



A CLINICO-PATHOLOGICAL STUDY OF CHRONIC NON HEALING LEG ULCERS

General Surgery

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ABSTRACT

Introduction: Chronic leg and foot ulcers are non-healing wounds, with a prevalence of 3–5% in the population over 65 years of age. The incidence of ulceration is rising as a result of the ageing population and increased risk factors for atherosclerotic occlusion such as smoking, obesity and diabetes. The main causes are venous valve insufficiency, arterial disease and diabetes. Less frequent conditions are infection, vasculitis, skin malignancies and ulcerating skin diseases such as pyoderma gangrenosum. The diagnosis of 'leg ulcer' is totally inadequate and must always be qualified by a statement of the cause, backed by full evidence for this diagnosis. This requires an understanding of range of ulcers that occur and disease process underlying them.

Chronic leg ulcers form a good bulk of patients in our hospital, it is common to see patients presenting with different type of ulcer due to various etiology and underlying systemic diseases. Hence the present study is an attempt towards a closer appreciation of this problem as whole with an emphasis on aetiology, pathophysiology, clinical and investigative studies of chronic ulcers of leg.

Objectives:

- To study demographic variables (age and sex) of chronic leg ulcers.
- To determine the factors contributing to and etiology of leg and foot ulcers.

Materials: This is a prospective study conducted on patients with chronic non healing leg ulcers admitted in the Department of General surgery, PK Das Institute of Medical Sciences, Vaniamkulam, Palakkad, Kerala conducted over a period of two years.

Results: In this study, of the 100 cases studied leg ulcers were common in elderly population and with a male predominance. Diabetic ulcer accounting for 37% cases followed by venous ulcer (20%), traumatic ulcer (16%), arterial ulcer (11%) malignant ulcer (3%), tropic ulcer (6%) and others (7%).

Conclusion: Leg ulcers are a common presentation in elderly population and have negative impact on the quality of life of affected patients. It has found to be more common in males. Management of patients with chronic ulcers has to be multidisciplinary with basic and newer treatment modalities, and educating patients on issues of correct foot care and the importance of seeking early medical advice.

KEYWORDS

Diabetic ulcer, Varicose ulcer, Tropic ulcer, Arterial ulcer, Malignant ulcer, Traumatic ulcer.

INTRODUCTION:

Chronic leg and foot ulcers are non-healing wounds that occur due to a breakdown in the underlying physiology of the leg. It is a frequent condition, with a prevalence of 3–5% in the population over 65 years of age. The incidence of ulceration is rising as a result of the ageing population and increased risk factors for atherosclerotic occlusion such as smoking, obesity and diabetes. The slow healing tendency of an ulcer is not simply explained by depth and size, but caused by an underlying pathogenetic factor that needs to be removed to induce healing. The main causes are venous valve insufficiency, lower extremity arterial disease and diabetes. Less frequent conditions are infection, vasculitis, skin malignancies and ulcerating skin diseases such as pyoderma gangrenosum. But even rarer conditions exist, such as the recently discovered combination of vasculitis and hypercoagulability. For a proper treatment of patients with leg ulcers, it is important to be aware of the large differential diagnosis of leg ulceration.

The community costs for the care of these patients are high. Epidemiological data are largely lacking as regards prevalence, patient characteristics and etiological panorama. Therefore it is not known whether or not our medical effects have had any real impact of actual size of the problem. Practically no surgical ward is unmixed with offensive smell of chronic ulcers. Lower extremity ulcers are common and challenging problem for patient and clinician who provide their care. It also affects patient's quality of life, financial, social and psychological domain.

The diagnosis of 'leg ulcer' is totally inadequate and must always be qualified by a statement of the cause, backed by full evidence for this diagnosis. This requires an understanding of range of ulcers that occur and disease process underlying them.

Chronic leg ulcers form a good bulk of patients in our hospital, it is common to see patients presenting with different type of ulcer due to various etiology and underlying systemic diseases. Hence the present study is an attempt towards a closer appreciation of this problem as whole with an emphasis on aetiology, pathophysiology, clinical and investigative studies of chronic ulcers of leg.

OBJECTIVES

- To associate selected demographic variables (age and sex) with incidence of chronic leg ulcers.
- To determine the factors contributing and etiology of leg and foot ulcers.

MATERIALS AND METHODS:

This is a prospective study conducted on patients with chronic non healing leg ulcers admitted in the Department of General surgery, PK Das Institute of Medical Sciences, Vaniamkulam, Palakkad, Kerala.

The study was conducted over period of two years.

Sample size: 100

Sampling Method: Purposive sampling

Method of study: Detailed history taking, thorough evaluation of risk factors and clinical examination as per the proforma.

Baseline investigations followed by specific investigations after taking written informed consent.

Diagnosis of primary cause of ulcer.

Inclusion Criteria

1. Patients with Chronic non healing leg ulcers.
2. Patients who are willing for investigations and further management.

Exclusion Criteria

Patients who are not willing for investigations and further management.

OBSERVATIONS & RESULTS:

Age incidences of leg ulcers in this study group 10-20yrs – 4 cases, 21-30yrs - 4, 31-40yrs - 12, 41-50yrs – 22, and >50yrs – 58cases. The youngest patient was 18 years old and the oldest was 80 years old. 10-20yrs – 4 cases, 21-30yrs - 4, 31-40yrs - 12, 41-50yrs – 22, and >50yrs – 58cases. Foot ulcers were more common in males than in females – males accounting for 74%.

Among the 100 cases studied, diabetic ulcer was most common accounting for 37% of cases followed by venous ulcer (20%), traumatic ulcer (16%), arterial ulcer (11%) malignant ulcer (3%),

tropic ulcer (6%) and others (7%). Among 37 cases of diabetic ulcers, 13 had neuropathy. Among arterial ulcer Thromboangitis obliterans (TAO) was found in 56% Atherosclerosis in 44%.

Ulcers were located on plantar foot (37%), leg (33%), dorsal foot (19%), dorsal & plantar foot (10%), and foot & leg (1%). Leg & foot ulcers were common in left (52%) when compared to right lower limb (46%).

Purulent exudate which represents infection of ulcer was present in 54% of study population and associated with bony spicules in 3% of study population with osteomyelitis. 14% of the study population had greenish discharge from the ulcer which indicates pseudomonas infection. Rest of the study group (29%) had serous discharge.

Distribution Of Types Of Bacteria Isolated From The Ulcers

Sl. No.	Pathogen	No. of cases
1	Pseudomonas aeruginosa	31
2	Klebsiella pneumonia	12
3	Proteus mirabilis	11
4	Staphylococcus aureus	18
5	Streptococcus pyogenes	13
6	E coli	10
7	No growth	5

Wagner Grading Of Diabetic Ulcers

Grade	No. of cases	Percentage
I	10	27.7%
II	16	43.2
III	3	8.1%
IV	4	10.8 %
V	4	10.8%

DISCUSSION:

The results of present study compared and contrast brought out in relation to previously done studies. The prevalence of leg ulcers is probably between 0.18% and 1% according to Phillips, Tania et al⁸ and 95% of leg ulcers are due to vascular etiology, Gilliland et al⁹. Among all chronic wounds lower extremity venous ulcer dominates the differential diagnosis accounting for up to 90% of the cases, according to Callum M. J. et al¹⁰. Arterial diseases account for 5% to 10%, most others are due to neuropathy or a combination of both Yound J. R et al¹¹. In our study chronic ulcer with vascular etiology accounted for only 31% of all chronic ulcers. Out of this venous ulcers accounted for 20% and arterial ulcers accounted for 11%. But majority of the ulcers were Diabetic ulcers which accounted for nearly 37%. Traumatic ulcers accounted for 16% of the cases. Malignant ulcers accounted for 3% and other ulcers for 7%. Comparing the previously done study, the present study derives a lot of differences as seen above. These differences may be because of small sample size of 100. The other published studies were population based, controlled randomized or a group-based study which included different specialties; whereas this study was a nonrandomized and uncontrolled study.

Diabetic ulcers have been classified as metabolic. The most important factors responsible for causation of ulcer in diabetes are the arterio-sclerotic lesions in large leg arteries and or neuropathy resulting in decreased sensation. If diabetic ulcers in our study are considered vascular disorders rather than metabolic, the percentage of vascular ulcers in our study is about 68% - somewhat comparable to the above study. However, this is controversial and in diabetes it is a combination of factors that are to be considered in causation of leg ulcers.

As per studies done by Hansson Carita et al¹² on leg and foot ulcers, ulcers below the line of shoe and feet are considered mostly to be caused by arterial insufficiency and or diabetes. Ulcers on the medial aspect of the ankle in the gaiter zone are mostly caused by venous insufficiency. In our study, ulcers had almost the same site of distribution i.e., ulcers in the gaiter zone were mostly caused by venous insufficiency and ulcers in the foot were mostly caused by arterial insufficiency and or diabetes.

About 66% of patients in our study had ulcers in the foot only. This is rather high figure in comparison to Hansson Carita et al¹² study which showed about only 30% of the ulcers in the foot. This is probably due to more number of diabetic and arterial ulcers in our study.

According to study done by Callam MJ et al¹⁰, the elderly are not the

only population at risk: and in his study ulceration began before the age of 40 years in 22% of the population studied.

In our study, ulceration began before the age of 40 years in 20% of the patients which is almost similar.

Peripheral vascular diseases increase with age and are 7 times more frequent in 60 year old patients in Hansson Carita et al¹². In this study, arterial and venous diseases were found to be maximum in the age group of 31 to 50 years.

Most of the patients with diabetics had ulcers on the tip of toes which are invariably footwear related. This indicates that most of all neuropathic ulcers could be avoided very simply by footwear that is appropriately sized. In this study, 35% of the patients with diabetic ulcers had neuropathy.

Xray of the involved part was done in every patient, and changes of osteomyelitis were found in about 10% of the cases. Presence of osteomyelitis was one of the important determinants for amputation and also the level of amputation.

Culture and sensitivity of the exudates was done in all cases. Among the different culture growth obtained, the most common organism was pseudomonas, followed by staphylococcus aureus (18%). Infection is the main cause of delay in healing of the ulcer and when associated with ischemia (wet gangrene) frequently leads to emergency amputation.

The other data of this study was not comparable with other published studies. This discrepancy may be due to the fact that this study was a randomized uncontrolled study, and small sample size of 100 and short follow up period to draw a competitive conclusion.

The frequent lack of any clinical assessment of patients with limb ulceration in the community has led to long periods of ineffective and often inappropriate treatment. Hence there is an absolute need to educate the people of our society regarding the condition causing leg ulceration and to approach the health care centre as early as possible so as to assist the health personnel towards proper management of this potentially dreadful condition.

CONCLUSION

In this study, we have been able to show that leg ulcers are a common presentation in elderly population and have negative impact on the quality of life of affected patients. It has found to be more common in males.

Most leg ulcers are caused by diabetes followed by venous insufficiency and arterial disorders. A comprehensive assessment of the patient, skin, vascular status, limb and ulcer is required to determine aetiology and to formulate an appropriate management plan. Management of patients with chronic ulcers has to be multidisciplinary and should include detail history, physical examination, investigations, basic and newer treatment modalities, and educating patients on issues of correct foot care and the importance of seeking early medical advice. All patients should be provided with both verbal and written information to help them understand their condition and treatments they receive, as this will enable them to better understand their conditions, and will support concordance between patients and staff.

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