

# Neurodermatitis in Baquba City, Diyala Governorate/Iraq Clinical and histopathological study

Gibran Khalil Ibrahim(CABMS)<sup>1</sup>, Sarmad Yahya abbood (FIBMS)<sup>2</sup>  
, Saad D Hameed(CABMS)<sup>3</sup>  
<sup>1,2,3</sup> Baquba Teaching Hospital, Diyala , Iraq

## Abstract

### OPEN ACCESS

**Correspondence Address:** Saad D Hameed  
Baquba Teaching Hospital, Diyala , Iraq  
**Email:** [sum\\_sum112233@yahoo.com](mailto:sum_sum112233@yahoo.com)  
**Copyright:** ©Authors, 2023, College of  
Medicine, University of Diyala. This is an  
open access article under the [CC BY 4.0](http://creativecommons.org/licenses/by/4.0/)  
license  
(<http://creativecommons.org/licenses/by/4.0/>)  
**Website:**  
<https://djm.uodiyala.edu.iq/index.php/djm>

**Received:** 21 July 2022  
**Accepted:** 24 January 2023  
**Published:** 30 June 2023

**Background:** Many patients that have itchy thickened skin lesions are lichenified, it's located on the extremities namely on the knees, feet, dorsum of the hands, and /or elbows was being seen bilaterally and may be symmetrically.

**Objective:** To evaluate clinical and histopathological features of neurodermatitis with some similarities to psoriasis in Iraqi patients.

**Patients and Methods:** Twenty- Five patients with neurodermatitis attending Department of Dermatology, Baquba Teaching Hospital were enrolled in this study in time between 1<sup>st</sup> January 2020 to 31<sup>th</sup> January 2021. All patients were being examined and full history was taken, including age of the patients, onset and duration of the disease, severity and type of itching. A full examination was done to identify the character, colour, shape, site, and involvement of other body site of lesion. Incisional biopsy specimens from both lesion and adjacent normal skin were obtained from 9 patients and submitted to histological assessment.

**Results:** Ten of the patients (40%) were male and fifteen (60%) were females, their age ranged from 29-70 years, with a mean of 49.5 years. The average duration ranged from one month- 15 years with median 7.5 years. Clinically; patients have severe itchy plaques that distributed bilaterally like those of psoriasis, involvement of the knees (56%), dorsum of the both hands, feet, and elbows, also having ( lichenification ,that is characterized by thickening of the skin and exaggeration of the skin lines ) which characteristic of the individual lesion of lichen simplex chronicus, these plaques were symmetrical, well defined, sharper, more keratotic, violaceous pigmentation, marked accentuation and thickening of skin. Psoriatic scales are not present typically on the plaques of these patients. These plaques mainly located on extremities. Nine specimens' taken for histopathological findings showed hyperkeratosis, acanthosis, dermal papillomatosis, suprapapillary epidermal thinning. All patients mentioned a severe itching which was paroxysmal in typing, more severe in the evening.

**Conclusion:** ( Lichenified psoriasis) Psoriatic neurodermatitis might be lichen simplex chronicus as a result to repetitive itching and scratching of plaque psoriasis. This was typical neurodermatitis and not psoriasis.

**Keywords:** Psoriatic neurodermatitis, Lichenification, Plaque psoriasis

## Introduction

Psoriasis is a common, and chronic, recurrent inflammatory disease of the skin, in which both genetic and environmental factors have and play critical role. The most characteristic lesion consist of circumscribed erythematous, well demarcated, scaling plaques, present particularly over extensor surfaces of the body and scalp [1].The incidence of disease, has been estimated to be 60 individual per 100000 per year [2].A recent US study has suggested that the annual incidence of psoriasis has doubled in the 30 years between 1970 and 2000 [3].Both sex are affected equally. The first peak occurrence of plaque psoriasis is in people aged 16-22 years old, the second peak between 57-62 years old [4]. Psoriasis was much greater amongst the first and the second degree relatives of patients than unaffected control subjects [5]. Studies of twin siblings have shown that there is concordant disease in 20%of monozygotic twins compared with 9% in dizygotic twins, corresponding to an estimated heritability of 68% [6]. several putative genetic susceptibility regions have also been identified, including psoriasis susceptibility 1(PSOR1) on chromosome 6p, and other loci (PSOR 2, PSOR3, PSOR4, PSOR5, PSOR6, PSOR7) have been identified [7, 8].Inflammatory mechanisms are immune based and most likely initiated and maintained primarily by memory\_ T cells in the dermis [9]. Cytokines, predominantly of the Th1 milieu, including TNF- $\alpha$ , interferon  $\gamma$ , IL6, and IL2 are over expressed in individual with psoriasis. IL-17, IL22, IL23 are over expressed in psoriatic plaques [10]. A wide range of recognized of injurious local

stimuli, including physical, chemical, surgical has been recognized to elicit psoriatic lesions isomorphic (koebner phenomenon) [11]. Acute guttate type of psoriasis is strongly associated with preceding or concurrent streptococcal infection, particularly (streptococcal pharyngitis)[12]. There are many drugs also were reported to be responsible for the onset or exacerbation of psoriasis , chief amongst these are Captopril, antimalarial , B-blocker agents, non-steroidal anti-inflammatory drugs [13].Early changes on histopathology there is vasodilation, papillary dermal edema and leukocyte infiltrates apper to precede epidermal changes in early developing lesions [14] .While in fully developed plaques there is confluent parakeratosis associated with focal orthokeratosis and munro micro abscess formation with in stratum corneum, granular layer is absent focally , spongiform pustules in the spinous layer of Kogoj [15]. The first and early manifestation of psoriasis may occur at any age, and the tendency for female to develop of psoriasis earlier than male. Duration of the disease may vary from a few weeks to a whole lifetime, also the course unpredictable with relapse and remission[15].

Psoriasis neurodermatitis; there are several patients with itchy indurated plaques distributed bilaterally resembling the plaques of psoriasis in its distribution and involvement of the elbows, knees and /or dorsum of the hands and feet, and also having lichenification (well-defined lichenified lesion ) like lichen simplex chronicus, that consist of one or more lichenified patches or plaques on the skin that results from the

chronic itching and scratching cycle causes exaggeration of the normal skin marking creases. However, these plaques have not shown typical characteristics scales of psoriasis, most patients with psoriatic neurodermatitis either mentioned having a more severity of itching while comforting or the severity of itching not different significantly between resting and being working. There is no significant difference in frequencies of scratching in these lesions of these patients from those in patients with typical lichen simplex chronicus. Previously the similar of these cases have been described as lichenified psoriasis or 'psoriatic neurodermatitis' [16].

## Patients and Methods

### Study protocol

Twenty-five patients with psoriatic neurodermatitis attending Dep. of Dermatology, Baquba teaching hospital were enrolled in this study during the period" between 1<sup>st</sup> January 2020 to 31<sup>th</sup> January 2021

### Study population:

Inclusion criteria: presence of itchy plaques that were lichenified and located on the elbows, knees, and / or dorsum of the hands and feet (bilaterally); absence of auspitz's sign, no adherent abundant scales in these plaques; and no previously or recently typical psoriatic lesions on other site.

Exclusion criteria: criterion for psoriatic neurodermatitis was a clear causal relationship between the contactants and the plaques. A skin examination was done completely for the plaques and any other skin problems also, like dryness or eczematous plaques if present. Severity of the changes in the plaques was graded as evident, subtle or

none. The changes in plaques were erythema, sharp border, any scaling present, keratosis, lichenification and any excoriation. Also for papules, or tiny vesicles and if there is any secondary changes to such vesicles around these plaques. Types of the papules were recorded if it is follicular, or lichenoid, and prurigo-like".

### Study Design

All patients were being examined, and a full history was taken including age, onset and duration, type and severity of itching. A full examination was done to identify the character, color, shape, site and involvement of other body sites. For histological study an incisional biopsy specimens from both lesion and adjacent normal skin were obtained from (9) patients. An elliptical incision was made using surgical blade. The biopsy specimens stained with haematoxylin and eosin stains, and submitted to histological assessment under light microscop.

### Statistical Analysis

Excell 2010, SPSS version 20 statistical program used for analysis.

### Results

Clinical findings: 25 patients were assessed, 10(40%) were males and 15(60%) females. Their ages ranged from 29-70 years mean (49.5) years Table (1). The average duration ranged from one month- 15 years median (7.5) years. Patients that presented with severe itchy plaques like those of psoriasis in its distribution and with the bilateral involvement of knees, feet, dorsum of hands, and/ or elbows, and also having lichenification. However, characteristics of psoriasis scale not shown typically in these plaques. These plaques are located on extremities (knees 56 %) Table (2). Bilateral

involvement were present for both the knees and dorsum of the feet in 6 patients, for both the knees and both elbows in 4 patients, for the knees and dorsum of the hands in 2 patients, for the dorsum of feet in 3 patients, the knees in 2 patients, and only for the elbows in one patient, involvement of other body sites are reported in 2 patients (sacrum). All patients have had a more severe itching

which was paroxysmal in nature and more severe in evening. Histological findings (H and E stain) 9 biopsies shown hyperkeratosis, acanthosis, dermal papillomatosis, suprapapillary epidermal thinning, also there is parakeratosis and hypogranulosis, and there is focal epidermal inflammatory cells collections (Kogoj).

**Table (1):** Age distribution of 25 patients with PN

Age	No.	%
20-29	3	12
30-39	4	16
40-49	5	20
50-59	5	20
60-69	7	28
70-79	1	4

**Table (2):** Site of cutaneous lesions of PN

Site	No.	%
Dorsum of hands	2	8
Elbows	5	20
Sacrum	2	8
Knees	14	56
Dorsum of feet	9	36

## Discussion

Psoriasis is a common (about 2%-3% of the population), chronic, scaly rash that affects people of all ages. It is not contagious and not due to allergy. Patients with psoriasis often have relatives with disease i.e. it tends to run in families. It affects men and women equally; it may or may not itchy. In this study, we observed that although our cases with so-called psoriatic neurodermatitis there is no typical scales that present in psoriatic plaques, and not having typical psoriatic lesions on other body sites, while the histopathological changes in their plaques were its highly suggestive for diagnosis of

psoriasis. Hyperkeratosis more frequently occurs, and near absence of granular layer, confluent parakeratosis in the plaques of the patients with PN that clinically being more keratotic. In addition to these changes, Auspitz' sign corresponding to histopathological changes; as regular acanthosis and thinning of the supra\_papillary epidermis were also more frequent in that plaques of patients with PN. However, the last change contrary to expectation was notable to produce its clinical counterpart that made for excoriation [17, 18]. This lichenified psoriasis (psoriasis neurodermatitis) that has been described as

psoriatic plaques that increase skin markings and lichenification on their surfaces [16]. Two theories for the pathogenesis of lichenification of these plaques; first explanation as a result of koebner phenomenon that result from frequent trauma, rubbing, the second one itchy psoriasis may be superimposed by lichen simplex chronicus, in fact long duration of the disease in PN were severely itchy and keratotic more and less excoriated. S Gunasti *et al*, found that; the PN was located on extremities and the females almost exclusively was affected more, in the patients with PN, depression and suicide was found more frequently than generalized anxiety disorder which is less, and LSC on the itchy psoriasis may be the so-called psoriatic neurodermatitis [19].

### Conclusions

Psoriatic neurodermatitis more frequently in females patients Severity of itching was more in the evening usually. LSC secondary to plaque psoriasis maybe it's the PN. The term psoriatic neurodermatitis may be replaced of lichenified psoriasis. These were typical neurodermatitis with some clinical similarity to psoriasis.

### Recommendations

So as to emphasized not only the similarities of the cases to both the psoriasis and lichen simplex chronicus, and the relationship between severity of itching and the psychic and neural differences in psoriasis, need more studies and investigations such patch test.

### Acknowledgment

Authors would like to thanks the management of hospital and all patients participate in this study.

**Source of funding:** The current study was funded by our charges with no any other funding sources elsewhere.

**Ethical clearance:** The agreements of Baquba Teaching hospital were taken. All patients were informed about the study's objective and the convenience was taken.

**Conflict of interest:** Nil

### References

- [1] Camp RDR, Griffiths CEM, Barker JNWN. Psoriasis, In: Cox NH, Griffiths CEM, Buras DA, Breathnach SM. Rook's Textbook of dermatology. 7th edition, Italy, Black well publishing company, 2004; 2:35. 1:35. 62.
- [2] Bell LM, Sedlack R, Beard CM *et al*. Incidence of psoriasis in Rochester, Minnesota, 1980-83. *Arch dermatol* 1991; 127: 1184-7.
- [3] Icen M, Crowson CS, McEvory MT *et al*. Trends in incidence of adult-onset psoriasis over three decades: a population –based study. *J Am Acad Dermatol* 2009; 6:394-401.
- [4] Henseler T, Christopher E, Psoriasis of early and late onset: characterization of two types of psoriasis vulgaris. *J Am Acad Dermatol* 1985; 13:450-6.
- [5] Lomholt G, ed. Psoriasis: Prevalence, Spontaneous Course and Genetic. A census study on the prevalence of Skin Diseases on the Faroe Island. Copenhagen: GEC Gad, 1963.
- [6] Eastmond CJ. Genetic and HLA antigens. *Bailleres Clin Rheumatol*, 1994; 8:263.
- [7] Trembath RC, Clough RL, Rosbotham AL, *et al*. Identification of a major susceptibility locus on chromosome 6p and evidence for further disease loci revealed by a two stages genome-wide search in psoriasis. *Hum Mol Genet*, 1997; 6:813.

- [8]Sagoo GS, Tazi Ahnini R, Barker JW, et al. Meta-analysis of genome- wide studies of psoriasis susceptibility revealed linkage to chromosome 6p21 and 4q28-q31in Caucasian and chines Hans population. *J Invest Dermatol*, 2004; 122:1401.
- [9]Nikoloff BJ. Nestle FO. Recent insights into the immunpathogenesis of psoriasis provide new therapeutic opportunities. *J Clin Invest*, 2004; 113:1664.
- [10] Kruger GG, Langley RG, Leonardi C, et al. A human interleukin 12/ 23 monoclonal antibody for the treatment of psoriasis. *N Engl J Med*, 2007; 356:580.
- [11]Eyre RW, Krueger GG. The koebner response in psoriasis. In: Roenigk HH, Maaibach HI, eds. *Psoriasis*. New York: Marcel Dekker, 1984; 105-16.
- [12]Telfer NR, Chalmers RJ, Whale K,Colman G. The role of streptococcal infection in the initiation of guttate psoriasis. *Arch Dermatol* 1992; 128: 39-42.
- [13] Abel EA, DiCicco LM, Orenberg EK, et al. Drug in exacerbation of psoriasis. *J Am Acad Dermatol* 1986; 15: 1007-22.
- [14]Ragaz A, Ackerman AB. Evolution, maturation and regression of lesions of psoriasis. *Am J Dermatopathol* 1997;1:199-214.
- [15]Kogoj F,Un cas de maladie de Hallopeau. *Acta Derm Venereol* 1927; 8: 1-12.
- [16]Van de Kerkhof PCM Papulosquamous and eczematous dermatosis. In: Bologna JL, Jorizzo JL, Rapini RP *et al*, eds. *Dermatology*, 1<sup>st</sup> ed. Mosby, Edinburg, UK, 2003; 125-149.
- [17]Bernhard JD. Clinical pearl: Auspitz sign in psoriasis scale. *J Acad Dermatol* 1997; 36: 621.
- [18]Bernhard JD. Auspitz sign is not sensitive or specific for psoriasis. *J Am Acad Dermatol* 1990; 22: 1079-1081.
- [19]Gunasti *et al*. Clinical and histopathological findings of psoriatic neurodermatitis and of typical lichen simplex chronicus. *J Eur Acad Dermatol Venereal* 2007; 12-14.



## التهاب الجلد العصبي في مدينة بعقوبة ، محافظة ديالى / العراق

جيران خليل ابراهيم<sup>١</sup> ، سرمد يحيى عبود<sup>٢</sup> ، سعد ظاهر حميد<sup>٣</sup>

### الملخص

**خلفية الدراسة:** وجود العديد من المرضى مع لويحات متحززة حاكة يقع ثنائيا على الركبتين ، وظهر اليدين والقدمين مع / او المرفقين (التهاب الجلد العصبي الصدفي).

**اهداف الدراسة:** لتقييم الخصائص السريرية والتشريحية المرضية لالتهاب الجلد العصبي الصدفي .  
**المرضى والطرائق:** تم معاينة ٢٥ مريض يعانون من التهاب الجلد العصبي الصدفي حضروا الى استشارية الامراض الجلدية في مستشفى بعقوبة التعليمي للفترة من كانون ثاني ٢٠٢٠ لغاية كانون ثاني ٢٠٢١ . تم اخذ التاريخ المرضي الكامل من الاسم والعمر ومدة المرض وشدة ونوع الحكمة، وتم اجراء دراسة كاملة لتحديد شكل ولون وموقع الافة. كما تم اخذ خزعة من ٩ مرضى للتقييم النسيجي.

**النتائج:** شملت الدراسة ١٠ مرضى ذكور (٤٠%) و ١٥ اناث (٦٠%) ، اعمارهم بين ٢٩-٧٠ سنة بمتوسط عمر (٤٩،٥) . مدة المرض تراوحت من شهر الى ١٥ سنة بمتوسط (٧،٥) سنة. سريريا مرضى يعانون من حكة شديدة و لويحات تشبه لويحات الصدفية في الانتشار على الركبتين وظهر اليدين، مع وجود خاصية السطح الرئيسي للافة الفردية للحزاز بسيط مزمن ، ولكن تحرز اللويحات كانت متناضرة ومحددة جيدا و اكثر وضوحا، تقرني اكثر مع تصبغ بنفسجي مع ازدياد سماكة الجلد. اللويحات لم تظهر الخصائص النموجية للحراشف الصدفية و اكثر شيوعا على الركبتين (٥٦%) . نتائج الفحص السريري (٩) نماذج اظهرت فرط تقرن اشواك ، ازدياد حليمات الادمة، ترقق الادمة فوق الحليمي. جميع المرضى ذكروا وجود نوبات شديدة من الحكمة من ناحية النوع وخاصة مساء.

**الاستنتاجات:** ان ماسمي التهاب الجلد العصبي الصدفي ربما يكون حزاز بسيط مزمن كنتيجة ثانوية للصداف اللويحي.

**الكلمات المفتاحية:** التهاب الجلد العصبي الصدفي ، التحرز ، الصدفية اللويحية

البريد الالكتروني: [sum\\_sum112233@yahoo.com](mailto:sum_sum112233@yahoo.com)

تاريخ استلام البحث: ٢١ تموز ٢٠٢٢

تاريخ قبول البحث: ٢٤ كانون الثاني ٢٠٢٣