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Demographic and Clinical Variants of Lichen Planus: A Retrospective Study in Aden, Yemen

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ABSTRACT

Background: Lichen planus is a group of chronic inflammatory diseases affecting stratified squamous epithelia.
Objective: To determine the demographic characteristics, the clinical variants, and the site involvement and to compare the study results with the findings of the literature.
Materials and methods: The study was based on the retrospective analysis of the medical files of patients who attended two private clinics in Almansoora district, Aden, between the years of 2019 – 2020. SPSS 17 was used. Data were analyzed using descriptive statistics and chi-square test. $P < 0.05$ was considered statistically significant.
Results: The study patients were 102 (62.2%) females and 62 (37.8%) males. The age ranged between 20 – 60 years. The age group 41 – 50 had the highest number of patients 56 (34.1%). The involvement of skin only was observed in (58.6%) patients.
Concomitant involvement of mucous membranes with skin was seen in (16.3%) patients, nails with skin in (7.3%), face in (6.1%) and skin + mucous membranes + nail in (4.9%) patients. Classic variants of lichen planus were predominant in (63.4%) patients followed by hypertrophic lichen planus in (15.9%), ($p = 0.001$). Koebner phenomenon found in (18.3%) patients with lichen planus. The arterial hypertension found in (11.0%) patients followed by diabetes mellitus in (8.6%) patients.
Conclusion: Most affected patients of lichen planus were the age group 41 – 50 years old, followed by the age group > 50 years old. Further studies are need to determine the prevalence of this skin disorders among residents of Aden governorate.

Key words: Lichen planus, demographic characteristics, clinical variants, Aden, Yemen.

INTRODUCTION

The term lichen planus (LP) stems from the Greek word "*lichen*," which means "tree moss," and the Latin word "*planus*," which means "flat," which aptly describes the surface of the cutaneous lesion [1]. Lichen planus is a group of chronic inflammatory diseases affecting stratified squamous epithelia. Lichen planus has various clinical variants affecting the skin, mucous membranes, nail and hair. The incidence varies according to geographical regions although it is seen in all the world and all races [2].
Lichen planus involving a T-cell mediated autoimmune response against basal epithelial keratinocytes resulting in lesions of skin, mucosa and/or skin appendages [3,4]. Based on the morphology and localization of the lesions, lichen planus manifests in different variants [5]. There is evidence that IFN-γ, described as a key pro-inflammatory cytokine in lichen planus, and IL-21 dominate the inflammatory process in cutaneous lesions [6]. Lichen planus has been shown to be characterized by a peripheral blood Th1/Th17-dominated cell response [7]. However, the exact etiology is unclear. As a consequence of its clinical features and the associated pain, itch, stigma and psychological distress, lichen planus has a substantial negative impact on health-related quality of life [4,8,9].
Viruses, drugs and contact allergens have all been reported to be possibly associated with

development of lichen planus **[10-12]**. The prevalence of lichen planus is 0.89% in the general population and 0.98% in patients seeking dermatological care according to a recent meta-analysis of 46 studies **[13]**. The prevalence of cutaneous lichen planus was reported to range between 0.2 and 1.0% of the adult population, and it is outnumbered by oral LP in most study populations **[1,10]**. Cutaneous lichen planus tends to manifest during the fifth and sixth decades of life, with almost two-thirds of patients presenting with the disease between the ages of 30 and 60 years **[11,14]**.

Objective

To determine the demographic characteristics, the clinical variants, and the site involvement and to compare the study results with the findings of the literature.

MATERIALS AND METHOD

This study was based on the retrospective analysis of the medical files of patients who attended an two private clinics in Almansoora district, Aden, between the years of 2019 – 2020. The review of the medical files performed by the first author.

The second author took part in the analysis and data processing of the patients' medical files. Diagnoses of the mucosal lesions, found in the medical files, were made mainly on the basis of examination, observation, and clinical interview. Finally, 164 medical files were reviewed. The patients' files were retrieved and information about sex, age, duration of disease, clinical variants, site of involvement, Koebner phenomena and comorbid conditions were obtained. All data obtained from the patients' files were entered into the SPSS 17 software and were analyzed using descriptive statistics and chi-square test. $P < 0.05$ was considered statistically significant.

RESULTS

This retrospective study conducted at two private clinics in Aden, Yemen, during the period January 2019 to December 2020. The records of 164 patients diagnosed with confirmed lichen planus were retrospectively reviewed. Of these, 102 (62.2%) were females and 62 (37.8%) were males, with a female -to-male ratio of 1.65:1 (Figure 1). For females, the mean age at initial diagnosis was 43.2 ± 9.0 years, and for males, it was 41.4 ± 10.6. The age range of the patients considered for the current study was 20 – 60 years. The age group 41 – 50 had the highest number of patients 56 (34.1%), followed by the age group > 50 years 46 (28.1%) and the group 31 – 40 with 42 (25.6%). The difference between values was not statistically significant ($p > 0.05$), as shown in Table 1 and Figure 2.

In addition, Table 1 summarized the site involvement of lichen planus. The involvement of skin only was observed in 96 (58.6%) patients.

Concomitant involvement of mucous membranes with skin was seen in 30 (16.3%) patients, nails with skin in 12 (7.3%), face in 10 (6.1%) and skin + mucous membranes + nail in 8 (4.9%) patients. Penis involvement was found in 4 (2.4%) male patients and scalp involvement in 4 (2.4%) female patients.

The mean duration of lichen planus prior to presentation in all patients was 10.1 *months (range 1 month – 4 years*). (For females was 12.3 and for males was 6.7), as shown in Table 1. Finally, there was statistical *significant difference between duration means of both gender (p = 0.004).*

Classic variants of lichen planus were predominant in 104 (63.4%) patients followed by hypertrophic lichen planus in 26 (15.9%), and pigementosus lichen planus in 18 (11.0%) patients. The difference between values related to sex was statistically significant (p = 0.001), as shown in Table1.

Table 1: Distribution of age groups, site and means related to sex (n=164)

Variables	Sex				Total		p-value
	Females		Males				
	No	(%)	No	(%)	No	(%)	
Age groups (years):							
20 – 30	10	(6.1)	10	(6.1)	20	(12.2)	
31 – 40	24	(14.6)	18	(11.0)	42	(25.6)	P > 0.05
41 – 50	42	(25.6)	14	(8.5)	56	(34.1)	
> 50	26	(15.9)	20	(12.2)	46	(28.1)	
Total	**102**	**(62.2)**	**62**	**(37.8)**	**164**	**(100)**	
Mean age (years)	**43.2 ± 9.0**		**41.4 ± 10.6**		**42.5 ± 9.6**		P > 0.05
Age range (years)	**26 – 60**		**20 – 58**		**20 – 60**		
Site involvement:							
Skin	56	(34.1)	40	(24.5)	96	(58.6)	
Mm with skin*	20	(12.2)	10	(6.1)	30	(16.3)	
Nails with skin	8	(4.9)	4	(2.4)	12	(7.3)	P > 0.05
Face	8	(4.9)	2	(1.2)	10	(6.1)	
Smmnail**	6	(3.7)	2	(1.2)	8	(4.9)	
Penis	0	(0.0)	4	(2.4)	4	(2.4)	
Scalp	4	(2.4)	0	(0.0)	4	(2.4)	
Total	**102**	**(62.2)**	**62**	**(37.8)**	**164**	**(100)**	
Mean duration of illness (months):	12.3 ±14.3		6.5 ±7.6		10.1 ± 12.5		P = 0.004
Clinical variants:							
Classic	66	(40.2)	38	(23.2)	104	(63.4)	
Hypertrophic	10	(6.1)	16	(9.8)	26	(15.9)	
Pigmentosus	16	(9.8)	2	(1.2)	18	(11.0)	P = 0.001
Linear	4	(2.4)	2	(1.2)	6	(3.7)	
Annular	0	(0.0)	4	(2.4)	4	(2.4)	
Planopilaris	4	(2.4)	0	(0.0)	4	(2.4)	
Mixed***	2	(1.2)	0	(0.0)	2	(1.2)	

*Mm with skin = Mucous membrane with skin; ** Smmnail = Skin & mucous membrane + nail., *** Mixed = lichen planus + discoid lupus

Figure 1: Proportions of study patients related to sex

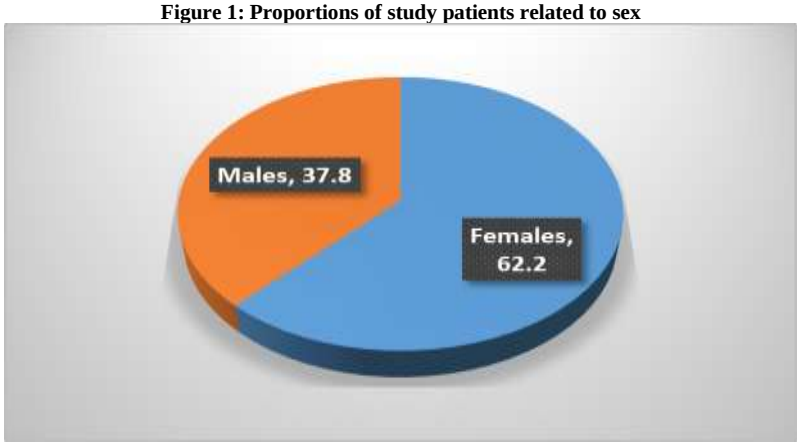


Figure 2: Distribution of age groups related to sex

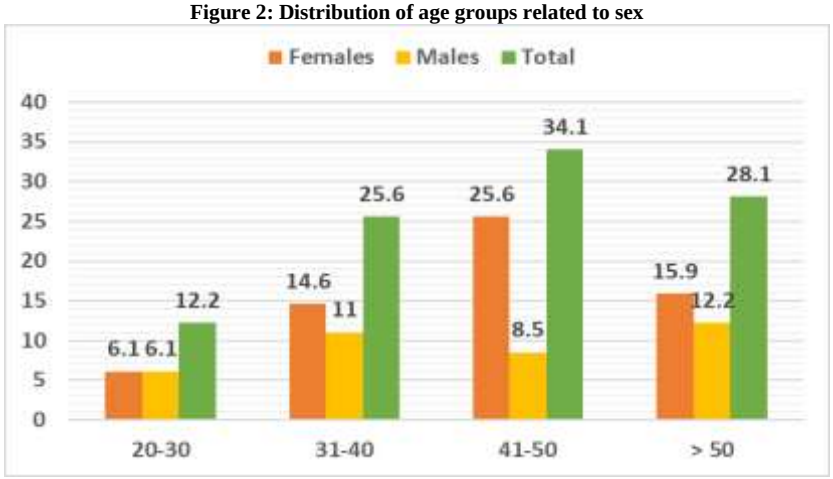
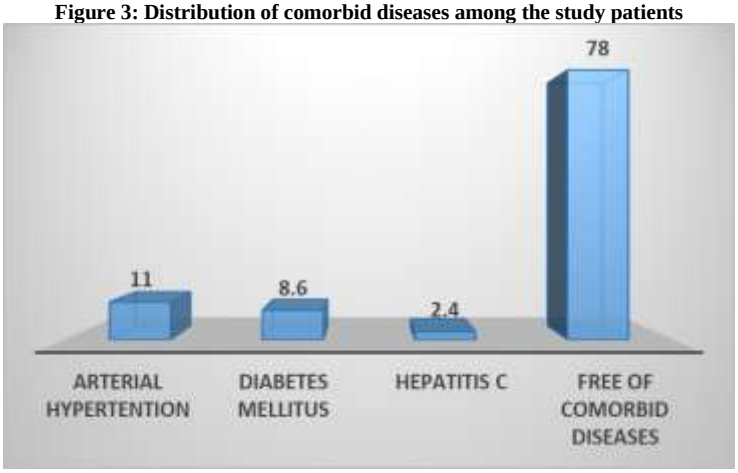


Table 2 reveals the Koebner phenomenon was found in 30 (18.3%) patients with lichen planus while 134 (81.7%) patients were free from this phenomenon. In addition, Table 2 & Figure 3 summarized the comorbid disorders among the study patients. The arterial hypertension found in 18 (11.0%) patients followed by diabetes mellitus in 14 (8.6%) patients and hepatitis c in 4 (2.4%) patients. The total patients who were free of comorbid diseases were 128 (78.0%).

Table 2: Frequency of Koebner phenomenon and Comorbidities (n=164):

Variables	No	%
Koebner phenomenon:		
Absent	134	81.7
Present	30	18.3
Comorbidities:		
Arterial hypertension	18	11.0
Diabetes mellitus	14	8.6
Hepatitis C	4	2.4
Free of comorbid diseases	128	78.0

Figure 3: Distribution of comorbid diseases among the study patients



DISCUSSION

LP is an idiopathic subacute or chronic inflammatory disease of the skin, mucous membranes and nails [1]. Exact pathogenesis of lichen planus is still unclear. Several hypotheses have been made regarding its aetiology, including genetic, infective, psychogenic and autoimmune factors [15,16]. Recent studies provide evidence that autoreactive cytotoxic T lymphocytes are the effector cells which cause degeneration and destruction of keratinocytes [15].

In our present study, we found 62.2% females and 37.8% males, with a female -to-male ratio of 1.65:1.

Published studies reported that males and females are equally affected by the LP disease, in some studies it is reported that the disease is seen twice as often in females than males [17,18]. In a study by Manolache et al 76% of LP patients were of females [19]. In a study conducted by Sen et al, 56% of the patients were females and 44% were males [20]. In other a study conducted by Yanık et al, the number of male and female patients was equal [21].

Similar findings were reported by Lee-Cleach et al [22] that women are more frequently affected than men at a ratio of 1.5:1.

In the current study, the mean age for females at initial diagnosis was 43.2 ± 9.0 years, and for males, it was 41.4 ± 10.6. The age range of the patients considered for the current study was 20 – 60 years. The age group 41 – 50 had the highest number of patients 56 (34.1%), followed by the age group > 50 years 46 (28.1%) and the group 31 – 40 with 42 (25.6%).

Bilgili et al [23] reported in their study that LP affects patients of all ages, but up to 95% of all cases occur in adults, with most patients presenting between the third and sixth decades of life.

In our study, the involvement of skin alone was observed in 58.6% patients. Involvement of mucous membranes with skin was seen in 16.3% patients, nails in 7.3% and skin + mucous membranes + nail

in 4.9% patients.

While lichen planus often occurs only on cutaneous surfaces, it may also involve the oral mucosa, the genital mucosa, the nails and the scalp. Moreover, these areas may be exclusively involved. Oral lichen planus classically presents on the buccal mucosa as a white, lacy, reticular pattern **[24]**. Boyd et al **[1]** mentioned that LP is an idiopathic subacute or chronic inflammatory disease of the skin, mucous membranes and nails.

In our study, mucous membrane involvement in 16.3% patients that to some extent similar as compared to a reported involvement of mucous membrane in 15–25% **[25]**. Nails involvement found in 7.3% of patients with LP, though a much lower than 28% that has been reported in a single-center study **[26]**. In addition, we found the involvement of face was seen in 10 (6.1%) patients. Scalp involvement in 4 (2.4%) female patients. Penis involvement was found in 2.4% male patients.

Lewis **[27]** reported in his study that genital lichen planus may also exhibit various morphologies. In men, the classic lesion is visible as violaceous papules on the glans penis.

Our study, revealed the mean duration of lichen planus prior to presentation in all patients was 10.1 *months (range 1 month – 4 years*). (For females was 12.3 and for males was 6.7). Finally, there was statistical *significant difference between means of duration in both gender (p = 0.004).*

The duration of lichen planus is variable from a few months to years, but it may be lifelong **[1,28]**.

In the present study, classic variants of lichen planus were predominant in 104 (63.4%) patients followed by hypertrophic lichen planus in 26 (15.9%), and pigementosus lichen planus in 18 (11.0%) patients. The difference between values related to sex was statistically significant (p = 0.001).

Similar to our findings were reported in the published studies that the most common type is classical lichen planus and the others are eruptive lichen planus, lichen planopilaris, hypertrophic lichen planus, and pigmented lichen planus **[1,2,29-31]**.

In the current study, the Koebner phenomenon was found in 30 (18.3%) patients. Al-Chalabi et al **[32]** reported in their study that a Koebner phenomenon was found in 24 (9.91%) patients, which was lower than our finding.

In our current study, associated systemic diseases (comorbidities) were found in 36 (22%) patients, with arterial hypertension in 18 (11.0%), diabetes mellitus in 14 (8.6%), and hepatitis c in 4 (2.4%) patients.

Gupta et al **[33]** reported in their study that associated systemic diseases were found in 19 (11%) patients with diabetes mellitus in three (1.8%), hypertension in eight (4.7%), and both diabetes mellitus and hypertension in eight (4.7%) patients. In the study by Bhattacharya et al **[25]**, systemic diseases were found associated in 38 (16.4%) patients, 10 (4.3%) patients had hypertension, three (1.3%) had diabetes mellitus, and two (0.9%) had both hypertension and diabetes.

One study **[34]** reported that, in Indianapolis, a region with a low endemic prevalence of HCV, tests for HCV antibody were positive in 3.5 percent of patients with lichen planus. However, only patients with abnormal liver function tests were screened. Two studies of patients with lichen planus that did not exclude patients with normal liver function reported a positive HCV antibody in 23 percent of patients tested in Miami **[35]** and 60 percent of patients tested in a region of Japan with a high endemic HCV prevalence **[36]**.

CONCLUSION

Lichen planus is a group of chronic inflammatory diseases affecting stratified squamous epithelia. Most affected patients were the age group 41 – 50 years old, followed by the age group > 50 years old. Further studies are need to determine the prevalence of this skin disorders among residents of Aden governorate.

Declaration by Authors
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