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 Received/Recibido: 04/21/2021 Accepted/Aceptado: 05/15/2021 Published/Publicado: 06/10/2021 DOI: <http://doi.org/10.5281/zenodo.5651729>

## Abstract

**Objectives:** The present study attempts to evaluate the clinical and observational features of lichen planus in Mosul province. **Patients and methods:** To fulfill the aim of the study, a cross-sectional descriptive study is utilized in Dermatology Clinic at Ibn Sina Teaching Hospital in Mosul, Iraq from January 2018 to January 2020. This study recruited two hundred and forty-two cases suffering from various clinical signs of lichen planus. A clinical diagnosis of lichen planus was made, affirmed through biopsy and histopathology in suspected cases. **Results:** Lichen planus comprised approximately 0.35% of the cases visiting the dermatological outpatient clinic. The mean  $\pm$  SD age of the patients was  $39.2 \pm 15.4$  years (ranging from 12 to 87 years), with a ratio of male to female 1:1.1. The classical type was the most typical kind of lichen planus detected in 126 (52.06%), whereas the actinic kind was (15.28%), hypertrophic type (7.85%). The upper extremities were changed in 114 cases. In contrast, the lower extremities were affected in 116 patients. The itching was presented by 156 (64.46%) patients who suffered from severe pruritus. The intensity of itching based on PVAS was  $7.2 \pm 2.1$ . **Conclusion:** Lichen planus is regarded as a prevalent papulosquamous skin condition in Mosul city. The majority of concerned cases are middle age. The classical type is the most typical one, followed by the actinic sort.

**Keywords:** Lichen planus, classical, actinic, pruritus.

## Resumen

**Objetivos:** El presente estudio intenta evaluar las características clínicas y observacionales del liquen plano en la provincia de Mosul. **Pacientes y métodos:** Para cumplir con el objetivo del estudio, se utilizó un estudio descriptivo transversal en la Clínica de Dermatología del Hospital Universitario Ibn Sina en Mosul, Irak desde enero de 2018 a enero de 2020. Este estudio reclutó doscientos cuarenta y dos casos que padecían de varios signos clínicos de liquen plano. Se realizó un diagnóstico clínico de liquen plano, confirmado mediante biopsia e histopatología en los casos sospechosos. **Resultados:** el liquen plano comprendió aproximadamente el 0,35% de los casos que acudieron a consultas externas de dermatología. La edad media  $\pm$  DE de los pacientes fue de  $39,2 \pm 15,4$  años (rango de 12 a 87 años), con una proporción de hombres a mujeres de 1: 1,1. El tipo clásico fue el tipo más típico de liquen plano detectado en 126 (52,06%), mientras que el tipo actínico fue (15,28%), el tipo hipertrófico (7,85%). Las extremidades superiores se cambiaron en 114 casos. Por el contrario, las extremidades inferiores se vieron afectadas en 116 pacientes. El prurito lo presentaron 156 (64,46%) pacientes que padecían prurito severo. La intensidad de la picazón basada en PVAS fue de  $7,2 \pm 2,1$ . **Conclusión:** El liquen plano se considera una afección cutánea papuloescamosa prevalente en la ciudad de Mosul. La mayoría de los casos afectados son de mediana edad. El tipo clásico es el más típico, seguido del tipo actínico.

**Palabras clave:** Liquen plano, clásico, actínico, prurito.

## Introduction

**L**ichen planus is one of the common papulo-squamous skin conditions that affects hair, nail, and mucous membrane<sup>1</sup>. Lichen planus clinically could be classified according to morphology, anatomical sites, and distribution<sup>2</sup>

and their occurrence varies according to age, geographical, and climate changes<sup>3,4</sup>. The main etiology of lichen planus is not fully understood, however, different hypotheses were studied, and one of them was the autoimmune theory<sup>1,2,6</sup>. The duration of the disease is variable from a few months to years, but it may be lifelong<sup>4,5</sup>.

The exact prevalence of lichen planus is unknown, however, it is thought to be less than 1 percent of the population<sup>4,7,8</sup> in many countries. Lichen planus appeared mainly after the third decade of life, with peaks between 40 and 70 years in western country patients<sup>9</sup>. Lichen planus affected children in 5% or less of patients<sup>9</sup>. However, in some regions, childhood cases are responsible for more than 10% of lichen planus cases. These areas included the Indian subcontinent, Arab countries, and Mexico<sup>9</sup>. Race appeared to be the critical factor since in the UK 80% of childhood lichen planus was seen in Indians<sup>9</sup>.

Many workers studied various aspects of lichen planus in the Middle East and regional countries<sup>5,8,10</sup>. However, few studies were concerned with the clinico-epidemiological pattern of lichen planus in Mosul.

This study was conducted to assess the clinical and observational aspects of lichen planus in Mosul province.

The study was conducted as a cross-sectional descriptive study in Dermatology Clinic at Ibn Sina Teaching Hospital in Mosul, Iraq from January 2018 to January 2020. Two hundred and forty-two patients who suffered from different clinical types

of lichen planus were enrolled in this study including both sexes and all age groups were recorded. A clinical diagnosis of lichen planus was made which was confirmed by biopsy and histopathology in suspected patients. After a detailed history, a complete cutaneous and systemic examination was carried out. The severity of itching was measured according to Pruritus Visual Analogue Scale (PVAS) for each patient. In addition to routine investigations, any relevant investigations when required were also carried out. Data are presented as mean  $\pm$  SD and were analyzed using a non-paired T-test. The data were processed using statistical package SPSS version 23.

## Results

**A** total of 242 patients of different clinical types of lichen planus were seen in this study. Lichen planus constituted about 0.35% of patients attending dermatological outpatient clinic. Mean  $\pm$  SD age of the patients was 39.2 $\pm$ 15.4 years (age range: 12-87 years), the age of males was 37.9 $\pm$ 16 years and for females 40.6 $\pm$ 14.8 years. The most common age group afflicted was those between 40 to 87 years which compromised 142 (58.67%) individuals as shown in Table 1. The number of males affected with lichen planus was 112 (46.28%) whereas females constituted 130 (53.71%), with a ratio of male to female 1:1.1.

**Table 1. Age groups and sex distribution of patients with lichen planus.**

Age	No.	Percentage	Sex			
			Male	Percentage	Female	Percentage
1-19 year	13	5.37%	13	100%	0	0%
20-29 year	70	28.92%	22	31.42%	48	68.57%
30-39 year	15	6.19%	5	33.33%	10	66.66%
40-49 year	89	36.77%	34	38.2%	55	61.79%
50-87 year	53	21.9%	36	67.92%	17	32.07%

## Methods

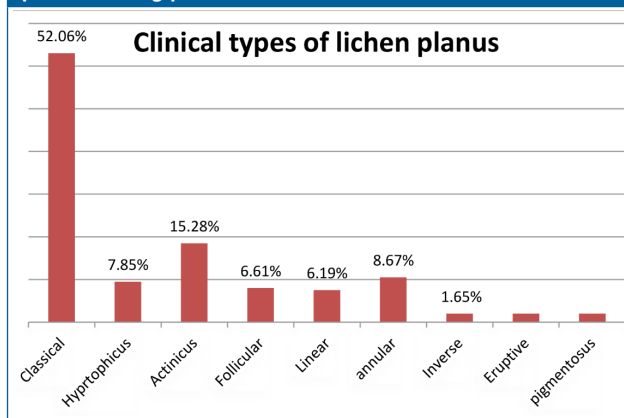
**T**he duration of all types of lichen planus ranged from 1 month to 7 years with 0.94 $\pm$ 0.93 years. Recurrence of the disease was found in 68 (28.09%) patients while 174 (71.9%) patients were presented for the first time.

Few patients had different clinical types of lichen planus at the same time, classical type was the commonest type of lichen planus seen in 126 (52.06%), while actinic type was (15.28%), hypertrophic type (7.85%), follicular type (6.61%), annular type (8.67%), eruptive type (1.65), linear type (6.19%), each pigmented and inverse type was (1.65%). Different types of lichen planus are seen in Figure 1. The percentage of different clinical types of lichen planus among patients is shown in Figure 2.

**Figure 1.** (A) classical type of lichen planus on the dorsum of hand. (B) Koebner phenomenon of hypertrophic lichen planus on the lower leg. (C) Lichen planus pigmentosus on axillae. (D) Annular type of lichen planus on glans penis

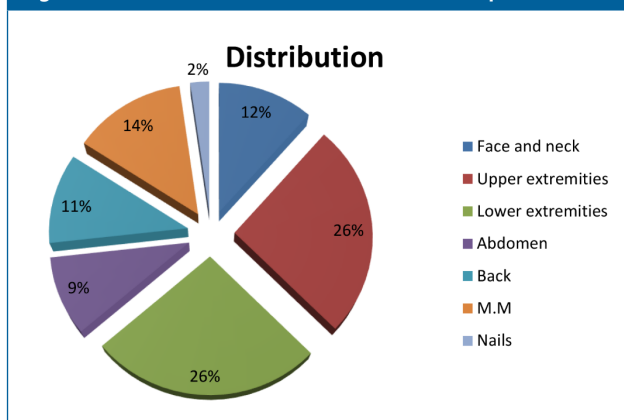


**Figure 2.** The percentage of different clinical types of lichen planus among patients.



The sites of predilection were variable from patients to patients. The disease was presented in more than one anatomical site at the same time. The upper extremities were found to be affected in 114 patients, while the lower extremities were affected in 116 patients, face 51, abdomen 42, back 48, oral mucosa 40, genitalia 20, and the less affected site was the nails seen in 10 individuals (Figure 3).

**Figure 3.** The anatomical distribution of lichen planus.



The itching was the most common symptom presented by 156 (64.46%) patients suffered from pruritus, including 120 patients with classical types of lichen planus, 19 hypertrophic type, 9 follicular type, 4 in linear type, and 4 in eruptive type. The severity of itching according to PVAS was  $7.2 \pm 2.1$ . A Koebner phenomenon was found in 24 (9.91%) patients.

This study showed that lichen planus may be associated with other autoimmune diseases included psoriasis in 10 patients, vitiligo in 8 patients, chronic urticaria in 4 patients, allergic rhinitis in 7 patients, and type 1 diabetes mellitus in 13 patients. One patient had a peptic ulcer and none of them had a history of jaundice or hepatitis. Patients had no significant history of drug intake. Family history of lichen planus was positive in 12 (4.9%) patients. Goiter was found in 6 (2.4%) patients, alopecia areata in 3 (1.23%) patients, and psoriasis in 13 (5.37%) patients.

## Discussion

The prevalence of lichen planus was less than 1% of the total patients diagnosed in the Dermatology Departments in USA, India, and Egypt<sup>4-6</sup>. These studies are consistent with the present study which diagnosed 0.35% of the total attendant

patients in Dermatology Clinic. There is no racial difference for lichen planus; however, high incidence of the disease was found in Indian, and black American patients<sup>7</sup>.

The male to female ratio was 1: 1.1 which indicated no significant gender difference. However, lichen planus was more common in females<sup>1,2,11</sup>.

The age range of 59% of lichen planus patients was 40-70 years, however, 30% of the patients in their third decade of life. The climate could be a factor for the young age disease. since lichen planus affected younger age patients in tropical and subtropical areas<sup>5,12</sup>.

Lichen planus rarely affected children<sup>1,7,13</sup>. In this study, about less than 5% of the cases affected male children, since most autoimmune diseases occur in females this gives rise to other theories in the pathogenesis of lichen planus other than autoimmune theory<sup>6</sup>. Suspected hepatitis B vaccination might play a role in the pathogenesis of lichen planus in children<sup>13</sup>. Accordingly, we may encounter more new cases of lichen planus in children since the vaccine becomes routine in our country.

Most common clinical variant among patients with lichen planus was the classic type, followed by hypertrophic and actinic types<sup>1,2,7</sup>. In this study, the classical type was still the most common variant presented by two-thirds of the patients followed by actinic type presented by one-fifth of the patients. The sunny hot climate especially in summer times could be a risk factor for the disease. The actinic

type was followed by the hypertrophic, annular, follicular, linear, inverse, eruptive, and pigmented type. These findings are similar to other epidemiological studies<sup>5,12</sup>.

The limbs were mostly involved at the onset of lichen planus with the classical, and hypertrophic types of the examined patients, these results are consistent with other workers<sup>5,6,8</sup>. The second most common site was the mucous membrane which was lower than other studies<sup>8,11,14</sup>, since most of the patients attended medical care in dental clinics, and the asymptomatic nature of the disease. The reticular type (subtype of oral lichen planus) was the most common type followed by ulcerative type, while the atrophic type was not seen among patients. Face and neck presented the next common site and the suffered patients were actinic type. Exposure to sunlight played an important role in the pathogenesis of lichen planus actinicus<sup>5</sup>.

Lichen planus also affected the hair<sup>7,5,9,14</sup>. In the current study, 4.7% of the patients had patches of cicatricial alopecia with purple papules around the hair follicles on the scalp region diagnosed as lichen planopilaris.

Nail involvement was seen only in 2% of the patients which was lower than expected with other studies<sup>7,14,15</sup>, in the form of pterygium, nail dystrophy, and onycholysis. This result may be due to misdiagnosed nail changes which need a dermatoscopic examination to assess early nail changes<sup>15</sup>.

Gentle involvement of lichen planus was 7.8% of the present patients with predominant annular type in male patients. This result is consistent with other studies<sup>6,8,10</sup>. However, the level was less than encountered by other associates<sup>5,16</sup>. Social embracement of the patients and refusal of clinical examination could result in lower attended patients.

Pruritus is the main presenting symptom of lichen planus. Itching is variable from mild to severe paradoxical itching<sup>17</sup>, High incidence of severe itching (PVAS score 7) was presented by 64.4% of the studied present patients, most of those patients gave a history of rubbing the skin to relieve itching, scratch marks were also seen in 15% of the patients with the severe pruritic disease. However, the present patients with actinic, annular, inverted, and a pigmented variant of lichen planus did not report itching.

There is much evidence that lichen planus has a familial predisposition to the disease but there is no accurate data to assess the familial association of lichen planus<sup>13,18</sup>. In this study we found about 5% of the patients had a familial history of lichen planus, however, about 17% of the patients have a clinical association with other autoimmune skin and systemic diseases and about 9% of the patients had a familial history of other autoimmune skin and systemic diseases. These results support the autoimmune theory rather than a genetic role in the pathogenesis of the disease<sup>1,3,7,14</sup>.

In conclusion, lichen planus is one of the common papulosquamous skin conditions in Mosul city. Most affected

patients are middle age group. Classical type is the commonest type, followed by actinic type.

### Limitation of this study

This study was conducted in one of hospitals in the city, further data need to collect from other hospitals and medical center to cover the precise data about the epidemiology of lichen planus in Mosul city and may reveal other clinical types of lichen planus which is not mentioned in this study.

### Acknowledgment

This study was supported by College of Medicine, University of Mosul, and Ibn Sina Teaching Hospital, Mosul, Iraq.

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