ORIGINAL ARTICLE

Cutaneous manifestations of systemic lupus erythematosus: a retrospective study from Egypt

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ABSTRACT

BACKGROUND: Systemic Lupus Erythematosus (SLE) is an autoimmune process in which cutaneous lesions occur in the majority of patients. The skin lesions can provide valuable diagnostic and prognostic information. These lesions may be specific (LE specific) or may be non specific (LE non specific).

AIM: This study was conducted to determine the pattern and prevalence of skin lesions in SLE in Egyptian patients.

MATERIAL AND METHOD: This study was carried out at the dermatology department, Mansoura University Hospital, Mansoura, Egypt. Record files of 185 patients with SLE between January 2001 and January 2008 who fulfilled the clinical and laboratory criteria of the American Rheumatology Association (ARA) were analyzed retrospectively for cutaneous manifestations.

RESULT: Lupus specific cutaneous lesions were as follows: malar skin rash was seen in 142 patients (76.76%) ,photosensitivity in 83 patients (44.86%), generalized maculopapular rash in 50 patients (27.03%), discoid rash in 42 patients (22.70%), subacute cutaneous lupus erythematosus (SCLE) in 7 patients (3.78%), lupus profundus in 5 patients (2.70%). The lupus non-specific lesions were as follows: cutaneous vasculitis in 70 patients (37.84%), diffuse non-scarring alopecia in 61 patients (32.97%), oral ulcers in 58 patients (31.35%), micro infarcts in 22 patients (11.90%), palmar erythema in 39 patients (21.08%), chronic ulcers in 9 patients (4.86%), urticaria in 7 patients (3.87%), livedo reticularis in 7 patients (3.78%), peripheral gangrene in 5 patients (2.70%), thrombophelibitis and Raynaud's phenomenon in 4 patients each (2.16%). Patients having lupus-specific skin lesions e.g., malar rash were associated with systemic involvement, whereas those having lupus non-specific skin lesions were associated with disease flare. Anti ANA and anti dsDNA were positive in 94.59 % and 71.89% patients respectively.

CONCLUSION: Skin lesions in patients with SLE are important disease manifestations which can yield valuable diagnostic as well as prognostic information. Proper understanding is essential for diagnosis and efficient management.

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INTRODUCTION

Since the discovery of lupus erythematosus cell phenomenon (L.E. cell) by Hargraves and his colleagues in 1948, there have been innumerable studies of systemic lupus erythematosus (SLE) in the world literature.[1] Systemic lupus erythematous (SLE) is a chronic multisystem disease caused by tissue damages resulting from deposition of antibody and complement-fixing immune complexes.[2-4] This disorder usually is life-long and a potentially fatal autoimmune disease.[3]

SLE is perhaps the best example of a multi system disorder in which cutaneous components of the disease can yield valuable diagnostic and prognostic information. Variations however exist in the incidence, clinical heterogeneity and severity of disease between different ethnic and racial groups. Environmental, cultural or genetic backgrounds may explain these variations.[5] In SLE there is a preference for the clinical involvement of the joints, skin, kidney, brain, and serosa.[4] The skin and mucous membranes are symptomatically involved at some point in over 80% of patients with SLE.[6] Cutaneous lupus erythematous has been classified into specific classic and non specific manifestations.[7,8] There is a tremendous variability and diversity in the type of involvement ranging from classical butterfly rash and atrophic hyperkeratotic lesions of discoid lupus to bullae, alopecia and vasculitis or dermal vessels.[9] Cutaneous lesions are important as a diagnostic aid as reflected by the fact that they account for four of the 11 revised ARA criteria of SLE.[10]

Data on the cutaneous features of SLE in Egyptians seems somewhat scarce. The main purpose of this study was to analyze the clinical importance and prevalence of cutaneous lesions in SLE in Egyptian patients.

PATIENTS AND METHODS

This study was carried out at the dermatology department, Mansoura University Hospital, Mansoura, Egypt. Record files of all patients between January 2001 and January 2008, who fulfilled the American Rheumatology Association revised criteria for the classification of SLE[10] were analyzed retrospectively. Detailed information of the expression clinical signs and symptoms such as, skin involvement, renal, musculoskeletal, cardiovascular, pulmonary, and hematological abnormalities were reviewed. Using SPSS software, the patients were analyzed according to their age, sex, and clinical features with special attention to cutaneous manifestations. Laboratory investigations were also analyzed which included complete blood counts, serum creatinine, ESR, Serum total proteins, 24 hours urinary proteins and creatinine clearance, anti nuclear factor, anti-DNA, Rheumatoid factor, serum compliment levels (C3, C4, CH50), anti-ENA, skin biopsy, chest X-ray, ECG, ultrasound kidneys and echocardiogram .

RESULTS

Of the 185 patients who fulfilled the ARA revised criteria for SLE, 151 (81.62%) were females and 34 (18.38 %) were male patients with male to female ratio of 1:4.44. Mean age at presentation was 34 years (±14.1). Precipitating factors included sunlight (47%), drugs (16%), pregnancy (13%) and infections (6%). Laboratory findings are summarized in Table 1. Anemia (43.24%) was the most common hematological abnormality at the onset of the disease; thrombocytopenia was present in 27.57% of the patients and leukopenia

Table 1 Laboratory findings of SLE patients

Parameters	No (%)
Hb < 10mg/dl	80 (43.24)
Thrombocytopenia	51 (27.57)
Leukopenia	34 (18.38)
Lymphopenia	27 (14.59)
Creatinine > 1.2	39 (21.08)
BUN > 40	72 (38.92)
ANA +>1/160	175 (94.59)
Anti-ds-DNA + > 5	133 (71.89)
Low C3, C4, Ch50 complements	119 (64.32)
ESR> 50	180 (97.29)
CRP > +++	121 (65.41)
Hematuria	158 (85.41)
Proteinuria	149 (80.54)

in 18.38%. 149 patients (85.41%) had hematuria and 149 patients (80.54) had proteinuria. BUN was high (more than 40 mg) in 72 patients (38.92) and creatinine was elevated to 1.2 mg% in 39 patients (21.08%). ANA positivity was more than 1:160 in 175 patients (94.59%) and positive anti-ds-DNA in 133 patients (71.89). The level of C3, C4 and Ch50 complements were lower than normal in 119 (64.32%) patients. All patients (100%) developed skin lesions during their follow-up period

Specific cutaneous manifestations (Table 2) were presented in 148 patients (80.54%). Butterfly malar skin rash was seen in 142 patients (76.76%) and 83 patients (44.86%) had photosensitivity, generalized maculopapular rash in 50 patients (27.03%), discoid rash in 42 patients (22.70%).

Nonspecific lesions of SLE included cutaneous vasculitis in 70 patients (37.84%), micro infarcts in 22 patients (11.90%), palmar erythema in 39 patients (21.08%), chronic ulcers in 9 patients (4.86%), livedo reticularis in 7 patients (3.78%), peripheral gangrene in 5 patients (2.70%), thrombophelibitis and Raynaud's phenomenon in 4 patients each (2.16%), chilblains in 3 patients (1.62%), urticaria in 7(3.87%), and erythema multiform in 2 patients (1.08%). Only one patient (0.54%) had atrophae blanche. None of the patients had rheumatoid nodules, erythromelalgia, sclerodactaly or pyoderma gangreosum. Hyperpigmentation occurred in 23.24% of patients. Hair Changes included noncicatricial diffuse alopecia, cicatricial alopecia and lupus hair. Non scarring alopecia was present in 32.97%. Eight percent of patients presented with nail changes, and included ragged cuticles (4%), leukonychia (2%), splinter hemorrhages (2%), paronychia (4%), nail fold telangiectasia (8 %) and onycholysis (5%).Other findings were localized and generalized pruritis (5.95%), Acquired ichthyosis (1.08%) and acanthosis nigricans (1.08%).

Oral mucosal lesions occurred in 31.35% of the patients. Superficial erosions, discoid lesions and erythema were noted on the lips, palate, buccal mucosa and gums. The rest of the mucosal surfaces of the body were not affected.

In our study group, patients with LE non-specific skin lesions, specially generalized maculopapular vasculitic lesions, and diffuse non-scarring alopecia were associated with more active disease or disease flare. Malar rash were associated with more systemic involvement.

Involvement of organs (Table 3) was encountered in the majority of patients. The kidney was the most common organ affected at onset in 161 patients (87.03%). Arthritis /arthralgia was manifested in 111 patients (60.00%), myalgia and myositis were seen in 55 patients (29.73%). Cardiovascular system (CVS) involvement was seen in 46 patients (24.86%) and respiratory system was involved in 28 patients (15.16%).

Table 2 Cutaneous manifestations of SLE

Skin Manifestations	**No (%)**
LE specific skin lesions	
Malar rash	142 (76.76)
Photosensitivity	83 (44.86)
Generalized maculopapular rash	50 (27.03)
Discoid LE	32 (17.30)
Subacute Cutaneous LE	7 (3.78)
Lupus profundus	5 (2.70)
LE non-specific skin lesions	
Cutaneous vasculitis	70 (37.84)
Non scarring alopecia	61 (32.97)
Mucocutaneous	
Oral ulcers	58 (31.35)

Table 3 Other system involvement

Other organ manifestations	**No (%)**
Renal	161 (87.03)
Arthritis /Arthralgia	111 (60.00)
Myalgia/Myositis	55 (29.73)
Cardiovascular	46 (24.86)
Respiratory	28 (15.16)
Gastrointestinal	19 (10.27)
Lymphadenopathy	8 (4.32)

DISCUSSION

Cutaneous lesions occurred in 80.54% of patients in our study, an incidence that closely matched that of studies by Font et al[5] and Hochberg.[11] Kole and Ghosh[12] reported cutaneous involvement in 73.34% of their patients. Cutaneous manifestations were initial presentation in 14.59% of our patients as against 25% mentioned by Watson[13] and Kole and Ghosh.[12] The preponderance of women closely matched that of other populations (e.g., 28 out of 32 in an Indian[14] and 73 out of 78 in an Australian[15] study). Age at onset was lower (34 years on average) than that reported earlier.[16, 17]

Among the LE-specific cutaneous lesions, malar rash was the most common lesion (76%) noted in this study; which is higher than other Arabian countries as Lebanon[18] (52%), Saudia Arabia[19] (22%), and Kuwait[20] (43%). The percentage of discoid rash (17%) was considerably lower than that recorded in Pakistan by Kapadia (57%).[21] but higher than other Arabian countries as and Saudia Arabia[19] (5.6%) and Kuwait[20] (10%), and nearly similar to Lebanon[18](19%). Photosensitivity was reported in 44% of our patients which was nearly similar to results from kuwait[20] (48%), lower than that recorded in Pakistan by Kapadia[21] (60%), and higher than other Arabian countries as Saudia Arabia[19] (24%), Lebanon[18] (16%). Oral lesions was reported in 31% of our patients which was lower compared to 60% in Pakistani patients[21], 42% in Saudia Arabia[19] ,44% in Lebanon[18], and 33% in Kuwait.[20] Different figures of the incidence of Oral ulcers were also seen by Kole and Ghosh[12] (56.67%), Dubois[22] (9.1%) and Malaviya[23] (64%). Diffuse maculopapular rash and subacute cutaneous lupus was noted in 27 % and 3.78% of the cases respectively which are nearly similar to to Kole and Ghosh[12] but much lower than Wysenbeekn, et al who reported theses lesions in 59% and 13% of their cases respectively.[24] Raynaud's phenomenon is a less common skin lesion in SLE. In this study, we had seen this in 2.16 % of cases, while higher figures were reported from India by Kole and Ghosh[12] (6.67%), Malaviya, et al.[23] (32%) and Vaidya, et al (15.5%) [25] This variation may be attributable to different climatic conditions .

Urticaria-like skin lesions are very unusual in patients suffering from SLE [26] but we had noted such lesions in 3.87% of our cases compared to 6.67% reported by Kole and Ghosh.[12] Dubois mentioned that development of urticaria in a patient with SLE should lead the physician to carefully evaluate that patient for active systemic disease. [27] Bullous lesions are rarely reported occurring in less than 5% of patients with SLE in isolation or in combination with other skin lesions [28] but in this study, only 6 patients (3.24%) which are lower than Kole and Ghosh[12] who reported bullous lesions in 10%. Digital gangrene was rarely seen in our study because of low incidence of Raynaud's phenomenon. Livedo reticularis, erythema multiform, acanthosis nigricans were rare while, sclerodactyly, and lichen planus were not observed in this study, which also closely matched the results of the study by Watson, et al.[13]

Hyperpigmentation was noted in 23.24% of our patients; whereas Tuffanelli[17] noted it in 8.4% of his cases. This difference could be due to excessive exposure to sunlight in our part of the world and a general tendency to post-inflammatory melanosis.

Diffuse nonscaring alopecia was an early manifestation of the disease in our patients (seen in 32.97%), but was less frequent as compared to 86.67% noted by Kole and Ghosh[12], 57% noted by Wysenbeek[24] , 82% by Malaviya[23] , 37% quoted by Akhtar and Khan[16], 58% by Alarcon-Segovia.[29] and 70% by Rothfield.[30] Eight percent of patients presented with nail changes, and included ragged cuticles (4%), leukonychia (2%), splinter hemorrhages (2%), paronychia (4%), nail fold telangiectasia (8 %) and onycholysis (5%).Bluish discoloration of the nails as noticed commonly by Kapadia, et al. [21] was not seen in this study. In our study group, non-specific skin lesions, specially

generalized urticarial or maculopapular vasculitic lesions, and diffuse non-scarring alopecia were associated with more active disease or disease flare, while malar rash was associated with more systemic involvement.

The incidence of ANA-negative SLE was similar (5%) as compared to 4-13% reported previously.[31] Anti dsDNA antibodies were elevated in 71.89% of our patients which matched previously recorded data.[32] ANA was positive in 95% of the patients and in about 64.32% of them the level of complements was below normal similar to what was reported previously.[33,34]

CONCLUSION

Cutaneous lesions in SLE are important as a diagnostic aid as reflected by the fact that they account for four of the 11 revised American Rheumatism Association criteria of SLE. Cutaneous manifestations can yield valuable diagnostic (e.g., LE-specific skin lesions) as well as prognostic (e.g., LE non specific skin lesions - as these are associated with disease activity) information. Skin lesions also are responsible for increased morbidity. The pattern and incidence of skin changes may vary from place to place. Proper understanding regarding skin lesions of SLE will be helpful for the disease diagnosis and efficient management of patients with lupus.

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