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Pityriasis Lichenoides; A Case Series With Clinical And Histological Evaluation In A Sample Of Sixteen Iraqi Patients In Najaf

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ABSTRACT

Background: Pityriasis lichenoides is an uncommon papulosquamous disorder of an unknown etiology. The clinical spectrum consists of an acute ulcerative variant, pityriasis lichenoides et varioliformis acuta (PLEVA), and a chronic, non-ulcerative variant, pityriasis lichenoides chronica (PLC). A third, much more rare and aggressive form, febrile ulceronecrotic Mucha–Habermann disease (FUMHD), also occurs. Pityriasis Lichenoides is often benign, with a chronic course and with eventual spontaneous resolution over months to years.

Objectives: The current study aims to evaluate the pityriasis lichenoides among patients attending Al-Sader medical city, Najaf, in the last five years, clinically and histologically.

Patients and method: This is a case series performed retrospectively over the period from January 2017 through November 2021, in Najaf. Sixteen patients with clinical and histological PL were evaluated according to their medical records and online archives. A histopathological revision of their paraffin-embedded sections was also performed and statistically analyzed.

Results: Sixteen patients with pityriasis lichenoides were evaluated; PLC was more common than PLEVA (14:2). PL mainly affects people in the second decade of life (37.5%). The age at the time of diagnosis ranged from 5 to 41 years, with a mean ±SD of 20.1± 9.9 years, which was higher for PLC (21.4±9.7) years than for PLEVA (11±7) years. Females outnumber males in PLC (9:5) as the only two reported cases of PLEVA were males. The skin phototype III was double that of type IV (11:5). More urban patients than rural patients were presented. The cases peak was in 2020 (31.25%), followed by 2021 (18.75). However, the clinical and histopathological features were classic and comparable to the published literature.

Conclusion: PL is a disease predominant among young adults; more females were affected by PLC, while males were predominantly affected by PLEVA. More patients, who were more urban than rural, with skin phototype III were affected.

Keywords: Pityriasis Lichenoides; PLEVA; PLC.

INTRODUCTION

Pityriasis lichenoides (PL) is an uncommon papulosquamous disorder of unknown etiology. The clinical spectrum consists of an acute ulcerative variant, pityriasis lichenoides et varioliformis acuta (PLEVA), and a chronic, non-ulcerative variant, pityriasis lichenoides chronica (PLC). A third, much more rare and aggressive form, febrile ulceronecrotic Mucha–Habermann disease (FUMHD), also occurs [1]. It affects all racial and ethnic groups geographic regions [2] [1]. The exact incidence is unknown; PLC is the most common subtype; about 3-6 times of PLEVA were reported on the website of rare diseases [3].

Moreover, the worldwide distribution of FUMHD is much rarer, being only as case reports. It occurs most frequently in children and young adults with the exact pathogenesis being unknown. However, there are three major etiopathogenic hypotheses of occurrence: (i) as an inflammatory reaction to certain triggers, such as various infectious agents [4] [4] [5] [6] [7] [8] [9] [10], or drugs and vaccines including COVID-19 vaccine ([11]) ([12]) ([13]) ([14]) ([15]) ([16]) ([17]) ([18]) ([19]) ([20]) (ii) as an inflammatory response secondary to a T-cell dyscrasia [21] [22] [23] [24], and (iii) as an immune complex-mediated hypersensitivity vasculitis ([25]). The PLEVA and PLC represent a continuous spectrum. PLC lesion is initially a red papule with a reddish-brown hue and has a mica-like scale that is attached centrally, and can easily be detached to reveal a shiny, pinkish-brown surface. On healing, it often leaves a hyper- or hypopigmented macule [26]. Each lesion may last for several weeks, with exacerbations and remissions. The whole course of an eruption can take several years [27]. PLC is seen mainly on the trunk and proximal portions of the extremities; however, acral and segmental distributions have also been reported [28] [29].

PLEVA is characterized by 2- to 3-mm-diameter red macules that rapidly evolve into papules with a fine micaceous scale. The papule often has a central punctum that becomes vesiculopustular, undergoes hemorrhagic necrosis, and becomes ulcerated with overlying red-brown crusts, which may heal with varioliform scars if a profound dermal injury occurs. Symptoms may include burning and itching. PLEVA occurs most often on the trunk, extremities, and flexural areas, but diffused and generalized patterns may also occur. The lesions are seen in different stages of development. Successive crops of lesions can last indefinitely from a few weeks to months or years [30] [31], and there are reports of bullous variants [32] [33].

PL have a variable clinical course characterized by spontaneously resolving recurrent crops of lesions. The disorder may resolve spontaneously within a few months or, less commonly, persist for years [34].

Histopathologically in PLC, a superficial perivascular and lichenoid lymphocytic infiltrate, extends into the epidermis where there are vacuolar changes of the basal layer, mild spongiosis, a few necrotic keratinocytes, and confluent parakeratosis. Melanophages and small numbers of extravasated erythrocytes are commonly seen in the papillary dermis (35).

In PLEVA, there is a predominantly lymphocytic perivascular with dense, band shaped, infiltrate in the papillary dermis that extends into the reticular dermis in a wedge-shaped pattern. In addition, there is pronounced vacuolar alteration of the basal layer with marked exocytosis of lymphocytes and erythrocytes, and intercellular and intracellular edema with a variable degree of epidermal necrosis. Ultimately, erosion or even ulceration may occur. The overlying cornified layer shows parakeratosis and a scaly crust with neutrophils in the more severe cases. Variable degrees of papillary dermal edema, endothelial swelling, and extravasated erythrocytes are seen in most cases. Although occasionally small fibrin deposits are present within the vessel walls, severe vascular damage is rarely found, except in the severe febrile ulceronecrotic variant of PLEVA (FUMHD), lymphocytic vasculitis with leukocytoclasis is a fairly common feature [35].

PATIENTS AND METHOD

This is a case series for a sample of sixteen patients attending Al-Sader Medical City, Najaf, from January 2017 through November 2021. Permission and ethical approval were obtained from the Iraqi Board for Medical Specialization prior to initiation of the work (number: 466, on 25th of October, 2021). All the included patients were informed that their

data would be used for a research purpose (phone numbers were taken from the hospital archive of the histopathological department, to communicate with all patients).

Patients' selection: All the patients with clinical suspicion of PL (any patient presented with erythematous papules and/ or macules, whether scaly or not) were included in the initial evaluation, and they were twenty-five. Some of them (nine patients) were deferred from the study as they ended with other diagnoses such as lichen planus, dermatitis herpetiformis, scabies, etc., and sixteen patients diagnosed with pityriasis lichenoides were subjected to analysis.

Methods : The patients' information was obtained from the medical records in the Dermatology Department and the hospital, including the patient's demographic data, their clinical presentation to the department, the documented findings of physical examination at the time of biopsy, and the possible differential diagnoses. For all twenty-five patients, except two, the paraffin-embedded sections were available in the histopathology department archive and were used to make new slides for reevaluation and clinicopathological correlation. So, some patients with alternative diagnoses were excluded and the final number of the biopsy-proved cases of PL included in this work.

The clinical photographs were obtained from the online dermatological photo archive of the dermatology board department. They were used for more accurate clinical evaluation of the patients, clinical and histopathological evaluation was recorded, and the data of the study were collected and analyzed using the excel program version 2016. Descriptive statistics were presented as (mean ± standard deviation) and frequencies as percentages and presented in tables and figures.

Results: The total number of the patients included in the study was sixteen, with M:F ratio of 7:9. The most common PL subtype among them was PLC (14 cases of the total 16, (87.5%)), and only two reported patients with PLEVA; no case with FUMHD was reported. The highest recorded number of patients was in 2020 with 5 documented cases (31.25%), followed by 2021 with three patients (18.75%). The most commonly affected age group was the second decade of life with six patients (37.5%), shown in Figure 2. The age range at the time of diagnosis and at the time of onset was 5-41years and 5-38 years, respectively. The mean age was 20.1 years (±9.9) and 18.3 years (±9.2) at the time of diagnosis and at the time of onset, respectively. The mean age was higher for PLC than for PLEVA, while the median was 12 years for children and 24 years for adults. The females outnumber males in PLC, with M:F ratio of 5:9, while the only two reported cases of PLEVA were males, as in Table 1. All included patients had type III and IV skin phototypes; however, patients with type III were nearly two folds of those with type IV; no patient with other skin phototypes was reported. No patient reported a family history of a similar condition. More urban patients were reported than rural ones, with a ratio of 9:7 in PL as a whole, and 8:6 in PLC, while in PLEVA, the ratio was equal. The demographic data are summarized in Table 1. The treatments received by the patients were not included in the analysis as most of the patients were not aware of the names, and doses of drugs given, some patients reported clinical improvement, some reported still a relapsing course, while other were not, however, these data were not subjected to analysis as the duration of illness was variable among patients, and nearly half of patients presented in the last 2 years.

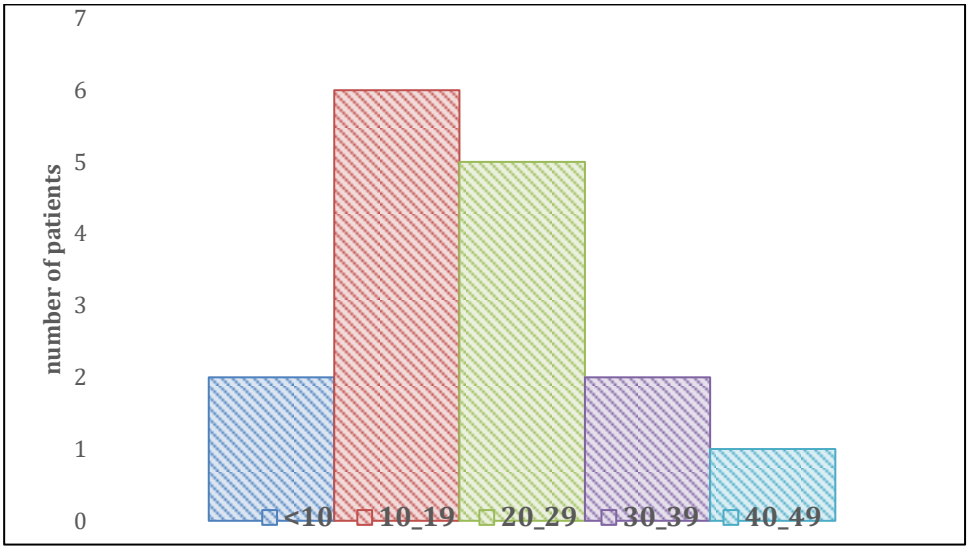

Figure No.1: Disease frequency by age groups.

Table No.1: The demographic characteristics of patients with PL.

	PL total	PLC	PLEVA
Mean age in years at the time of diagnosis (±SD)	20.1(±9.9)	21.4(±9.7)	11(±7)
children	12.5(±4.7)	13(±4.16)	11(±5)
adults	27.7(±7.4)	27.7(±7.4)	no cases
Mean age in years at the time of onset (±SD)	18.3(±9.2)	19.4(±9.1)	10.5(±7.7)
children	12(±4.41)	12.4(±3.86)	10.5(±7.7)
adults	26.4(±7.13)	26.4(±7.13)	no cases
Median age at the time of onset in years: children	12	12	10.5
Adults	24	24	no cases
M/F ratio	7:9	5:9	2:0
children	3:5	1:5	2:0
adults	4:4	4:4	no cases
Skin phototype III	11	9	2
IV	5	5	0
Residence: rural	7	6	1
urban	9	8	1

(Note: children are those under 18 years of age according to the United Nations definition) [44]

The clinical evaluation of the patients revealed that the most common clinical presentation is with scaly (93%) red-brown (62.5%) papules (100%), micacious scale found only in 4 cases (25%), and leave or associate with hyper-pigmentation (43.75%) more than hypopigmentation (31.25%). The distribution is primarily generalized (trunk and extremities) without facial involvement (50%); only one patient has palmoplantar lesions. The lesions were primarily asymptomatic or associated with mild itching (31%). Some clinical and histopathological photos of patients are provided below (from Figure 2 to 5).

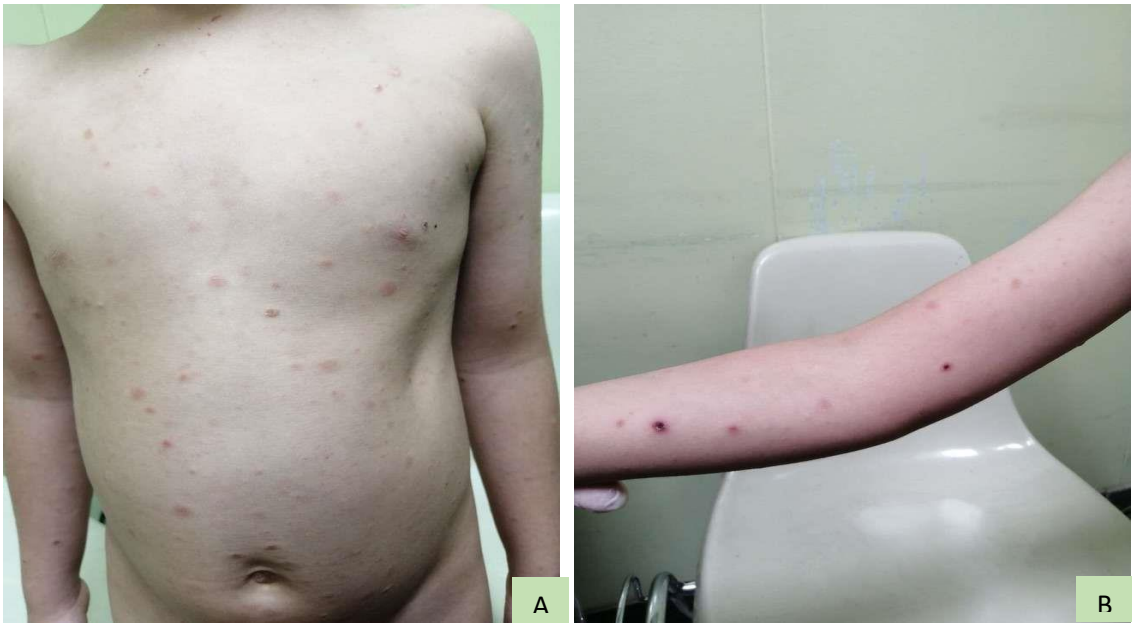

Figure No. 2: A young male with polymorphic lesions consisting of scaly macules, papules, plaques (A), and erosions with dusky center (B) was diagnosed as PLEVA.

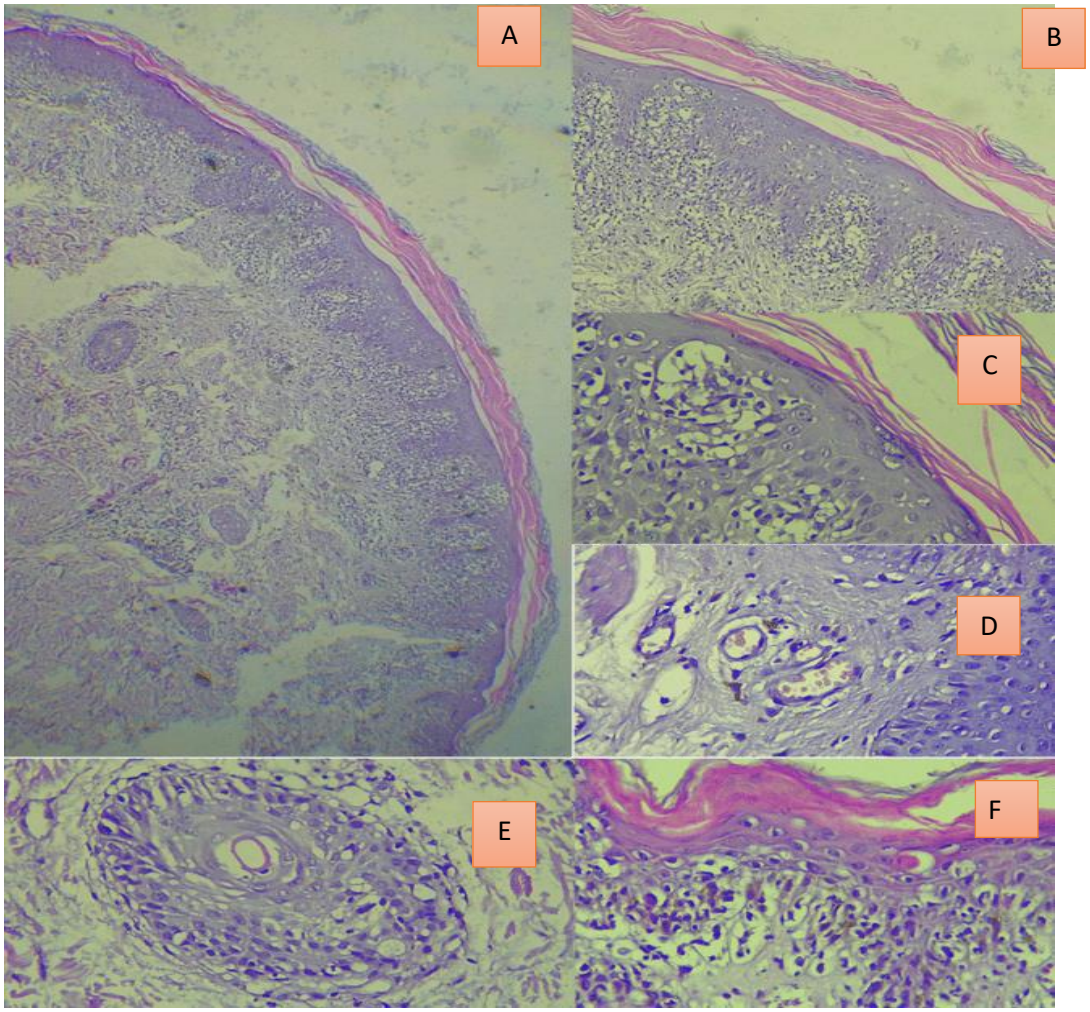

Figure No.3: A: low power view of H&E stained slide in a patient with PLEVA, revealing severe liquefactive degeneration of the basal layer, lichenoid and perivascular infiltrate. B: on medium power magnification, there is severe basal liquefaction, lichenoid lymphocytic infiltration, and parakeratosis. On high power view, confluent parakeratosis,

spongiosis, basal liquefaction and pseudoPautrier microabscesses (C), dilated vessels (D), hydrobic degeneration of basal layer of the hair follicle (E), and necrotic keratinocyte (F).

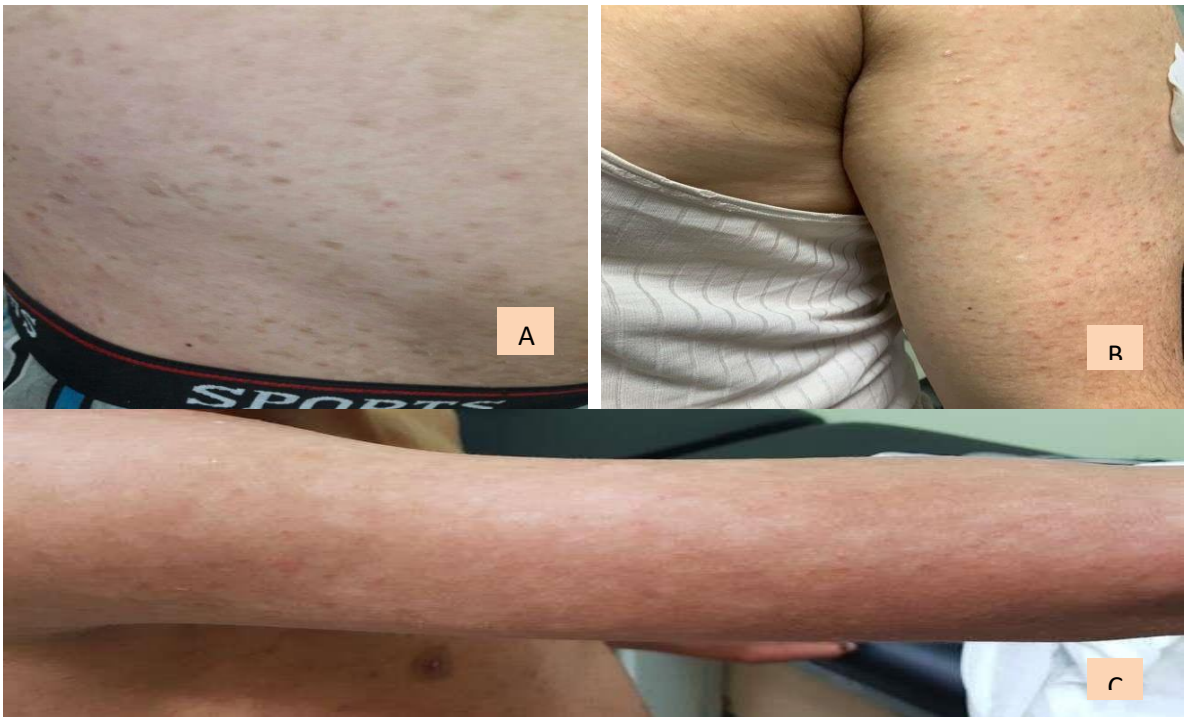

Figure No.4; (A): Brownish macules with mica scale, distributed over the trunk, in a young adult with PLC. (B): scaly red-brown papules on the upper extremity, in a young adult with PLC. (C): faint brown papules with hypopigmented patches and macules on the upper extremity of a child with PLC

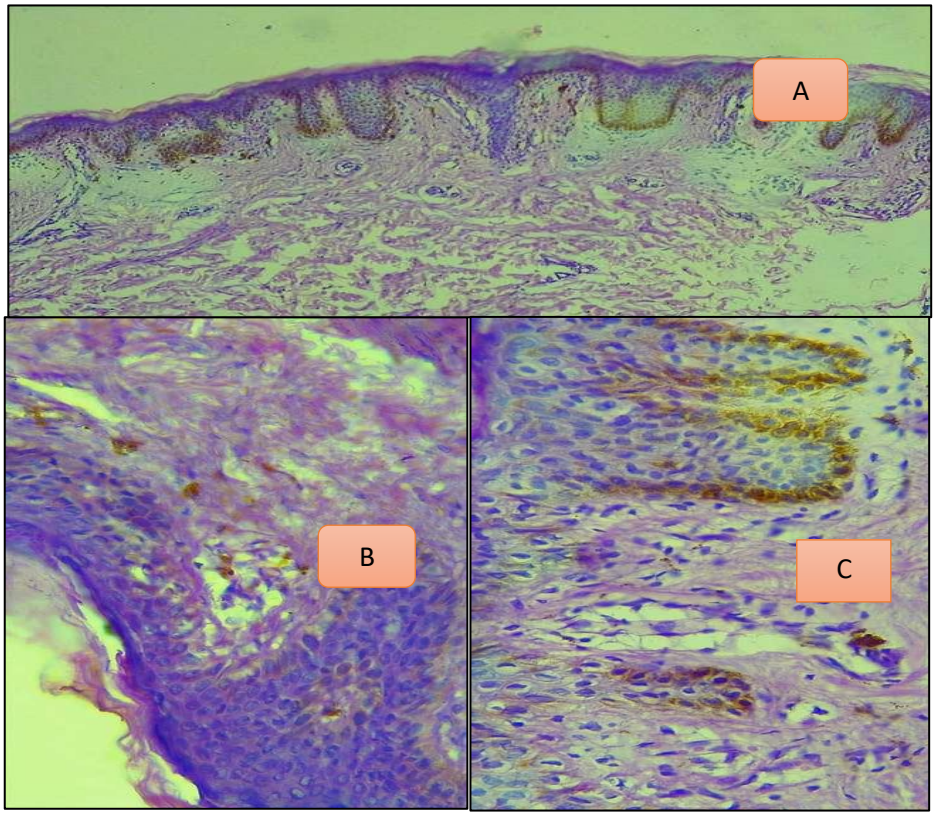

Figure No. 6: A low power view of H&E stained slide of a patient with PLC, showing a focal area of blurred dermo-epidermal junction, prominent basal layer hyperpigmentation, and mild perivascular infiltrate. Focal hydrobic degeneration of basal layer with few lymphocytic infiltrated nearby, parakeratosis and pigment incontinence in a patient with PLC, high power (B) & (C).

A histopathological evaluation was performed for 14 patients and revealed that the most common findings were interface dermatitis, which was more focal in PLC and more extensive in PLEVA, and perivascular infiltrate; they were observed in all patients. In PLC, other common findings were parakeratosis, mostly focal, spongiosis, lymphocytic exocytosis, dilated vessels, basal layer hyperpigmentation with or without melanophages, and dermal RBC extravasation. The presence of lymphocytic atypia, pseudopautrier microabscesses, and hydrobic degeneration of adnexae was uncommon. In the cases PLEVA, there was more extensive basal liquefaction, necrotic keratinocytes, mild lymphocytic atypia, wedge shape, lichenoid infiltrate, upper dermal edema, and severe hydrobic degeneration of the adnexae. The histopathological findings were more detailed than the reports of the histopath achieve, and followed a checklist for both the positive and negative findings.

The limitations of this study

Include the small sample size, retrospective design and limited follow-up, as well as the lack of clear photographs and the paraffin blocks for some patients.

DISCUSSION

Pityriasis Lichenoides was reported in the literature as an uncommon skin disorder, and some authors reported it with unknown frequency or even as a rare disease (3), while in Iraq, Turkey, Chicago, and India, it is reported to be not uncommon (45) (46) (47) (48).

In Iraq, there is limited research on this field, with one non-published paper by Sharquie KE and Maeda M. (47). About 30 years ago, it was carried out on eleven patients in Baghdad Teaching Hospital throughout 1992. Further, in a recently published paper in December 2021, Sharquie KE & Inas KE (48) studied fifty-six patients over nine years.

The present work included 16 patients from January 2017 through November 2021. Regarding the PL subtypes in this study, PLC was more common than PLEVA with a ratio of 14:2, no case of FUMHD was reported over that time, and these results are comparable to the literature (45) (49).

The most commonly affected age group was the teenager, followed by young adults; no case was reported in infancy or elderly. The age at the time of diagnosis ranged from 5 to 41 years; these results were comparable with an older Iraqi study (47) wherein age range was 6-40 years, and the recent paper (48), where it ranged from 3 to 30 years. The mean age at onset for children was 12 years, with a median of 12 years, and it was earlier in PLEVA (10.5 years) than PLC (12 years). In adults, the mean age of onset was 20.1 years, and a median of 24 years. Wahie S et al. and Zang et al. reported a median age of onset of 8 years for children (2) (49), while Erosy Evan reported the median onset of 5 years, and occurred later in PLC than in PLEVA (45). Wahie S et al. and Zang et al. reported 40 to 44 years [(3) (4)] for adults, comparable to our results.

Regarding the family history of PL, the present work was comparable to some previous and recent Iraqi studies (47) (48), though the literature was with no similar cases in the family.

In the present work, the females outnumbered males with a ratio of 9:7, and more female children were affected while there was no gender bias in adults. On the contrary, older and recent Iraqi studies have found that males are predominant in PL as a whole, with a M:F ratio of 9:2 and 47:9, respectively (47) (48). Gellers L et al. and Erosy Evan et al. reported a male predominance in children (45) (50), while Bowers S et al. reported approximately an equal sex incidence in adults (1). Additionally, the recent study's results revealed that more females had PLC, and the only two reported cases of PLEVA were males, with more female children affected in PLC, but none with PLEVA. Sharquie (48) , also reported that males are predominant in PLEVA with a M:F ratio of 16:4. Zang et al., Geller L, and Erosy

Evan (45) (49) (50), also reported male predominance in PLEVA, but in adults, the recent results are comparable to the literature in (1). Yet, these differences might be due to small sample size, and/or differences in the included population.

The clinical evaluation of the patients revealed that most patients presented with scaly reddish-brown papules with only 4 cases had micacious scale, while it was reported in all cases of the earlier Iraqi work, and in 38.8% of the recent paper (47), (48). This probably may be due to the fact that evaluation was on the photos, which were sometimes not representative of all lesions and/or were not of high resolution. Additionally, the use of topical treatment before the time of assessment might alter the characteristic morphology; unfortunately, the exact character of the scale was not documented for all patients. The lesions left or were associated with hyperpigmentation more than hypopigmentation, while in the literature, the hypopigmentation was documented to be characteristic of resolved PLC (46) (48) (51).

The lesions were mainly distributed on the trunk and proximal extremities. Most of the patients with PLC were asymptomatic, or with mild itching, and one patient with PLEVA reported low-grade fever; these features are comparable to the literature.

Histopathologically, our findings were nearly comparable to the literature, apart from basal layer hyperpigmentation, which was not mentioned previously as an important finding; despite the fact that all patients were of Fitzpatrick III and IV skin phototype, this finding on H/P was associated phenotypically with those who developed hyperpigmentation on lesional evolution; however, it was not the rule in all cases. There is clinico-pathological correlation among cases, with more severe and aggressive histological pattern in PLEVA, and a milder one in PLC. The relationship between the histological pattern and disease course was not studied, as the patients had different durations of their illness at the time of study.

CONCLUSION

PLs seem not uncommon in the population of the current study; however, an epidemiological study is needed to confirm the actual prevalence of the disease. PLC was more common than PLEVA. PL affects mainly young adults and, according to this work, more females were affected by PLC, while PLEVA was seen predominantly in males. The urbans are affected more than rurals, and skin phototype III was more than ski phototype IV.

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