi), such as tofacitinib can lead to improvement of the disease [7-9]. Janus kinase inhibitors and biologics like anti-IL-12/23, anti-IL17 have emerged as novel future treatment options. Thus, we can expect a dramatic change of the treatment landscape of LP in the times to come. This report is finally concluded on a note of taking care of oral and skin health and avoid taking medicines without consulting a doctor or taking excess of any medicine (e.g. pain relievers frequently or on regular basis).

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