

A CLINICO-EPIDEMIOLOGICAL STUDY OF DISCOID LUPUS ERYTHEMATOSUS IN A TERTIARY CARE HOSPITAL

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Abstract

Background: Discoid lupus erythematosus (DLE) is a form of cutaneous lupus erythematosus (CLE). Skin is referred to as cutaneous. Skin-related lupus variants are included in CLE. Round sores, generally on the face or head, are a symptom of discoid lupus. Chronic cutaneous lupus is another term for discoid lupus. The current study aimed to determine the clinico-epidemiological profile of patients with DLE.

Methods: The present study was conducted in the Department of Dermatology, Osmania Medical College and Hospital, Hyderabad, Telangana State. Based on the inclusion and exclusion criteria the patients diagnosed with DLE were selected. A detailed history and clinical examination were carried out. A biopsy was done for confirmation of all the cases and other required investigations were carried out.

Results: The overall incidence was 4.31 per 10000 patients attending the dermatology clinic. The majority of the patients (60%) had disease onset between 31-50 years of age. The scalp was involved in 15(50%) of cases and DLE lesions of the face were found in n=23(76.67%) cases. On the face, the cheek was a common site of involvement in n=9(39.13%) of cases followed by the eyelid perioral region and nose in descending order. Scarring of the concha due to lesions of discoid lupus erythematosus (Shuster's sign) was found in 30% of cases. Widespread involvement of upper limbs was in 36.67% of the trunk in 40% and lower limbs in 20% of cases. UV exposure-related occupation, ingestion of drugs, trauma, and smoking in men.

Conclusion: The incidence of DLE in the current study was 4.3 per 10000 cases visiting dermatology clinics. The majority of our patients' illnesses began in their third to fifth decades. In our study, females outnumbered males. Males were more likely to have the dispersed type than the localized type. LE in the parents predicts a severe illness with an early start in the offspring. The majority of patients who had palmoplantar and lower limb involvement also experienced problems including ulceration.

Keywords: Discoid Lupus Erythematosus, Lupus Nephritis, Systemic Lupus Erythematosus

Introduction

Discoid lupus erythematosus (DLE) is a debilitating, chronic inflammatory skin condition. The most prevalent kind of cutaneous lupus erythematosus is characterized by well-defined, erythematous scaly plaques that are well-defined and vary in size and resolve with atrophy, scarring, and pigmentary alterations.^[1] The involvement of the follicles is a key component of DLE. DLE is thought to be 50–85% of cases of cutaneous lupus erythematosus, while its actual frequency and prevalence are unclear. Skinny LE occurs just as frequently as SLE.^[2] In one research, the incidence of DLE was 3.56 per 100,000 people, with the generalized form occurring at a rate of 1.04 per 100,000 and the localized form at a rate of 2.52 per 100,000.^[2] DLE is most common in individuals between 20 and 40 years of age.^[3] But it can occur at any age. Cases have been reported in less than 15 years of age and elderly over 70 years of age.^[4] DLE has a female preponderance. Female to male sex ratio was found to be 3: 2 to 3: 1.^[3] Age of onset was slightly later in males when compared to females.^[5] Strong links between DLE and inherited deficits of C2 and C4 complement components have been found. In lupus panniculitis, both C4 allotypes are somewhat deficient.^[6] Failure to eliminate immune complexes and apoptotic cells may result from these complement deficits. Higher apoptotic cell counts brought on by greater creation or decreased clearance, in turn, stimulate the immune system and ultimately result in increased anti-Ro development.^[6] Discoid lesions exhibit alterations that may be seen at all skin levels, albeit not always at each level.^[7] The majority of dilated follicular apertures and eccrine duct openings had hyperkeratosis with keratotic plugs.^[7] Individual cell necrosis and squamation are visible in basal keratinocytes.^[7] Since there are so few studies on DLE that have been published in India, we decided to focus our study on the clinical and epidemiological traits of DLE patients. We chose to research the clinical and epidemiological characteristics of DLE patients since there are so few studies on DLE that have been published in India.

Material and Methods

The present study was conducted in the Department of Dermatology, Osmania Medical College and Hospital, Hyderabad, Telangana State. Institutional Ethical approval was obtained for the current study. Written consent was obtained from all the participants of the study after explaining the nature of the study in the local language with all possible outcomes. Only those voluntarily willing to participate in the study were included.

A thorough history was obtained, including the age at onset, length, precipitating causes, systemic symptoms, and family history. To determine the clinical type and discover the cutaneous and systemic correlations of the disease, a thorough dermatological screening, general examination, and systemic examination were performed. Blood tests such as a complete hemogram, a kidney function test, and a thyroid function test were performed. After receiving informed consent, all patients had skin biopsies performed and submitted for histology. Twenty of the research group's participants underwent antinuclear antibody (ANA) screening. It was identified in 10 cases using the immunofluorescence technique (IFA) using Hep-2 cells as the substrate and in the remaining 10 cases using the ELISA approach. In 10 cases with ANA positivity and other signs of SLE, anti-double-stranded DNA (anti-ds-DNA) antibodies were tested. Just 5 patients had direct immunofluorescence (covered and uninvolved region) due to cost considerations. These patients had widespread DLE (n=3), localized DLE (n=1), and lupus panniculitis (n=1). Patients were being monitored, and any problems or aftereffects were noted.

Statistical analysis: The data was collected and uploaded on an MS Excel spreadsheet and analyzed by SPSS version 22 (Chicago, IL, USA). Quantitative variables were expressed on

mean and standard deviations and qualitative variables were expressed in proportions and percentages. Fisher’s exact test has been used to find the difference between two proportions.

Results

A total of n=30 cases out of 69560 cases were diagnosed with DLE during the duration of the study. The overall incidence was 4.31 per 10000 patients attending the dermatology clinic. The majority of the patients (60%) had disease onset between 31-50 years of age. One female patient with disseminated lesions had an onset of the disease during her pregnancy. The details of the distribution of the onset of DLE have been depicted in table 1.

Table 1: Age-wise distribution of onset of DLE in the cases of the study

<i>Age group</i>	<i>Frequency</i>	<i>Percentage</i>
11 – 20	1	03.33
21 – 30	6	20.00
31 – 40	12	40.00
41 – 50	6	20.00
51 – 60	3	10.00
61 – 70	2	06.67
<i>Total</i>	30	100.00

The localized type of DLE was found in n=20 cases and n=10 cases had disseminated type of DLE. Localized disease was classified based on the total number of lesions, as mild (<5), moderate (5-10), and severe (>10). Mild localized disease was recorded in 66% (n= 15), moderate form in (n=5) and none had a severe form of localized disease. Less than 5 lesions restricted to one area away from the head and neck region without involving the later 16.67% (n=5) were included in the localized type in our study. The overall male-to-female ratio was 1:4. The female-to-male ratio in the localized type was 9: 1 and in the disseminated type was 1.5: 1 the distribution of cases has been depicted in table 2.

Table 2: Distribution of cases in the study

<i>Type of DLE</i>	<i>Male</i>	<i>Female</i>
Localized	2	18
Disseminated	4	06
Total	6	24

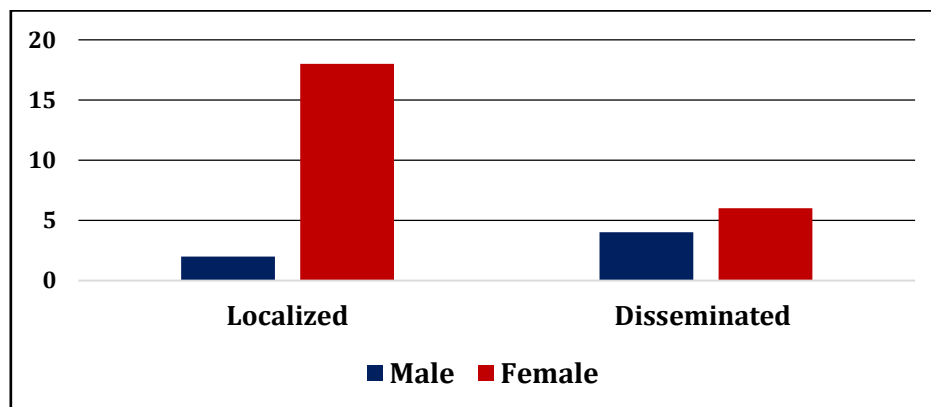


Figure 1: Sex-wise distribution of cases in the study

Based on the duration of lesions it was found that 76.67% of cases had lesions of less than 5 years duration, 16.67% had a duration between five to fifteen years and a duration of greater than 20 years was found in 6.67% of cases. The scalp was involved in 15(50%) of cases and DLE lesions of the face were found in n=23(76.67%) cases. On the face, the cheek was a common site of involvement in n=9(39.13%) of cases followed by the eyelid perioral region and nose in descending order. Scarring of the concha due to lesions of discoid lupus erythematosus (Shuster's sign) was found in 30% of cases. Widespread involvement of upper limbs was in 36.67% of the trunk in 40% and lower limbs in 20% of cases. UV exposure-related occupation, ingestion of drugs, trauma, and smoking in men (Figure 2) are the various triggers of the disease observed.

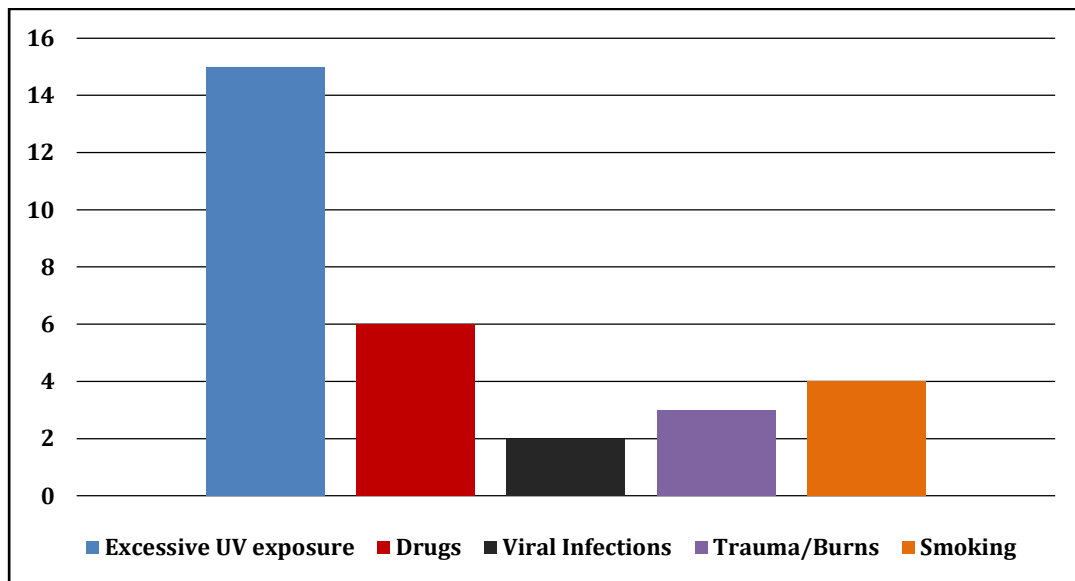


Figure 2: Showing the triggering or inducing factors for DLE in the cases of the study.

A classical discoid lesion in 93.33% (n=28), mucosal involvement in 46.67% (n=14), the verrucous or hypertrophic variant in 10% (n=3), and tumid lesions among 6.67% (n=2) each respectively were noted (Table 3).

Table 3: Variants of DLE in the cases of the study

Variant	Localized	disseminated	Total	Percentage
Classical	10	2	12	40.00
Classical, Mucosal	7	5	12	40.00
Classical mucosal, verrucous	0	1	1	03.33
Classical, mucosal, tumid	1	0	1	03.33
Classical verrucous	0	1	1	03.33
Classical panniculitis	0	1	1	03.33
Verrucous	1	0	1	03.33
Tumid	1	0	1	03.33
Panniculitis	0	0	0	00.00
Total	20	10	30	100.00

The classical discoid lesion was the most common mucosal pattern seen in Depigmented white patches and palatal erosion was seen in each. Cheilitis and erythematous plaque were

noticed among each. According to the site, the lower lip was involved in the upper lip in was involved of both upper and lower lip.

Disfiguring scarring alopecia was seen in n=7 cases of both localized and diffused DLE among the 17 individuals with scalp lesions. (n=2/17) of the patients had diffuse non-scarring alopecia. In (n=3/26), a few minor lesions without noticeable alopecia were seen. Thirty patients underwent anti-nuclear antibody (ANA) testing, of which 10 underwent the immunofluorescence anti-nuclear antibody (IFA) technique and 10 underwent the enzyme-linked immunosorbent assay (ELISA) method. A total of n=14 out of n=20 patients (70%) had ANA positive, with n=5 cases being the disseminated type and n=10 being the localized variety. Eight out of the ten samples evaluated by the IFA technique had positive reactions, with the granular/speckled pattern being the most prevalent pattern seen in our study. Figure 3 shows the cases had other clinical and laboratory abnormalities such as photosensitivity, malar rash, annular lesions of sub-acute cutaneous LE, arthralgia, oral ulcer, livedo reticularis, anemia, proteinuria, increased ESR, and lupus nephritis.

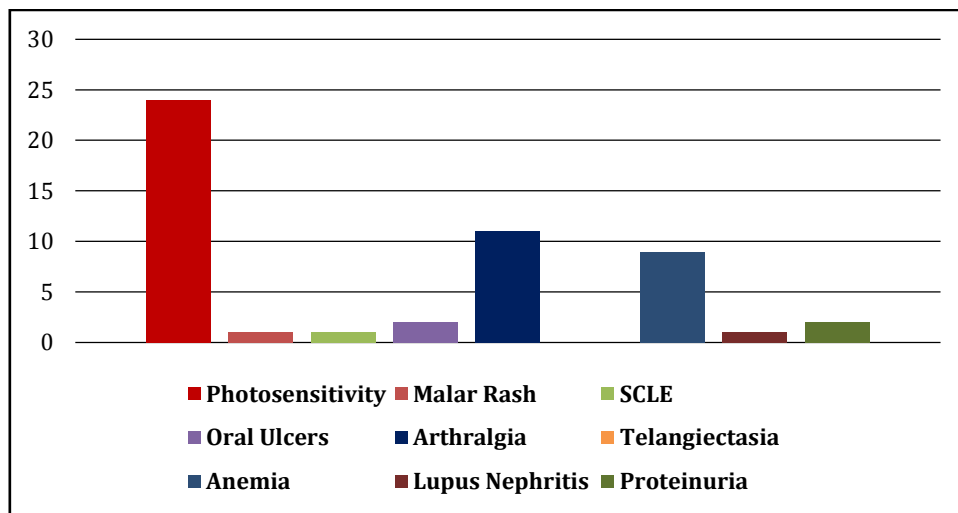


Figure 3: Other clinical features and clinical findings in cases of the study.

Discussion

In this study, we found the overall incidence was 4.31 per 10000 patients attending the dermatology clinic. The majority of the patients (60%) had disease onset between 31-50 years of age. Patients' ages ranged from 17 to 69 years old. As compared to 36 and 31.4 years in previous studies by Insawang et al., [8] and Bajaj et al., [9] the mean age at illness start was 35.5 years. The age group of 31 to 40 years saw the highest dispersion 40%. In our study, the female-to-male ratio was 4:1. Similarly, several studies indicate that women outnumber men by a ratio of 2:1 to 5:1. [8, 10, 11] In the confined and dispersed types, the female-to-male ratios were 9:1 and 2:1, respectively. In our study, the localized type was seen more frequently in female patients than in male ones. The disseminated type was more frequently detected in male patients. However, few studies indicated an equal ratio and a male majority. [12, 13] As documented in the literature, UV exposure, viral infection, medications, and smoking were seen in our patients and were consistent with our observations. [14, 15] 66.67% of the research group's male patients were found to be smokers. Localized DLE was found in n=20/30 (66.67%) cases and disseminated DLE was found in 10/30(33.33%) cases in the study. This percentage matched that of the Insawang et al., [8] study. The most prevalent kind of DLE in our investigation was the localized variety, which affected 9.8% of the study group in

locations other than the head and neck. On the face, the cheek was a common site of involvement in n=9(39.13%) of cases followed by eyelid perioral region and nose in descending order. Scarring of the concha due to lesions of discoid lupus erythematosus (Shuster's sign) was found in 30% of cases. The results are in concordance with Callen et al.,^[11] Sandipan et al., found forehead, nose, and cheek were involved in 65%, 76%, and 78% respectively. In our investigation, as compared to Sandipan et al.,^[16] study, the scalp, trunk, and upper limb participation were greater while the involvement of the forehead, nose, face and concha was lower. In our study, 20% of the lower limbs were involved, compared to 11% in the Sandipan et al., [16] study. The different Fitzpatrick skin types across north and south India might account for the lower distribution of lesions on the face in our study when compared to Sandipan et al.,^[16] study from north India. The distribution of variants found in the study was Classical discoid lesion in 93.33% (n=28), mucosal involvement in 46.67% (n=14), the verrucous or hypertrophic variant in 10% (n=3), and tumid lesions among 6.67% (n=2) each respectively. Sandipan et al.,^[16] in their study reported oral mucosal involvement in 7.84% and lip lesions in 31%.¹² In this study, we found one patient with lupus panniculitis (3.33%), which was less than in the study by Bajaj et al.^[9] (9.1%). Yet was greater than the 2.3% in the Insawang et al.,^[8] trial. 3.9% (n=2) of the research group had a presentation of 3 tumescent LE. Our patients' noses and malar region (a sun-exposed area) were the sites affected, which was consistent with previous research, however, other studies' reporting of tumid LE varied from 0.8 to 18.2%.^[17]

A total of n=14 out of n=20 patients (70%) had ANA positive, with n=5 cases being the disseminated type and n=10 being the localized kind as found in other studies. 3 Similar to the work of Insawang et al.,^[8] the speckled/granular pattern was the most prevalent, followed by homogeneous, nucleolar, and nuclear dots patterns.^[8] DIF has a significant value in the evaluation of active cutaneous connective tissue disease. The intensity of the deposits of immune reactants along the basement membrane correlates with the degree of interface/lichenoid dermatitis/mucositis. In DLE, the most common immunoreactions visualized is Ig M.^[18] Although immunological pattern detection was not carried out in all patients of the current study due to unavailability and financial restrictions.

Conclusion

The incidence of DLE in the current study was 4.3 per 10000 cases visiting dermatology clinics. The majority of our patients' illnesses began in their third to fifth decades. In our study, females outnumbered males. Males were more likely to have the dispersed type than the localized type. LE in the parents predicts a severe illness with an early start in the offspring. The majority of patients who had palmoplantar and lower limb involvement also experienced problems including ulceration. In our investigation, the granular pattern was the most often seen in ANA using the IFA approach. Just 3.33% of patients had serious morbidity, such as lupus nephritis, which highlights the benign character of the condition.

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