ORIGINAL ARTICLE

Twenty Years of Experience with Lichen Planus in Kaduna, North-West Nigeria

Husain Yahya

ABSTRACT

Background: Background: Lichen planus (LP) is a chronic inflammatory papulosquamous autoimmune disease which predominantly affects the skin but may also affect mucous membranes and nails. It is commoner in adults and occurs in all races. Reports about LP from northern Nigeria are scanty. **Objective:** To report the relative prevalence, duration, clinical presentation, and outcome of treatment for patients with LP seen over 20 years. **Methods:** Retrospective review of records of patients diagnosed with LP in two dermatology clinics in Kaduna, Nigeria from September 2001 – August 2021. **Results**: Of 39,037 patients with new skin disease, 335 (0.9%) were diagnosed with LP: mean age 37.6 years (range 5 -81), 11.3% < 18 years and 55% < 40 years, male-female ratio 1:1. The median duration at presentation was 8 weeks (75% ≤ 16 weeks). The lower legs (65%), lower arms (61.2%), abdomen (31.6%), upper arms (29%), upper back (28.1%), lower back (27.2%), chest (22.4%) and thighs (21.5%) were the most frequently affected sites. The oral mucosa, penis and nails were affected in 6, 9 and 2 patients only. Itching (97%), hyperpigmentation (26.6%), and Koebner's phenomenon (23%) were also present. Classic LP accounted for 88.1% while hypertrophic LP (12.5%) and annular LP (6.3%) were other variants, some patients with multiple variants. Just over 7 % of patients had previous disease (median interval 7 years). Hepatitis C virus antibody was positive in 6.2%. All patients were treated with topical steroids but 45% required oral prednisolone. On follow-up, LP had resolved in 79.4% of patients. **Conclusion:** Lichen planus affected a younger population, presented in a classic way in most patients, affected the oral and other mucosae much less frequently and responded well to topical and systemic steroids.

Key words: Lichen planus, clinical presentation, Kaduna-Nigeria

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Introduction

Lichen planus (LP) is a chronic inflammatory papulosquamous disease affecting predominantly the skin but may also affect the nails, scalp, and mucous membranes.[1] Classic LP is characterized by multiple, itchy, discrete-to-confluent, flat-topped, polygonal papules and plaques which are purplish in Caucasians or the light-skinned but are slate grey in black skin.[2] The surface of lesions is shiny and dry and often has a fine, white, lacy scaling called Wickham's striae. It affects adults mainly – only 1 – 3% are children. [1] Cutaneous LP is symmetrically distributed on the extremities but may affect the trunk and face and may be generalized. Variants of lichen planus include annular, bullous, hypertrophic, linear, dermatomal, Blaschkoid, atrophic or actinic.[1, 2] Lichen planus may also affect the oral mucosa, oesophagus, penis, vulva and vagina; lesions in these locations, although mostly asymptomatic, may be erosive and produce a long-lasting disabling disease and interfere with the quality of life of patients.[2] Lichen planus usually lasts a year or two but may run a chronic and relapsing course [1, 2] and may also be associated with extra-

cutaneous and extra-mucosal disease: LP has been strongly associated with hepatitis C virus (HCV) infection[3] and may be accompanied by dyslipidemia and other metabolic abnormalities.[4] Furthermore, there is a high risk of malignancy in certain variants of the disease such as erosive oral or vulval disease;[5] Squamous cell carcinoma has also been reported to complicate longstanding hypertrophic LP.[6]

Lichen planus has a characteristic histopathologic appearance. Light microscopy shows marked orthokeratosis, circumscribed wedge-shaped hypergranulosis, irregular sawtooth-like acanthosis of rete ridges, vacuolar degeneration of keratinocytes giving rise to Civatte bodies, and a band-like inflammatory infiltrate of lymphocytes in the upper dermis which touches or obscures the dermo-epidermal junction.[7] The aetiology is unknown but is believed to be autoimmune in origin which results in CD8 + lymphocyte-mediated destruction of basal keratinocytes - LP may be associated with other autoimmune diseases. [2]

Lichen planus is a fairly common disease: it is estimated to affect 0.5 to 1% of the general population and is encountered frequently in dermatology clinics all over the world where the relative frequency of the disease ranges from 0.4 to 1.2% where it affects all races.[1, 2] In Nigeria, the relative frequency of LP in dermatology clinics in recent reports ranges from 1% in Calabar[8] to 4.5% in Ogbomoso[9]. Rates have also varied within Africa: Egypt (0.28%),[10] Senegal, (0.5%),[11] Togo (1.9%) [12] and Ghana (3.7%).[13] Lichen planus affects women slightly more than men.[1, 2]

Published reports about LP from northern Nigeria are scanty. The purpose of our study is to present our experience of diagnosing and treating patients with LP in Kaduna, north-west Nigeria over 20 years and highlight similarities and differences in the prevalence, spectrum of clinical presentation and variants of the disease in Nigeria, Africa and other parts of the world. It is hoped this will further our understanding of the disease in Black Africans.

Methods

The study was a retrospective review of records of consecutive patients with new skin diseases diagnosed with LP at the dermatology clinics of Barau Dikko Teaching Hospital and Habbat Medical Centre, in Kaduna, Nigeria from September 2001 to August 2021. Diagnosis of LP was mainly clinical; histopathology was used to establish the diagnosis where the diagnosis was uncertain. All the patients were examined by a dermatologist. Patients' confidentiality was strictly maintained. Kaduna, with an estimated population of 1.7 million, is a cosmopolitan city in north-west region of Nigeria with co-ordinates 10.5015° N, 7.4408° and has a diverse population with all ethnic groups and occupations represented. It is the capital of Kaduna State. Patients came to the clinics from within and outside Kaduna and from as far away as Sokoto 491 km in the northwest of Nigeria. They came to the clinic on their own, referred by other patients or from public and private healthcare facilities and pharmacies.

Data retrieval, processing and analysis

Medical records of patients who were diagnosed with LP were retrieved and demographic data, duration and type of disease, sites affected, symptoms associated with the disease, precipitating factors, history of previous disease and intervals between current and previous disease, what treatments were given, the outcome of treatment and duration of follow up extracted. Records of Hepatitis B virus and HCV infection were obtained. The study was approved by the Health Research Ethical Committee of Kaduna State Ministry of Health (approval number MOH/ADM/744/VOL.1/941). IBM SPSS version 22 (Armonk, New York, USA 2013) was to obtain descriptive statistics and to perform a Chi-Squared test to assess the significance of differences between categorical variables.

Results

From September 2001 to August 2021, we diagnosed LP in 335 out of 39,037 (0.9%) consecutive patients attending the outpatient skin clinics of Barau Dikko Teaching Hospital and Habbat Medical Center in Kaduna, Nigeria. There was a steady rise in the number of patients seen with the condition over 20 years, with 182/335 (54.3%) seen in the second decade (2012 – 2021) compared to 153/335 (45.7%) seen between 2001 – 2011 (see Figure 1). Table 1 shows a summary of the demographic and clinical characteristics of the patients. The mean age of the patients was 37.6 years (range 5 to 81) with 13.9% of patients being children or adolescents (< 20). Overall, 55% of the patients with LP were less than 40 years. The male-to-female ratio was 1:1. The disease had been present for a median of 8 weeks and 75% of patients had the disease for 16 weeks or less before

presentation. The distal legs and distal arms were the sites most frequently affected by LP at presentation (65% and 61.2%, respectively). The abdomen, the upper and lower back, (fig 2a) and the chest were affected in more than a quarter of patients. The disease manifested on the thighs (fig 2b) in 21.5%.

Legends for Tables and Figures

Table 1. Demographic and clinical characteristics of patients with lichen planus.

Table: Demographic and clinical characteristics of patients with lichen planus

Characteristic	n (%)*
Age (years):	
Mean ± SD	37.6 ± 16.9
Range	5 – 81
Age group:	
1 – 9	17 (5.1)
10 - 19	29 (8.8)
20 – 29	63 (19)
30 – 39	73 (22.1)
40 – 49	59 (17.8)
50 – 59	57 (17.2)
60 – 69	24 (7.3)
70 – 79	7 (2.1)
80 – 99	2 (0.6)
Gender:	
Male	169 (49.3)
Female	170 (50.7)
Sites of involvement	
Scalp	7 (2.1)
Face	12 (3.6)
Neck	21 (6.3)
Chest	75 (22.4)
Abdomen	106 (31.6)
Upper back	94 (28.1)
Lower back	91 (27.2)
Axillae/groin	3 (0.9)
Upper arms	97 (29)
Lower arms	205 (61.2)
Elbows/knees	26 (7.8)
Flexural wrists	49 (14.6)
Dorsal wrists	27 (8.1)
Buttocks	17 (5.1)
Thighs	72 (21.5)
Legs	218 (65.1)
Ankles	28 (8.4)
Dorsal feet	28 (8.4)
Palms of hands/soles of feet	9 (2.7)
Involvement of special sites	
Oral mucosa	6 (1.8)
Penis	9 (2.7)
Nails	2 (0.6)

Associated symptoms	
Itching	325 (97)
Koebner's phenomenon	77 (23)
Postinflammatory hyperpigmentation	89 (26.6)
Diagnosis of lichen planus	
Clinical	325 (97)
Histology required	21 (6.3)
Type of lichen planus:	
Classic	295 (88.1)
Hypertrophic	42 (12.5)
Annular	21 (6.3)
Lines of Blaschko	9 (2.7)
Dermatomal	5 (1.5)
Bullous	5 (1.5)
Actinic	1 (0.3)
Pigmentosus	2(0.6)
Hepatitis B and C virus serology: (n = 145)	
HBsAg positive	12 (8.3)
HCV antibody positive	9 (6.2)

Figures in parentheses are percent

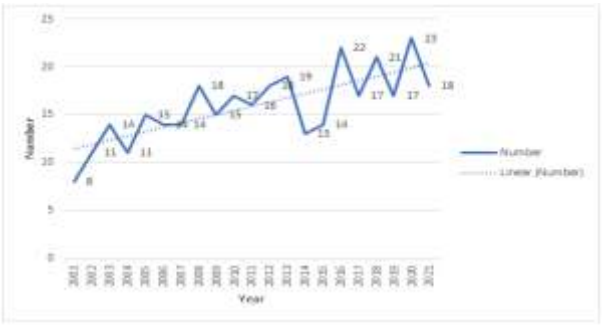
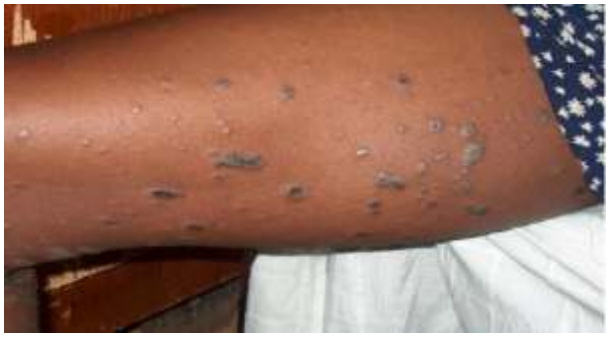


Fig 1. Number of patients with lichen planus seen over 20 years

Fig 2. (a) Classic lichen planus on the lower back

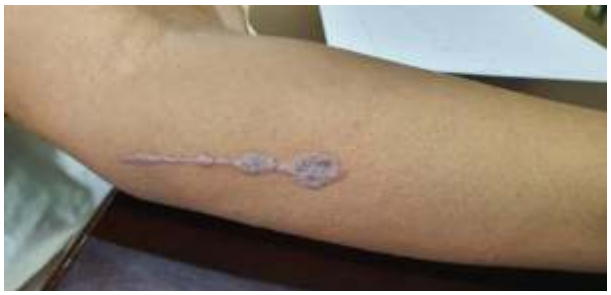


(b) Classic lichen planus on the thigh

(c) Erosive lichen planus hard palate

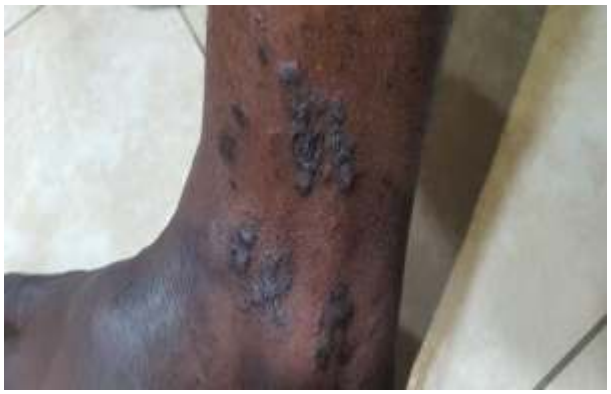
The scalp, the face including the lips, and the palms and soles were involved infrequently. So were the oral mucosa (fig 2c), the penis (fig 2d), and the fingernails. Itching of various degrees affected almost all patients; the Koebner's phenomenon (fig 1e) and post-inflammatory hyperpigmentation (fig 2f) were present in 23% and 26.6% of patients respectively. Diagnosis of the disease was clinical in most patients, with histological confirmation required in only 21. Although classic lichen planus was the dominant presentation affecting almost 90% of patients, in some instances, it was associated with hypertrophic lichen planus (fig 2g), which mostly affected the legs in 12.5% of patients, and annular lichen planus (fig 2h) (6.3%). Other types such as lichen planus on the lines of Blaschko or affecting a dermatome or associated with blisters were rarer. Lichen planus pigmentosus was seen in two patients. There were no gender and age-related differences in the clinical variants of LP. However, all nine cases of penile and six cases of oral disease were seen in adults. Two-thirds (4/6) of the patients with oral disease were women and their mean age was 43 years. Hepatitis B surface antigen was positive in 12/145 (8.3%) of patients in whom it was tested while HCV antibody was reactive in 9/145 (6.2%). All nine patients who tested positive for HCV had classic LP and none had the other variants. None of the HCV-positive patients had oral involvement. No specific precipitating factor for the disease was found and family history was absent in all patients. At presentation, 24 (7.2%) of patients had LP in the past (median interval from previous disease was 7 years, interquartile range 8 years). The median duration of follow-up for patients was three weeks with 88 (26.3%) never returning after the first visit. The longest duration of follow-up was 20 years in a patient with recurrent disease. During follow-up, 22/189 (11.6%) of patients had a recurrence – the median interval between presentation and recurrence was 4 years, with two-thirds of patients' disease recurring after 6 years. Almost all patients (97.6%) were treated with topical corticosteroids (clobetasol propionate, fluocinolone acetonide and betamethasone valerate). Topical 10% -15% salicylic ointment was used for hypertrophic lesions. An oral corticosteroid (prednisolone in a dose of 0.5 – 1mg/kg body weight) was used for two to six weeks in 45.4% of patients because of extensive disease or failure to respond adequately to topical steroids.

(d) Lichen planus glans and coronal sulcus of penis

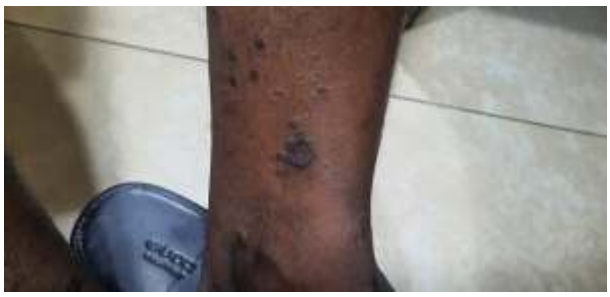


(e) Koebner's phenomenon in lichen planus

(f) Postinflammatory hyperpigmentation in lichen planus



(g) Hypertrophic lichen planus lower leg



(h) Annular lichen planus lower leg.

Oral dapsone (7.8%), oral metronidazole (6.6%) and azathioprine (2.7%) were used in patients with severe or recalcitrant disease. No oral retinoid (for example acitretin) was used in any patient because it was unavailable. Intralesional triamcinolone acetonide (9.3%) was used mainly in patients with hypertrophic LP or in patients who preferred an intramuscular injection to oral prednisolone. Triamcinolone paste was used to treat all patients with oral LP except the only patient with erosive palatal disease (fig 2c) which required an additional oral steroid and dapsone. In 196/247 (79.4%) of patients who returned for at least one follow-up, the lesions had resolved or were resolving satisfactorily. In 28/247 (11.3%), the disease had not responded well to treatment and required a longer period of topical or systemic agents.

Discussion

We have presented our experience and findings of treating lichen planus over 20 years in two outpatient dermatology clinics in Kaduna, north-west Nigeria. These were the only clinics in Kaduna where a trained dermatologist offered uninterrupted services. Although the overall relative frequency of lichen planus in relation to other skin diseases over the period has remained virtually the same - 0.9% in this study compared to 1.2% in a previous report from the same centers[14] – there was an upward trend in frequency of patients seen with the disease with almost 54.3% of patients seen between 2011 to 2021. This mirrors the overall increase in skin clinic attendance over the period (58% of patients), likely due to increased awareness of the service with time. There is a wide variation in the prevalence of LP in Nigeria: Yusuf et al.[15] diagnosed LP in 4% of 3,874 patients attending a tertiary centre dermatology clinic in Kano, north-west Nigeria. Rates of 1% and 4.5% have been reported recently in similar clinics in Calabar and Osogbo in southern Nigeria, respectively.[8,9] The same variation occurs in Africa. While Rosenbaum et al.[13] reported that 3.7% of 631 patients attending the skin clinic at The Korle Bu Teaching Hospital in Accra, Ghana were diagnosed with LP. Teclessou and colleagues[12] diagnosed LP in 1.9% of 42,135 attending two tertiary hospital dermatology clinics in Lome, Togo. Diop et al. [11] found 0.5% of 15,951 patients attending a similar clinic in Dakar, Senegal had LP. Anbar and colleagues [10] also reported a low frequency (0.28% of 17,940) of LP in patients attending a tertiary skin clinic in southern Egypt. Lower rates have also been reported recently from India by Bhattacharya et al. (0.38% of 60,312 patients)[16] and the United States (0.39% of 203,025 patients).[17] It is not clear why LP appears to be more common in West Africa than elsewhere but is likely genetic. An equal number of males and females were diagnosed with LP in our study in contrast to many reports from within and outside Nigeria[9-12,15,17] in which females predominated; in studies by Diop et al. and Leasure and Cohen, females constituted as high as 84.6% and 74% respectively.[11,17]Male patients predominated, however, in studies by Anbar et al. and Bhattacharya et al.[10, 16]. Lichen planus is more common in females likely because of their known predisposition to autoimmune diseases.[18] Our patients were younger than patients from developed countries[17] but similar in age to African and Indian patients.[10 - 12] Children (age < 18 years) also constituted a larger proportion of our patients (11.3%) than has been reported in developed countries where LP in children is said to be rare, affecting only 1 – 3% of patients.[1] Pediatric LP appears to be particularly common in India: 66.3% of 985 patients with childhood LP reported worldwide in one recent systematic review and meta-analysis were from that country.[19] It is also noteworthy that 72% of children with LP in one US study were African-American,[20] suggesting that genetic susceptibility is important in childhood LP.

Most of our patients had classic lichen planus alone or in combination with other variants such as hypertrophic LP, annular LP and dermatomal LP. Other variants such as actinic LP and LP pigmentosus were very rare. We did not see any patients with atrophic LP, LP pemphigoids or Lichen planus-lupus overlap. The distal arms and legs were the most frequently affected as has been reported worldwide.[1,2,10-12,15-17] Genital involvement (mainly the penis) was rare in our patients in contrast to many other reports. This may be related to high circumcision rates in Nigeria.[21] Amsellem et al. [22] in France, in the largest series to date of patients with penile LP, found 94.5% of 89 patients were uncircumcised. They suggested that, perhaps, Koebner's phenomenon may be partly responsible for this occurrence. Furthermore, penile and vulvovaginal LP is often asymptomatic and patients may not notice or report any abnormality unless specifically asked or looked for.[23] Oral involvement,

mainly the lacy type, was rare in our patients (1.8%), as in Yusuf et al.'s [15] report. All of our patients were asymptomatic and were treated with local triamcinolone paste except a patient with the erosive oral disease (fig 2c) who was also treated with prednisolone and oral dapsone but was lost to follow-up. Our study is, nonetheless, consistent with the finding of others that oral LP affected mainly an older adult population who were predominantly female.[24]

We found only 6.2% of patients were positive for HCV antibody and this did not differ from the general population of Kaduna State[25] and is consistent with Daramola et al.'s [26] finding that there is no documented association between HCV infection and LP in Nigeria. There's a wide variation in the rate of HCV infection in LP with some authors reporting an association [27] but not others.[28] What is generally accepted is that HCV infection may be more common in patients with oral LP3 but none of our patients with oral disease was positive for the virus; notably the number of this category is very small though. We did not observe Daramola et al.'s observations from Ibadan, Nigeria [29] that HCV was more common in patients with hypertrophic LP.

In a recent systematic review and meta-analysis of observational studies, Lai et al. found a strong association between lichen planus and dyslipidemia.[30] A similar link was also recently established in Nigeria by Okpala et al. [31] We did not routinely measure lipid levels in our patients and thus, we cannot determine if such a link existed.

Our study confirms that LP is a recurrent disease and responds well to topical and systemic medications. About a quarter of patients did not return for follow-up - the cost and inconvenience of travel or the need to pay a consultation fee at one of the clinics may have dissuaded many from coming back, especially if their condition had responded well to treatment.

Although our study is retrospective, it highlights the similarities and differences in prevalence, demographics, and clinical presentation of LP in our patients compared to other reports from within and outside Nigeria.

Conclusion

In a retrospective review of records of a large number of patients attending two dermatology clinics in Kaduna, north-west Nigeria over 20 years, we found lichen planus affected 0.9% of patients. Our patients were younger with a relatively larger number of children, affected the sexes equally, presented with well-known classic features of the disease in most patients and responded well to treatment. We found fewer patients with oral, genital and nail disease. We also found that HCV positivity was no different than what was reported for our community.

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