A Clinical and Aetiological Study of Chronic Leg Ulcers

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ABSTRACT

Introduction: Chronic leg ulcers have a deleterious effect on patient quality of life, and are often difficult to manage. Aim of the study: To analyze the clinical characteristics and aetiological aspects of patients with chronic leg ulcers attending a tertiary health care centre.

Material and methods: This was a descriptive study of 50 consecutive patients seeking treatment from the department of dermatology and venereology of a tertiary care center.

Results: Venous insufficiency was the most common cause, followed by pyoderma gangrenosum and cutaneous small vessel vasculitis. Elderly male smokers belonging to the lower socioeconomic strata with co-existing metabolic diseases, were more commonly affected. Mild anaemia, gram positive bacterial colonisation, and sapheno-femoral junction with popliteal and perforator veins incompetence on Doppler evaluation were the commonest investigation abnormalities. Limitations: Small sample size and lack of follow up were the limitations of the study.

Conclusions: As many factors lead to chronic leg ulceration, a comprehensive assessment is required for definitive management.

Keywords: lower extremity, varicose ulcer

INTRODUCTION

An ulcer is defined as a full thickness loss of epidermis and some dermis, which heals with scarring.[1] Chronic leg ulcer, also known as chronic lower limb ulcer, is defined as an open lesion between the knee and ankle joint that shows no tendency to heal after three months of appropriate treatment.[2] Such ulcers are associated with significant morbidity and decrease in the quality of life of the patient. In individuals above 60 years, 0.6-3%, and in those above 80 years, 5% suffer from chronic leg ulcers.[3] Chronic or recurrent leg ulcers lead to loss of working hours, unemployment and financial loss. While venous ulcers constitute the majority of leg ulcers, many of them have a multifactorial aetiology. A correct evaluation of the aetiological factors is essential for the prompt and effective management of this condition.

The study aimed to analyze the clinical characteristics and aetiological aspects of patients with chronic leg ulcers attending a tertiary health care centre.

MATERIAL AND METHODS

This was a descriptive study conducted in the department of Dermatology and Venereology, Government medical college, Kozhikode from January to December 2015. After obtaining clearance from the institutional ethics committee, 50 consecutive patients with chronic leg ulcers attending the outpatient department, or inpatients admitted in the wards, and willing to participate in the study, were included in the study. Patients with traumatic ulcers, or neuropathic ulcers including leprosy, or those not consenting to participate in the study, were excluded.

Informed written consent was obtained from each subject. A detailed history was taken. A complete systemic and dermatological examination with special reference to the ulcer, was done, followed by laboratory investigations, and the findings noted in a pre-designed proforma. The etiological diagnosis was made on the basis of the clinical features and investigation results.

STATISTICAL ANALYSIS

The data was coded and entered in a Microsoft excel worksheet. Data analysis was done using Statistical Package for Social Sciences statistical software.

RESULTS

Of the 50 patients, 2 (58%) were male and 21 (42%) were female. Their ages ranged from 14 to 81 years with a mean age of 60.36 years. Thirty four % of the patients were above 65 years, while only 2% were below 20 years. Twenty two (44%) patients had a history of occupation-related prolonged standing. Of the 36 patients with venous ulcer, 19 (52.8%) had such a history. Five patients had a family history of leg ulcers, of which four were venous ulcers and one had pyoderma gangrenosum. The epidemiological characteristics of the study group are shown in Table 1.

The size of the ulcer was 2.5 to 5 cm in 32% of the cases. Venous ulcers accounted for all ulcers of this group, along with a single ulcer of ecthyma. The size was 5 to 10 cm in 30%, of which two were due to pyoderma gangrenosum and the rest were venous ulcers. The ulcer was larger than 10 cm in 14%, of which 71.5% (5 out of 7 cases) were due to pyoderma gangrenosum, and two were venous ulcers. The ulcer size was less than 2.5 cm in 24%. All six cases of cutaneous small vessel vasculitis (CSVV) belonged to this group.

The shape of the ulcers was oval in 46%, with venous ulcer being the most common (19 out of 23 cases), and CSVV accounting for the rest (4 of 6 cases). Vertically oval ulcers were seen in 28%, all due to venous ulcers. Ten % of the patients presented with circular ulcers, and the remaining 16% with irregularly shaped ulcers, with pyoderma gangrenosum constituting 7 out of 8 cases in this group.

The skin surrounding the ulcer was edematous in 32% of the cases, and this was the commonest skin change found. The skin was eczematous in 26% and hyperpigmented in 24%. Lipodermatosclerosis was seen in 14% and scarring around the

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College	Number of patients (n=50)	Percentage (%)
Age group (years)		
< 20	1	2
20-35	7	14
36-50	11	22
51-65	14	28
> 65	17	34
Sex		
Male	29	58
Female	21	42
Education		
Illiterate	6	12
Primary school	12	24
Secondary school	17	34
Higher secondary school	9	18
Degree and above	6	12
Socioeconomic status		
Below poverty line	39	78
Above poverty line	11	22
Family history of leg ulcer		
Present	5	10
Absent	45	90
Smoking	19 (male)	38
Co-morbidities		
Hypertension	16	32
Diabetes mellitus	11	22
Dyslipidemia	22	44
Anaemia (haemoglobin < 10 gm%)	11	22

Table-1: Demographic characteristics of the study group

ulcer in 4%.

Bacterial culture and sensitivity tests taken from the base of the ulcer yielded gram positive bacteria in 48% of the samples with Staphylococcus aureus being the most common pathogen, gram negative bacteria in 24%, and mixed growth in 12%. No pathogens were demonstrated in 16%.

Lower limb venous Doppler evaluation of the 50 patients revealed a normal study in 28% of the cases. Sapheno-femoral junction incompetence and sapheno-popliteal with perforator vein incompetence was observed in 52%, and incompetence of sapheno-femoral and sapheno-popliteal valves in 20%. All the 36 cases of venous ulcer showed abnormal Doppler venous study – 26 cases (72.2%)showed incompetence of sapheno-femoral and sapheno-popoliteal with perforator incompetence, and the remaining 10 cases (27.8%)showed incompetence of sapheno-femoral and saphenopopliteal valves.

Arterial Doppler evaluation of the 50 patients revealed a normal study in 82% of the cases. Atherosclerotic changes were demonstrated in 14% and ischaemic flow in 4%. Of the 36 cases of venous ulcers, a normal study was seen in 28 (77.7%), atherosclerotic changes in 6 (16.6%), and ischaemic flow in 2 (5.5%), indicating an associated compromised arterial blood supply.

Skin biopsy from the ulcer was done in 17 patients. Seven (14%) showed histopathological features consistent with pyoderma gangrenosun (massive dermal-epidermal neutrophilic infiltrate, secondary lymphocytic vasculitis), and six (12%) showed features of of CSVV (leukocytic vasculitis, fibrinoid deposits in vessel walls). Biopsy was also done in four of the 36 cases of venous ulcers of longstanding duration of more than one year to exclude malignancy, and no evidence of malignant transformation was seen (nonspecific findings of ulcer, granulation tissue).

The aetiological diagnosis in 36 cases (72%) was chronic leg ulcer predominantly due to venous causes, pyoderma gangrenosum in 7 (14%), CSSV in 6 (12%) and ecthyma in one case (2%).

DISCUSSION

The incidence of chronic leg ulcers is increasing as a result of the increase in the aging population, occupations involving prolonged standing, and increased risk factors and co-morbidities such as smoking, obesity and diabetes leading to atherosclerosis. Recurrence rates are also high.

Leg ulcers mainly affect older individuals as seen in our study where the mean age was 60.36 years. This is in accordance with other studies.[4] A slight male preponderance was seen in the study group, in contrast to previous studies where women were more commonly affected (especially in the case of venous ulcers),[5] or there was no sex difference.[4]

Our findings show that chronic leg ulcers are more commonly seen in persons with low educational and socioeconomic status. This could be due to poor understanding, as well as financial constraints and lack of access to early treatment.

The incidence of smoking, associated metabolic disorders and anaemia is high in these patients, as demonstrated in our study. Bacterial colonization and secondary infection play a significant role in delayed wound healing,[6] with Staph aureus being the most common pathogen. A biopsy from the edge of the ulcer was helpful in cases with definite histopathological features, such as pyoderma gangrenosum and cutaneous small vessel vasculitis, in our study.

Venous ulcer was the most common cause of chronic leg ulcer in the study group, similar to other studies in which 80%[6], 75%[7] and 70%[8] of leg ulcers have been reported to be due to venous insufficiency. Venous insufficiency was responsible for 45 to 60% of leg ulcers, while 10 to 20% were due to arterial insufficiency, 15 to 2% diabetic and 10 to 15% were due to combinations of these factors, in another study.[9] One to 2 % may be due to rarer causes such as vasculitis, other immunological causes or malignancy.[10] The rather high percentage of pyoderma gangrenosum and cutaneous small vessel vasculitis in our study could be attributable to our institution being a tertiary care teaching institute dealing with exclusively referred cases, and also to the fact that these cases are specifically referred to dermatology departments.

Limitations

The small sample size and lack of follow-up were the limitations of the study.

CONCLUSION

Chronic leg ulcers present a therapeutic challenge. Often a multi-factorial aetiology may be present, which requires a comprehensive assessment for correct diagnosis. Management should include patient education about the importance of regular care of the lower limb, and early medical treatment

when necessary.

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