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Original Research Paper

Dermatology

A CLINICAL STUDY ON NONSPECIFIC MUCOCUTANEOUS MANIFESTATIONS OF SYSTEMIC LUPUS ERYTHEMATOSUS & ITS ASSOCIATION WITH SYSTEMIC INVOLVEMENT

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ABSTRACT

Background : Systemic lupus erythematosus (SLE) is a chronic autoimmune connective tissue disorder which presents with multiple mucocutaneous manifestations along with various internal organ involvement. Skin manifestation may be either specific or nonspecific. At times, they could be an indicator of internal disease activity. **Aims and objective :**To estimate the prevalence and pattern of the nonspecific mucocutaneous manifestations in systemic lupus erythematosus and association with internal organ involvement. Materials and methods : This is a cross sectional study and hospital based, done at Government Rajaji Hospital, Madurai Medical College, Madurai over a period of 6 months from July 2020 to December 2020. Newly diagnosed patients are selected according to 2012 SLICC criteria and all relevant investigations were carried out. Results : A total of 23 patients were studied and the female to male ratio was 9:1. The mean of onset of the disease is 32 years and belonged to the age group of 4th decade of life. Almost all the patients had specific skin lesions and nonspecific skin lesions were observed in 80% of them (n=18). The common non specific manifestation was palmar erythema (n=7) followed by telogen effluvium in 4 patients. Small vessel vasculitis was observed in 3 patients. Livedo reticularis, sclerodactyly and urticaria were seen in 2 patients each. Features of erythromelalgia, raynauds phenomenon, PAN like vasculitis, alopecia areata, erythema nodosum & rheumatoid nodule were seen in 1 patient each. Musculoskeletal involvement is seen in majority of the patients (n=15). A strong association with significant p value was seen between palmar erythema and renal involvement. **Conclusion:** A thorough knowledge of the various cutaneous manifestations, both specific and nonspecific is necessary for the early diagnosis of the disease, which in turn will help in controlling & preventing the progression of the disease. In addition some of the nonspecific cutaneous lesions can be the clinical marker of systemic association. Further studies with large sample size are needed to confirm it which are the limitations in our study.

KEYWORDS : specific and nonspecific mucocutaneous manifestations, palmar erythema, renal involvement

Introduction :

Systemic lupus erythematosus (SLE) is a chronic autoimmune connective tissue disorder which presents with florid mucocutaneous manifestations and various internal organ involvement. Though cutaneous involvement is rarely life threatening, it can be associated with major morbidity and may be an indicator of internal disease. The prevalence reported in India is 3 per 100,000 which is much lower than western data which is 124 per 100,000 in USA while 12.5 per 100,000 population in UK. [1,2,3]

James N. Gilliam divided the cutaneous manifestations of lupus erythematosus (LE) into specific and nonspecific skin changes [Table 1].[4] Specific lupus erythematosus skin changes shows characteristic interface dermatitis in histopathological examination. Nonspecific skin changes are not histopathologically distinct for LE and may be seen as a feature of another disease process. SLE can present only with nonspecific skin changes and these features may give a clue for the diagnosis at earlier. Hence, it is planned to study the nonspecific mucocutaneous manifestations of SLE.

Aims and objective :

1.To estimate the prevalence and pattern of the nonspecific mucocutaneous manifestations in systemic lupus erythematosus.

2.To determine the association between the nonspecific skin manifestations and systemic involvement.

Methods:

This cross sectional study was hospital based, done at Government Rajaji Hospital, Madurai Medical College, Madurai over a period of 6 months from July 2020 to December 2020. Patients newly diagnosed as a case of SLE by 2012 SLICC criteria presenting to the dermatology and rheumatology OPD were included in our study. Patients with mixed connective tissue disorders , already on treatment and not willing to undergo the investigation for the study were excluded. A thorough history and physical examination were done which included a detailed dermatological evaluation. Blood investigations such as complete blood count, erythrocyte sedimentation rate, blood sugar, renal function test, liver function test, routine urine analysis and microscopic examination, 24 hours urine protein levels, ANA by immunofluorescence, ECG, X-ray chest, X-ray of joints and abdominal ultrasonography were done. Additional investigations like pulmonary function test, high resolution computed tomography (HRCT) of thorax, electroencephalogram (EEG), and MRI were done in selected cases. Referrals were given to internal medicine, ophthalmology and psychiatry departments for detailed systemic evaluation.

Statistical analysis :

The values were presented as range, ratio, frequency and percentage. Chi-square test was done to study the association between two variables. P values of less than 0.05 was considered significant.

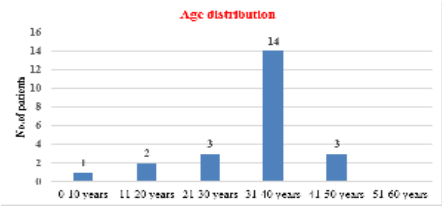
Results :

A total of 23 newly diagnosed SLE patients were studied from July 2020 to December 2020 for 6 months. There were 21 (91%) females and 2 (9%) males in our study. [Chart 1]

Chart [1]: Sex distribution

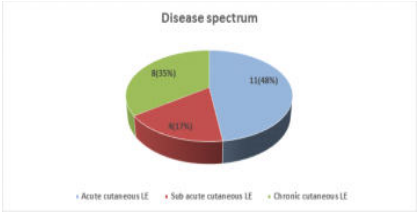
The mean of onset of the disease is 32 years and majority of the patient belong to the age group of 4th decade of life. [Chart 2]

Chart [2]: Age distribution



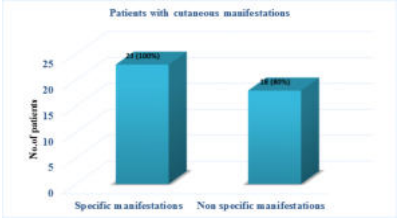
Among the 23 patients having SLE, 11 patients (48%) were of Acute LE, followed by 8 patients of CCLE (35%) and SCLE of 4 patients (17%). [Chart 3]

Chart [3]: Clinical spectrum of the disease



Almost all the patients had specific skin lesions and nonspecific skin lesions were observed in 80% of them (18 patients). [Chart 4]

Chart [4]: Frequency of specific and nonspecific cutaneous manifestations



The most common nonspecific cutaneous manifestation was palmar erythema seen in 7 patients (30.4%). Telogen effluvium was observed in 4 patients (17.3%) and 3 patients had small vessel vasculitis (13%). Livedo reticularis, sclerodactyly and urticaria were seen in 2 patients each (8.6%). Features of erythromelalgia, raynauds phenomenon, PAN like vasculitis, alopecia areata, erythema nodosum & rheumatoid nodule were seen in 1 patient each (4.3%). [Chart 5][Figure 1,2,3,4]

Chart [5]: Nonspecific mucocutaneous manifestations

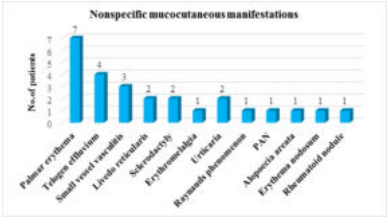


Table [1]

SPECIFIC CHANGES	NON SPECIFIC CHANGES
Acute cutaneous lupus erythematosus (ACLE) 1. Localized ACLE 2. Generalized ACLE Subacute cutaneous lupus erythematosus (SCLE) 1. Annular SCLE 2. Papulosquamous SCLE Chronic cutaneous lupus erythematosus(CCLE) 1. Classic discoid LE a) Localized DLE b) Generalized DLE 2. Hypertrophic / verrucous DLE 3. Lupus profundus / lupus panniculitis 4. Mucosal DLE a) Oral DLE b) Conjuctival DLE 5. Lupus tumidus 6. Chilblain LE 7. Lichenoid DLE	I)Cutaneous vascular disease 1. Vasculitis a) Leukocytoclastic i. Palpable purpura ii. Urticarial vasculitis b) Periarterial nodosa (PAN) 2. Vasculopathy a) Degos disease b) Secondary atrophie blanche (livedoid vasculitis, livedo vasculitis) 3. Periungal telangiectasia 4. Livedo reticularis 5. Thrombophlebitis 6. Raynaud's phenomenon 7. Erythromelalgia II)Non-scarring alopecia a. Lupus hair b. Telogen effluvium c. Alopecia areata III)Sclerodactyly IV)Acanthosis nigricans V) Erythema multiforme/Erythema nodosum VI)Rheumatoid nodules VII) Calcinosis cutis VIII)Urticaria IX)Papulonodular mucinosis X)Cutis laxa / anetoderma

Musculoskeletal involvement was seen in 65% (n=15) of patients followed by renal manifestation in 35% (n=8) of patients. Gastro intestinal and respiratory involvement was seen in 26% (n=6) and 13% (n=3) of patients had cardiac and CNS involvement each. [Table 2]

Table [2]: Systemic manifestations in SLE

Systemic manifestations	No.of patients	Percentages
Gastrointestinal	6	26%
Neurological	3	13%
Musculoskeletal	15	65%
Renal	8	35%
Cardiovascular	3	13%
Respiratory	6	26%

Among the patients with palmar erythema, there was increased frequency of involvement of renal system and there was significant association. [Table 3] Other nonspecific skin lesions seen in our study could not be compared with the systemic involvement because of limited numbers.

Table [3]: Association between nonspecific cutaneous and systemic manifestations

		Renal involvement		x2	P
Cutaneous manifestation		Absent	Present	8.5056	0.003
Palmar erythema	Absent	14	2		
	Present	1	6		
The chi square statistic with Yates correction is 8.5056. The p value is 0.003. Significant at $p < 0.05$					

Discussion :

The female to male ratio was 9:1, which was similar to Danchenko N et al.[5]

The mean onset of age group in our study was consistent with other studies.[6,7]

All the patients in our study had cutaneous manifestations but in literature it was reported that 70-85% of patients have cutaneous lesions.[8] To the best of our knowledge, there were no studies regarding the total prevalence of nonspecific mucocutaneous manifestations in SLE. In our study, nearly 80% of the patients had nonspecific skin manifestations at the time of presentation.

The common nonspecific cutaneous manifestation was palmar erythema which was seen in 22.7% which was in higher incidence than Yell JA et al.[9]

In our study, raynauds phenomenon was seen only in 4.5%. But, Raynaud's phenomenon is a common nonspecific cutaneous lesion that appears in 18-46 % of patients with SLE.[10]

Telogen effluvium was observed in 18% of cases which was lower than Rasheed et al.[11]

Musculoskeletal involvement (65%) were predominantly seen apart from mucocutaneous manifestations followed by renal involvement. A study by Budhrani et al on 90 patients of CTD also showed 85.5% of musculoskeletal involvement which was higher when compared to our study.[12]

Almost all patients have some degree of renal involvement during the disease course and between 40% and 70% of patients develop clinically diagnosed renal involvement, termed lupus nephritis (LN).[13] However in our study, only 35% of patients had renal involvement.

There is signification association between palmar erythema and renal involvement in our study. A cross sectional study done by Kadiru et al, observed that gastrointestinal manifestations were associated with the presence of malar rash.[14]

Previous studies suggest that nonspecific skin manifestations were associated with the disease flare. But in our study, there was association of these lesions with internal organ involvement. There were no sources and scientific explanation in any literature regarding the association between cutaneous and systemic manifestations in SLE and it remains to be an area explored further by various studies.

Conclusion :

Both specific and nonspecific manifestations can occur in SLE. Though only specific cutaneous lesions are diagnostic of SLE, the presence of nonspecific cutaneous lesions leads to high index of suspicion of SLE in general. Therefore a thorough knowledge of the various cutaneous manifestations, both specific and nonspecific is necessary for the early diagnosis of the disease, which in turn will help in controlling & preventing the progression of the disease. In addition some of the nonspecific cutaneous lesions can be the clinical marker of systemic association as observed in our study.

Limitations:

The major limitation was smaller sample size and smaller frequency of association. Thus, large population must be studied further.

Figure 1 – Palmar erythema

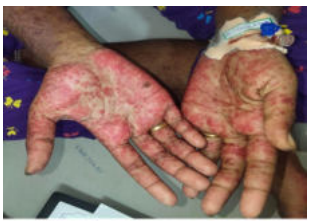


Figure 2 – Telogen effluvium

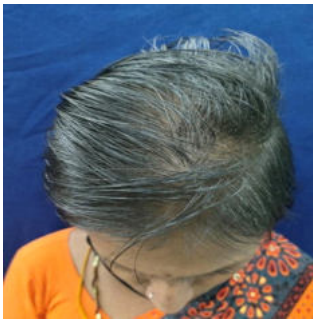


Figure 3 – Livedo reticularis

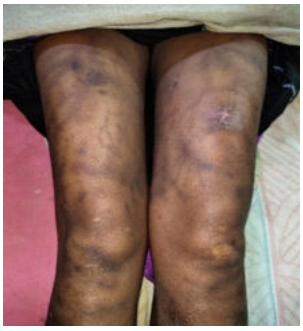
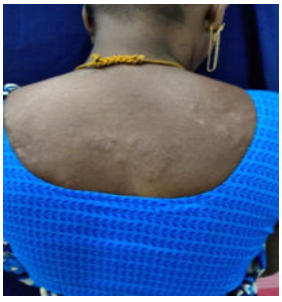


Figure 4 – urticaria



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