ISSN (P) : 2589-9120 / (O) : 2589-9139
PubMed-National Library of Medicine - ID: 101773527

International Journal of Medical Science and Applied Research (IJMSAR)

Available Online at: https://www.ijmsar.com

Volume – 6, Issue – 1, February – 2023, Page No. : 01 – 10

A Clinical Study on Linear Dermatoses in a Tertiary Care Teaching Hospital

[1]Dr. Avula Sushma, [2]Dr. S. Sudheer Kumar, [3]Dr. S. Gulabi, [4]Dr. M. Sai Sindhu, [5]Dr.B. Udaya Kumar

[1,3,4]PG Scholar, Department of DVL, Viswabharathi medical college, Kurnool, Andhra Pradesh, India

[2]Assistant professor, Department of DVL, Viswabharathi medical college, Kurnool, Andhra Pradesh, India

[5]Professor and HOD, Department of DVL, Viswabharathi medical college, Kurnool, Andhra Pradesh, India

Citation of this Article: Dr. Avula Sushma, Dr. S. Sudheer Kumar, Dr. S. Gulabi, Dr. M. Sai Sindhu, Dr.B. Udaya Kumar, "A Clinical Study on Linear Dermatoses in a Tertiary Care Teaching Hospital,'' IJMSAR – February – 2023, Vol. – 6, Issue - 1, Page No. 01-10.

Corresponding Author: Dr. Avula Sushma, PG Scholar, Department of DVL, Viswabharathi medical college, Kurnool, Andhra Pradesh, India

Type of Publication: Original Research Article

Conflicts of Interest: Nil

ABSTRACT

Background

The aim of this study wasto study the demographic profile and various clinical presentations and associations of the linear dermatoses in patients attending dermatology outpatient department.

Methods

A cross sectional observational study was conducted over a period of 6 months in 45 patients with linear dermatoses attending tertiary care teaching hospital, Kurnool. Detailed history and clinical examination were done and relevant investigations to identify the systemic associations and to confirm the diagnosis were done and the data was collected in a predesigned proforma and the results were statistically analysed.

Results

Of the total 45 patients with linear dermatoses,(31%) belongs to the age group 11-20 years and M:F ratio is 1.04:1,18 patients had linear dermatoses following lines of blaschko, 9 patients had linear dermatoses due to koebners phenomenon, 8 patients had linear dermatoses in a dermatomal distribution, 4 patients had the linear lesions due to autoinoculation, 3 patients developed linear lesions due to external factors, 2 patients had linear lesions due to infestations and one patient had developed linear lesions following the lymphatics. Among the patients with linear dermatoses following lines of blaschko, lichen striatus was the most common followed by linear epidermal naevus.

Conclusions

Linear lesions acts as diagnostic clues as they give a clue to the pathway of spread of the disease. The line of management can be decided by knowing the activity of the disease such as koebners phenomenon, indicates active disease. Hence the importance of linear lesions in dermatology cannot be over emphasized.

Keywords

koebners phenomenon, blaschkos lines.

INTRODUCTION

In dermatology, most of the linear lesions follow Blaschko's lines. Blaschko's lines on the skin appears classically due to genetic mosaicism. Blaschko's lines can be caused by lyonization, somatic mutation, half-chromatid mutation, chromosomal non-disjunction, or chimerism. [(1)] Douglas Montgomery first stated that the "blaschko's lines" indicate the boundaries between populations of mutant and normal cells. [(2)]They differ from Langers lines and dermatomes in that they do not adhere to neuronal, vascular, or lymphatic tissues. [(3)]In addition to lesions that follow Blaschkos lines, other factors that contribute to the development of the linear pattern include lesions that follow blood vessels, lymphatics, and dermatomes; lesions brought on by the Koebner phenomenon and auto inoculation; external factors; and infestations like cutaneous larva migrans and scabies burrows.Aim of this study is to know the demographic profile and various clinical presentations and associations of the linear dermatoses.

MATERIALS AND METHODS

The present study is a cross sectional observational study done in department of dermatology venereology, leprosy in Viswabharathi medical college and general hospital, Kurnool from April 2022 to October 2022. A total of 45 consecutive patients with linear dermatoses attending DVL OPD were recruited in this study.

INCLUSION CRITERIA

1. Patients who are willing to give consent and keen to participate in the study attending DVL department.
2. Referral patients from various departments for dermatological opinion with linear dermatoses.

EXCLUSION CRITERIA

1. Patients who are not interested to participate in the study were excluded.

METHODOLOGY

Patients were enrolled in the study after getting approval from the institutional ethics committee. The patients' informed written consent was obtained. After obtaining the history, a thorough general and systemic examination was done. The pre-designed proforma was filled out after a thorough inspection of the skin and mucous membranes.

Causative and anatomical factors of linear dermatoses were categorized into

1) Developmental/ blaschkos lines: pigmentary demarcation lines, linea nigra, epidermal naevi, incontinentia pigmenti, hypomelanosis of ito, lichen striatus, linear psoriasis, linear lichen planus.
2) Dermatome: herpes zoster, zosteriform naevus, zosteriform dariers disease, segmental vitiligo
3) Nerve trunks: leprosy
4) Lymphatics: lymphangitis, sporotrichosis
5) Infestations: scabies, larva migrans
6) Blood vessels: thrombophlebitis, varicose veins, mondors disease
7) Autoinoculation: warts, molluscum contagiosum

8) Due to external factors: paederus dermatitis, berloque dermatitis, phytophotodermatitis, dermatitis artefacta.
9) Koebner phenomenon: psoriasis, lichen planus, vitiligo, lichen nitidus.

A clinical photograph was taken for the relevant skin changes after obtaining consent.

Complete blood picture, urine examination, RFT, LFT, VDRL, HBs Ag, CXR were done. Skin biopsy was sent for histopathological examination in doubtful cases to confirm the diagnosis.

STATISTICAL ANALYSIS

Findings were tabulated in Microsoft excel worksheet and the data was analysed using SPSS software version 23.

RESULTS AND DISCUSSION

Of the total 45 patients with linear dermatoses who attended the dermatology department, most of the patients 14 patients (31%) belongs to the age group 11-20 years and only 3 patients (7%) belonged to the age group of 41-50 years. The range of age groups in the study population are 4 years (minimum) - 46 years (maximum).Gender distribution of the present study is that there are 23 males and 22 females of the total 45 patients in the study population.[Chart 1]

Based on the Causative and anatomical factors of linear dermatoses categorization , among the 45 patients in the study population 18 patients (40%)had linear dermatoses following lines of blaschko, 9 patients (20%)had linear dermatoses due to koebners phenomenon, 8 patients (17.7%) had linear dermatoses in a dermatomal distribution, 4 patients (8.88%) had the linear lesions due to autoinoculation, 3 patients (6.66%)developed linear lesions due to external factors, 2 patients (4.44%)had linear lesions due to infestations and one patient (2.22%) had developed linear lesions following the lymphatics. [Chart 2]

DEVELOPMENTAL/ BLASCHKOS LINES

Of the 45 patients in study population 18 patients had linear dermatoses following the lines of blaschko. Of which maximum number of patients 8 patients presented with lichen striatus [Figure 1]. 6 patients had epidermal naevi [Figure 2-3], 2 patients had linear lichen planus, hypomelanosis of Ito [Figure 4] and linear dariers disease are seen in 1 patient each.[Chart 3]

KOEBNER PHENOMENON

Of the total study population, 9 patients had linear dermatoses due to koebner phenomenon. Of the 9 patients, 4 patients had lichen nitidus, 3 patients had lichen planus [Figure 5], 2 patients had psoriasis.

DERMATOMAL

8 patients in the study population had linear lesions along the dermatomal pattern, 4 patients had herpes zoster [Figure 6], segmental naevi and segmental vitiligo in 2 patients each.

AUTOINOCULATION

Linear lesions due to autoinoculation are seen in 4 patients, 2 of them had linear lesions following warts and the other 2 following molluscum contagiosum [Figure 7].

DUE TO EXTERNAL FACTORS

3 Patients in the study population had linear dermatoses due to external factors like insect bite [Figure 8] in the present study.

INFESTATIONS

Infestation with scabies mite had shown linear burrows in 2 patients of the study population.

LYMPHATICS

One patient in the study population had sporotrichosis, lesions following the underlying linear structure i.e; lymphatics.

DISCUSSION

EPIDERMAL NAEVUS

These may present since birth or become apparent later in life. They may be warty, smooth, brown, pink, yellow, tan or hypopigmented; localised or extensive; unilateral or widespread in distribution; and may be isolated or associated with extracutaneous abnormalities. Epidermal naevi may be purely keratinocytic (verrucous epidermal nevi) or may demonstrate sebaceous differentiation. None of the patients with epidermal naevus were symptomatic in the present study. None of them had extracutaneous features.

In our study 6 patients had linear epidermal naevi, all of them belong to the age group between 9 years and 21 years, females outnumber the male patients, possible reason could be that females are more concerned about the appearance as none of them were symptomatic.

A 11 year old girl (born out of second degree consanguinity) had verrucous papules and plaques involving right side of face and neck.

None of the patients had positive family history. One case had associated seizure disorder who is on treatment but neurological examination in this child was normal. None of the patients had associated neurological or ocular manifestations.

LICHEN STRIATUS

It occurs usually in childhood and is often self-limiting linear inflammatory condition. The lesions are usually asymptomatic or may have occasional pruritus.

Most of the patients with lichen striatus in the present study were asymptomatic and majority were in the age group of 6 -10 years. Females outnumber the male patients similar to the studies in the literature done by Saraswathy P et al [4]and Hauber et al.[5]7 patients in the present study had lesions over the extremities and only one child had lesions involving trunk. Most of the patients with lichen striatus in the present study were having associated atopy. Except for the atopy none of them had any other systemic abnormality.

HYPOMELANOSIS OF ITO

In 1952, Ito described this condition and interpreted it as a negative image of incontinentia pigmenti, as the markings follow the same pattern of lines of blaschko but are lighter than normal skin colour in contrast to incontinentia pigmenti where these are darker.

In our study one patient had hypomelanosis of Ito with no extracutaneous manifestations involving CNS, ocular or musculoskeletal system involvement.

LINEAR LICHEN PLANUS

In this study, the age group of patients with linear lichen planus was 35 years and 38 years. Both of them were symptomatic presented with itchy, discrete, flat topped papules and plaques. Neither mucous membrane involvement nor nail changes are seen in both the patients.

LINEAR DERMATOSES DUE TO KOEBNERS PHENOMENON

Heinrich koebner was the first who described koebners phenomenon,[6] which refers to the development of isomorphic lesions at the sites of trauma in dermatological disorders.[7]

True koebners phenomenon is observed in vitiligo, lichen planus, psoriasis and occasionally seen in lichen nitidus, dariers disease etc

In the present study, linear dermatoses due to koebners phenomenon was observed secondary to lichen nitidus, lichen planus and psoriasis in decreasing frequency. Nail changes were observed in

patients with psoriasis and lichen planus; pitting and pterygium respectively.

LINEAR DERMATOSES DUE TO PSUEDO KOEBNERS PHENOMENON

Autoinoculation which is also known as pseudo koebner's phenomenon is seen in infectious disorders due to implantation of infectious agent in the skin during trauma leading to development of isomorphic linear lesions like in koebner's phenomenon.

In our study linear lesions due to autoinoculation was seen secondary to verruca vulgaris and molluscum contagiousm.

LINEAR LESIONS DUE TO EXTERNAL FACTORS

In this study 3 patients had linear lesions secondary to insect bite which is known as Paederus dermatitis or blister beetle dermatitis or dermatitis linearis. It is a peculiar irritant contact dermatitis (vesicant pederin) characterised by sudden onset linear erythematous,bullous lesions and with burning sensation on exposed areas of the body.[8]

DERMATOMES

In this study, 4 patients had herpes zoster, most of them had involvement of thoracic dermatomes. 2 patients had segmental naevi and 2 patients had segmental vitiligo. One female patient with segmental vitiligo had associated autoimmune thyroiditis.

LINEAR DERMATOSES DUE TO INFESTATIONS

2 Patients in the present study had burrows (which are commonly linear) over the flexor aspect of the wrist due to scabies infestation caused by female itch mite (sarcoptes scabiei)

Figures and Charts

Chart 1: Age and Gender Distribution of the Study Population

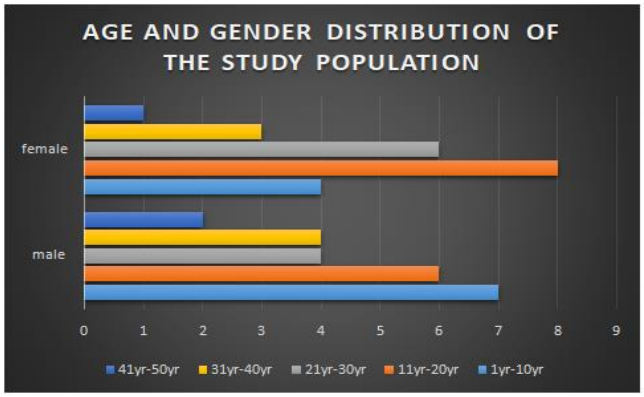

Chart 2: categorization of the study population based on the Causative and anatomical factors of linear dermatoses

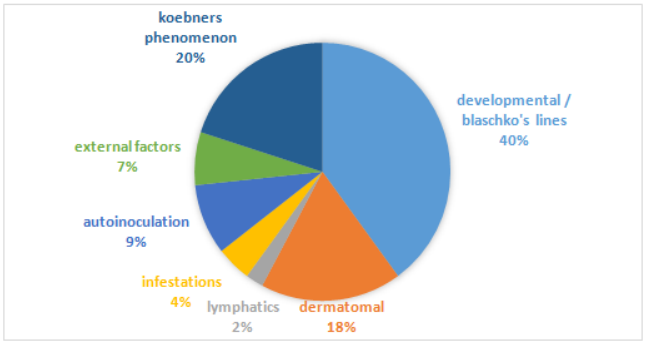

Chart 3: Linear dermatoses following the lines of blaschko in the study population

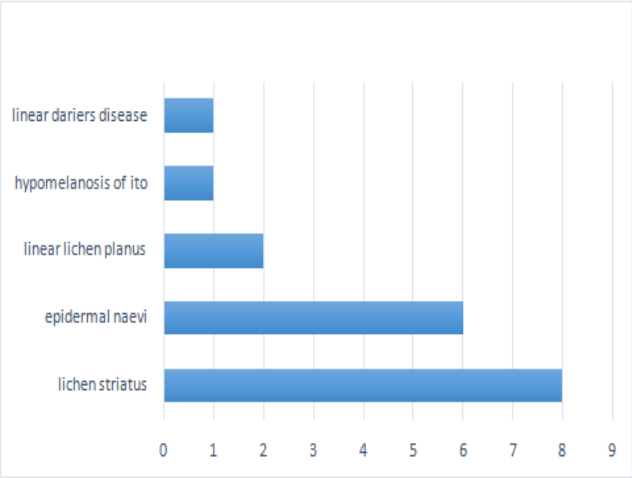

Figure 1: Lichen Striatus

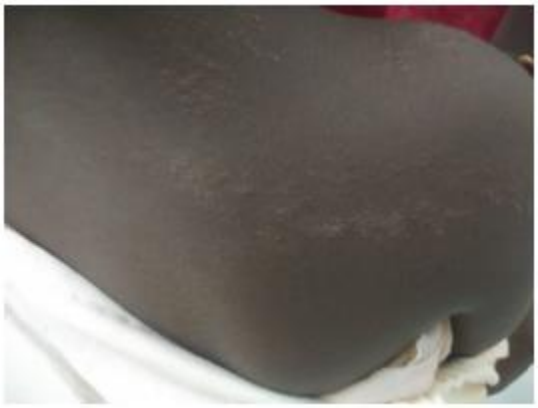

Figure 2-3: Verrucous epidermal naevus

Figure 2

Figure 3

Figure 4: Hypomelanosis of Ito

Figure 5: Lichen planus with koebners phenomenon

Figure 6: Herpes zoster (dermatomal distribution)

Figure 7: Molluscum contagiosum (pseudokoebners phenomenon)

Figure 8: Paederus dermatitis

CONCLUSION

Linear lesions acts as diagnostic clues as they give a clue to the pathway of spread of the disease. The line of management can be decided by knowing the activity of the disease as koebners phenomenon indicates active disease. Hence the importance of linear lesions in dermatology cannot be over emphasized.

ABBREVIATIONS

DVL : Dermatology, venereology, leprosy.

OPD : Outpatient department

RFT : Renal function test

LFT : Liver function test

VDRL : Venereal disease research laboratory test

HBsAg : Hepatitis B surface antigen

CXR : Chest X ray

SPSS : Statistical package for social sciences

REFERRENCES

1. Moss C. Mosaicism and linear lesions. In: Bolognia JL, Jorizzo JL, Rapini RP, editors. Dermatology. 2 nd ed. Spain: Mosby Elsevier; 2008. p. 841-5.
2. Montgomery DW. The cause of the streaks in naevuslinearis. J Cutan Genito-urinary Dis. 1901;19:455-64.
3. Jackson R. The lines of Blaschko: A review and reconsideration: Observations of the cause of certain unusual linear conditions of the skin. Br J Dermatol 1976;95:349-60.
4. Saraswathy P, Nithya Gayathri Devi D, Sivaranjani J.Study on linear dermatoses.Int J Res Dermatol2018;4:190-6.
5. Hauber K, Rose C, Brocker EB, Hamm H. Lichen Striatus: Clinical features and follow up in 12 patients. Eur J Dermatol. 2000;10(7):536-9.
6. Kuner N, Hartschuh W, Khan-Durani B. Heinrich Kobner and the "isomorphic phenomenon: History and review of the literature. Hautarzt 2003;54:274-8.
7. Thappa DM. The isomorphic phenomenon of Koebner. Indian J Dermatol Venereol Leprol 2004;70:187-9.
8. Singh G, Yousuf Ali S. Paederus dermatitis. Indian J Dermatol Venereol Leprol 2007;73:13-5
9. Tagra S, Talwar AK, Walia RS. Lines of Blaschko. Indian J Dermatol Venereol Leprol 2005;71:57-9.

10. Bolognia JL, Orlow SJ, Glick SA. Lines of Blaschko. J Am Acad Dermatol 1994;31:157-90.
11. Moss C, Larkins S, Stacey M, Blight A, Farndon PA, Davison EV. Epidermal mosaicism and Blaschko's lines. J Med Genet 1993;30:752-5.
12. Duran-McKinster C, Moises C, Rodriguez-Jurado R, Tamayo-Sanchez L, Orozco-Covarrubias L, Ruiz-Maldonado R. Streptococcal exanthem in a blaschkolinear pattern: Clinical evidence for genetic mosaicism in hypomelanosis of ito. Pediatr Dermatol 2002;19:423-5.
13. Hann SK, Lee HJ. Segmental vitiligo: Clinical findings in 208 patients. J Am Acad Dermatol 1996;35:671-4.
14. Boyd AS, Neldner KH. Lichen planus. J Am Acad Dermatol. 1991;25:593-619.