



**ORIGINAL RESEARCH PAPER**

**Dermatology**

**A CLINICAL AND EPIDEMIOLOGICAL PRESENTATION IN PATIENTS WITH LEG ULCER - AN OBSERVATIONAL STUDY**

**KEY WORDS:** Leg Ulcers, Venous Insufficiency, Arterial Disease, Varicose Veins.

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**ABSTRACT**

**BACKGROUND:** Leg ulcer is characterized by circumscribed or irregular loss of tegument (dermis or epidermis), which may reach subcutaneous and subjacent tissues. It mostly affects the extremities of the lower limbs.  
**OBJECTIVES:** To study the clinical and epidemiological profile of the patients with leg ulcers attending the Outpatient Department of Dermatology, PESIMSR, Kuppam.  
**MATERIAL AND METHODS:** A total of 30 patients were included in the study group over a period of three months (April, May, June 2018).  
**RESULTS:** The mean age was 63 years, with females (63%) more than males. The mean family members were 3 persons. Venous insufficiency (88%) is the most important factor associated with leg ulcers, followed in order of frequency by systemic arterial hypertension (55%), obesity (21%) and diabetes mellitus (18%). An association of venous insufficiency and systemic arterial hypertension was present in 47% of the cases. These were classified as venous (80%), hypertensive (17%) and mixed (3%) based on the etiology. The ulcers were generally localized in the distal third of lower limbs. Single ulcer was present in 65% of cases, two ulcers in 33% of cases and three ulcers in 2% of the cases. The ulcers were associated mainly with hyper-pigmentation (94%), lipodermatosclerosis (70%), varicose veins (68%), edema (60%), pruritis (58%) and eczema (44%), with a mean duration of 92 months and 50% of them were recurrent.  
**CONCLUSION:** The inference from the study was, leg ulcer is an important chronic illness in the elderly people causing greater morbidity. Accurate diagnosis and treating underlying cause will improve the quality of life of the patient.

Leg ulcers are defined as circumscribed or irregular loss of dermis or epidermis reaching subcutaneous and underlying tissues.<sup>1</sup> Most commonly affects the lower limbs. These are debilitating diseases and will affect the quality of life.

Chronic venous insufficiency accounts for 80-85% of the cases and arterial diseases in 5-10% of cases. Other causes are neuropathy, metabolic disorders and infective causes. Most of the ulcers will be secondary to underlying medical disorders. So, accurate diagnosis and treating underlying medical illness is important. Co-morbid factors such as old age, low socio-economic status, poor hygiene, malnutrition, obesity, DVT, varicose veins, medical causes like diabetes mellitus, peripheral vascular diseases, rheumatoid arthritis, systemic vasculitis will affect the prognosis and outcome of the treatment.<sup>2</sup> Patients with leg ulcers have poor psychological health with greater risk of depression, social isolation and less social support. Diet modifications, nutritional supplements, cessation of smoking, life style modification, maintaining good cardiac status, and psychosocial support are helpful to individuals with history of venous leg ulcers.<sup>3,4</sup>

This is an observational study on epidemiology and clinical presentation in patients with leg ulcer. Various factors like mean age group, sex preponderance, socioeconomic status, co-morbid conditions, type and location of ulcers and recurrence rate were assessed.

**PATIENTS AND METHODS**

The present study was conducted in the Department of Dermatology Venereology and Leprosy, PESIMSR for a period of three months (April, May, June 2018). All patients with leg ulcers irrespective of age and sex attending the Outpatient Department of Dermatology, PESIMSR, Kuppam were included in the study group. Patients with traumatic ulcers were excluded from the study.

A total of 30 patients were included in the study over a period of three months. All patients were briefed about the procedure. After taking written and informed consent, they

were included in the study group and clinical assessment was done. Clinical assessment should include detailed history, general physical examination and examination of leg and the ulcer (site, size, depth, edge, margins, floor, base, condition of surrounding skin and neurological examination).

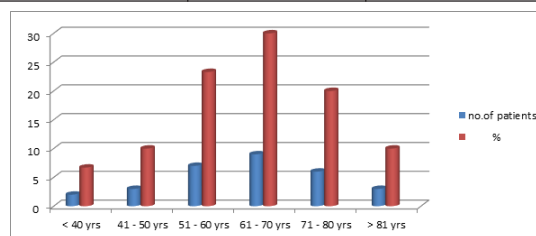
The data will be entered into MS Excel 2007 version and further analyzed using SPSS 20. For descriptive analysis, the variables will be analyzed by using percentages and by calculating mean. Chi square test was used. Probability value of less than 0.05 was considered as statistically significant.

**RESULTS**

In the present study, thirty patients were assessed varying from 25 to 90 years. Among the study group, 30% were between 61-70 years with a mean age of 63 years.

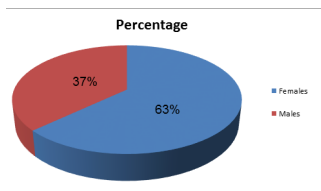
**Table 1: Age distribution of patients with leg ulcers**

Age	No. of patients	Percentage (%)
Less than 40 years	02	6.7
41 – 50 years	03	10
51 – 60 years	07	23.3
61 – 70 years	09	30
71 – 80 years	06	20
More than 81 years	03	10



**Figure 1 : Age distribution of patients with leg ulcers**

Among the thirty patients, females (63%) are more affected with leg ulcers than males (37%) with female:male ratio of 1.7:1.



**Figure 2: Sex distribution**

According to patient's history, diseases associated with leg ulcers were, venous insufficiency (88%), systemic arterial hypertension (55%), obesity (21%), and diabetes (18%). The association of chronic venous insufficiency with systemic arterial hypertension was present in 14 patients (47%), accounting as a major risk factor with statistical significance ( $p < 0.01$ , chi-square test).

70% of the patients were on other medications with oral hypoglycemic drugs, anti-hypertensive drugs and medicines for other chronic illness, in addition to the treatment for leg ulcer.

Based on the etiological factors, venous ulcers are present in 24 (80%) cases, hypertensive in 5 (17%) cases and mixed type in 1 (3%) case.

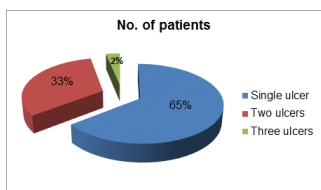
During the first hospital visit, blood pressure of all patients was measured. The average systolic blood pressure was 160 mm of Hg and diastolic was 90 mm of Hg.

The local signs and symptoms associated with leg ulcer were assessed as shown below.

**Table 2: Symptoms and signs associated with leg ulcer**

Symptoms / Signs	No. of patients	Percentage %
Hyperpigmentation	28	94
Lipodermatosclerosis	21	70
Varicosity	20	68
Edema	18	60
Pruritis	17	58
Eczema	13	44

Twenty six patients presented with ulcer on only one of the lower limbs accounting for 88% of the cases. Twenty patients had single ulcer accounting for 65%, two ulcers in 10 patients (33%) and three ulcers in only one patient (2%).



**Figure 3: No. of patients with multiple ulcers**

According to Baker et al.<sup>5</sup> lower limb was divided into three zones based on the location of ulcers.

- Zone 1 - Area corresponding to the foot
- Zone 2 - Area including the distal half of the leg and ankle
- Zone 3 - Proximal half of the leg

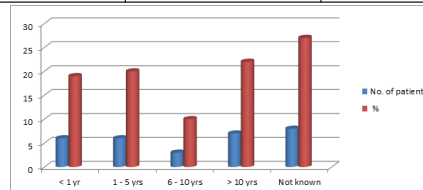
A total of 41 ulcers were assessed in the present study. Of which, 37 (90%) were on the legs, 21 (51%) on the lateral side and 16 (39%) on the medial side. In about 50% (15) of the cases there was recurrence of ulcers.

In the present study, most of the ulcers were of chronic duration. The following table shows the duration of ulcers in

years.

**Table 3: Duration of ulcer in years**

Duration in years	No. of patients	Percentage (%)
< 1 year	6	20
1 – 5 years	6	20
6 – 10 years	3	10
> 10 years	7	22
Not known	8	27



**Figure 4: Duration of ulcer in years**

**DISCUSSION**

The incidence of leg ulcers is on rise due to increase in the risk factors and associated co-morbid conditions such as obesity, hypertension and diabetes leading to vascular changes. Leg ulcers mainly affect the lower limbs of elderly people. It is one of the common cause of morbidity, and its prevalence ranges between 1.9% to 13.1%.<sup>6</sup>

In our study, the mean age group was 63 years which is correlating with the study done by Cipriani Frade M.A et al. at Brazil<sup>7</sup> and there was an increased incidence in females (63%) than in males (37%). According to a study in Ireland, women were twice likely to be affected than males supporting our study.<sup>8</sup> The male:female ratio was 1:1.7, where as it was 1:1.4 in a study done by Scott et al.<sup>9</sup>

In our study the causative factors for ulcers are, venous insufficiency (88%), systemic arterial hypertension (55%), obesity (21%), and diabetes (18%). The association of chronic venous insufficiency with systemic arterial hypertension was present in 14 patients (47%). According to a study in Germany, venous insufficiency was seen in 47.6%, arterial insufficiency in 14.5%, and combined arterial and venous insufficiency was present in 17.6% of the cases.<sup>10</sup> As these systemic disorders are inter related to one another, it is important to manage all the disorders to decrease the morbidity. The association between ulceration and venous insufficiency of the lower limbs has been known for more than 2000 years.<sup>11,12</sup>

In our study, ulcers were associated mainly with hyperpigmentation (94%), lipodermatosclerosis (70%), varicose veins (68%), edema (60%), pruritis (58%) and eczema (44%). The relation between damage to deep vein and ulceration was correlated by Gay<sup>13</sup> and later by Homans<sup>14</sup> who also noticed that venous ulcers are often related with varicose veins. These results are similar to those published by Nelzen et al.<sup>15</sup> and Callam et al.<sup>16,17</sup> These authors have classified ulcers as venous, arterial, neuropathic or mixed. In our study, venous ulcers are present in 24 (80%) cases, hypertensive in 5 (17%) cases and mixed type in 1 (3%) case.

A total of 41 ulcers were assessed in the present study. Of which, 37 (90%) were on the legs, 21 (51%) on the lateral side and 16 (39%) on the medial side.

In the present study, most of the ulcers are chronic ulcers. 20% ulcers are < 1 yr duration, 20% of cases between 1-5 yrs, 10% are of 6-10yrs duration and 22% are more than 10 yrs duration. 27% are not able to give any clear history regarding duration of ulcer. In a study done at Western Australia (WA) in 1994 by Baker SR et al., 24% of the ulcers were present for 1 year, 35% had ulceration for 5 years, 20% had 10 or more episodes of ulceration.<sup>18</sup>

In our study the mean duration of ulcer was 92 months and 50% of them were recurrent. This is in close relation with a study done by Frade MAC et al., at Brazil in which the mean duration was 94.2 months and recurrence rate was 50%.<sup>1</sup>

### CONCLUSION

Leg ulcers always pose a therapeutic challenge. It usually affects the elderly people belonging to low socio-economic status. The majority of leg ulcers are caused by venous insufficiency followed by arterial causes and at times may be multi-factorial. Multidisciplinary approach is required. Accurate diagnosis, early intervention and treating underlying cause will improve the quality of life of the patient.

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