

Clinical Profile and Prevalence of Leg Ulcers in our Hospital

Manjit Singh Khalsa¹, Parneet², Gaurav Sharma^{2*}, Abhishek Khara³

¹Associate Professor, Department of General Surgery, Govt. Medical College, Amritsar, Punjab, India.

²Senior Resident, Department of General Surgery, Govt. Medical College, Amritsar, Punjab, India.

*Corresponding author

³Junior Resident, Department of General Surgery, Govt. Medical College, Amritsar, Punjab, India.

Abstract

Background: Lower limb ulcers occur due to various conditions such as atherosclerosis and other arterial disorders, venous insufficiency, diabetes, trauma, pressure sores, vasculitis and inappropriate management of acute wounds. Many a time, it's difficult to ascertain the exact etiology of leg ulcers. **Aims and Objectives:** This study was done to know the prevalence with respect to age and sex, cause, site of distribution and clinical presentation of leg ulcers. **Methods:** This was a cross-sectional study done in tertiary hospital of Punjab for a period of two months. A Sample size of 100 was selected. Informed consent of the patients was taken and a detailed history, a complete systemic examination and local examination of lower limbs including the ulcer was done. **Results:** Majority of patients (57%) with leg ulcer presented after fourth decade with a male to female ratio of 1.5:1. Commonest were found to be diabetic ulcer cases (47%) followed by venous ulcer (27%) cases. Diabetic and traumatic ulcers were occurred on both foot and leg whereas venous ulcers occurred more commonly in Gaiter's zone. Majority of patients came with complaints of difficulty in walking (81%) and pain (51%). **Conclusion:** The highest number of cases were found to be ulcers associated with diabetes mellitus. Education and training is vital for all those involved in caring of patients with leg ulceration and patients with Diabetes Mellitus.

Received: February 2021

Accepted: March 2021

Keywords: Clinical-Profile, Leg Ulcer, Clinical Presentation.

INTRODUCTION

Leg ulcer is defined as discontinuity of the epidermis and dermis in the lower limb of more than 6 weeks duration. They are common presentation in the elderly population. Leg ulceration is a chronic condition, the prevalence of which is likely to increase as population ages. Leg ulcers are reported as having impact on virtually every aspect of daily life; pain is common, sleep is often impaired, mobility and work capacity tend to be restricted, personal finances are often

adversely affected, and social activities are restricted due to the fear of injury and negative body images.

Pathogenesis of leg ulcer is heterogeneous, prevention strategies, early identification and proper management are paramount in improving quality of life of patient and reducing cost of already strained health budget.

Leg ulcers are big problem for both patients and health service resources.^[1] venous ulcers are the most common



type of leg ulcers, accounting for approximately 70% of cases.^[2] Arterial diseases account for another 5% - 10% of leg ulcers. Most others are due to neuropathy (diabetes) or a combination of these diseases.^[3]

Venous ulcers are located below knee, usually on inner part of the ankle, relatively painless, associated with varicose veins, swollen ankles, aching, thickening and pigmentation of surroundings.^[4] Arterial leg ulcers are caused by insufficient blood supply to the lower limbs resulting in ischemia and tissue necrosis.^[5] Arterial leg ulcer can occur anywhere below knee, but are most commonly seen on the foot and they are more likely to be painful.^[4] Ulcers due to diabetes are usually found on foot and usually have a sloughy or necrotic appearance. An ulcer in the patient with diabetes may have neuropathic, arterial or venous component.

During the past three decade considerable knowledge has been gained regarding the physiology, anatomy, pathology and management of chronic leg ulcers. Despite all this, management of chronic leg ulcers is a fertile field for experimentation.

It is common to see patients with different types of ulcer due to various etiology and underlying systemic diseases. Moreover, leg and foot ulcers from a good bulk of patients in our hospital.

MATERIALS AND METHODS

This study was conducted in the department of General Surgery, Guru Nanak Dev Hospital Amritsar. Informed consents were taken from all the patients included in the study.

Hundred patients presenting with leg ulcers were included in this study. They were categorized according to age, sex, etiology, location, symptomatology, management and complication. Patients below 12 years of age, freshly bleeding wounds, ulcers presented above the knee joint. Complete history was taken from each patient on given proforma with respect to their onset, site, duration, no. of ulcers, causative factors, pain, difficulty in walking and bleeding. Past history was taken from each patient with respect to any recurrence, any history of surgery in the past and any history of chronic disease in the past (tuberculosis, diabetes, hypertension, arterial diseases). All the patients with leg ulcer were examined in detail for site, size, shape, surface, floor, base, discharge, edge, margins, surrounding area. Detailed examination of peripheral vessels (dorsalis pedis artery, posterior tibial artery, anterior tibial artery, popliteal artery) was done. Patient with the presence of weak pulses or absent pulses were considered to be suffering from peripheral vascular disease. Complete sensory examination was done to rule out any loss of sensation. All the patients were examined for the presence of dilated and tortuous veins in the lower limb, to rule out varicose ulcers of lower limbs. Complete

examination of regional lymph nodes was done. Complete central nervous system and spine examination was done to rule out neurological cause of leg ulcer. Per abdominal examination was done to rule out splenomegaly (suggestive of blood dyscrasias).

RESULTS

The study was conducted on 100 patients who presented with leg ulcer. Leg ulcer were common among Males than Females - Males accounting for 60% of cases. Incidence of leg ulcers in this study group was found to be maximum in the age group of 51 and above with 39 cases. Since patients of age group 0 to 12 years are taken care of under the department of Pediatric Surgery, they were not included in this study.

Table 1: Age Distribution of Various Types of Leg Ulcers

Age group	No. of cases	Percentage
12-20	6	6.00%
21-30	19	19.00%
31-40	18	18.00%
41-50	18	18.00%
>50	39	39.00%

Table 2: Distribution of Various Types of Leg Ulcers (N-100)

Age group	No. of cases	Percentage
Diabetic ulcer	47	47.00%
Venous ulcer	27	27.00%
Traumatic ulcer	24	24.00%
Arterial ulcer	2	2.00%

The commonest were found to be diabetic ulcer (47%) cases followed by Venous Ulcer (27%).

Venous ulcers occurred more commonly in gaiter zone (92.5%). The arterial ulcers occurred mainly in the foot (100%) whereas diabetic and traumatic ulcer occurred in both foot and leg. Incidence of diabetic leg ulcers were almost equal in both of the limbs. Distribution of diabetic leg ulcers were almost equal in males and females.

Table 3: Location of The Ulcer according to It's Type

Type of ulcer	Gaiter zone	Foot	Leg	Total
Diabetic	0	26	21	47
Venous	25	0	2	27
Traumatic	1	7	16	24
Arterial	0	2	0	2

Diabetic ulcers were more common in the age group above 51 years accounting for 49% (23 patients) of cases.

Table 4: Showing Clinical Presentation in Diabetic Leg Ulcers

Clinical Presentation	No. of Cases	Percentage
Pain	24	51.0%
Bleeding	6	12.7%
Difficulty in walking	38	81.0%
Oedematous surrounding	23	48.9%
Purulent discharge	23	48.9%
Slough	23	48.9%
Gangrene	2	4.3%

The patients of diabetic leg ulcer mostly suffered from difficulty in walking. Pain, surrounding oedema and purulent discharge indicating infection



were present in almost half of the cases. Bleeding and gangrene were relatively rarer features. The venous ulcers were more common in the right leg (55.5%). Venous ulcers were more common (77.7%) in the males (21 patients).

Table 5: Showing Clinical Presentation in Venous Leg Ulcers

Clinical presentation	No. of cases	Percentage
Dilated and tortuous veins	17	62.9%
Swollen ankles	6	22.2%
Difficulty in walking	10	37.0%
Pain	2	7.4%
Discoloration of surrounding skin	21	77.7%
Thickening of surrounding skin	20	74.0%
Discharge	21	77.7%

Most of the venous leg ulcers presented with dilated and tortuous veins, discoloration and thickening of surrounding area and discharge. Pain was present in very few no. of cases. Incidence of traumatic leg ulcers were almost equal in both the lower limbs. Traumatic leg ulcers were more common in males (15 patients). Most of the traumatic ulcers presented with pain and difficulty in walking (21 patients).

Out of 100 cases, only 2 patients were found to be suffering from arterial pathology. In both the cases ulcers were present in males. Located on the foot, median age of presentation was 68.5% years. Both were associated with atherosclerosis. Claudication pain and difficulty in walking with surrounding

pallor, loss of hair, brittleness of nails, parasthesia, and cold extremities were the presenting features in both of the cases.

DISCUSSION

The present study was conducted on 100 patients admitted in surgical ward, Guru Nanak Dev Hospital, Amritsar. The aim of the study was to determine prevalence of leg ulcers with respect to age, sex, location, and to determine the cause, clinical presentation, management and complication.

The prevalence of leg ulcer is probably between 0.12 to 0.18 (Anderson E et al and Lindholm C et al).^[6,7] According to Callam MJ et al,^[8] Venous ulcer are the most common type of leg ulcer accounting for approximately 70% of cases. Arterial disease account for another 5% to 10% of cases. Most others are due to neuropathy (Diabetes) or a combination of these diseases.

Nelzen O et al,^[9] showed in their study that 66% of leg ulcers are due to vascular etiology and venous ulcers dominates accounting up to 54% of cases. Arterial ulcer accounts for 12% of cases. Mixed ulcers account for 14% of cases. 10% are due to multifactorial origin and in 10% no venous and arterial impairment was detected. In this study, leg ulcers with vascular etiology accounted only for 29% of all the leg ulcers. Out of this venous ulcers accounted for 27% and arterial ulcers accounted only for 2% of all the cases. Leg ulcers associated with diabetes accounted for 47% and traumatic ulcers

accounted for 24% of cases. As observed above the present study was not comparable with the published studies mentioned probably because of the reasons including the study group of 100 patients was too small a number to draw any comparative conclusions, other published studies were population based, controlled randomized or a group base study which included different specialties whereas this study was a non-randomized and uncontrolled study. Some investigators have classified diabetic ulcer as metabolic. The most important factor responsible for causation of ulcer in diabetes are the arteriosclerotic lesion in large leg arteries and or neuropathy resulting in decreased sensation. If diabetic ulcer in our study are considered vascular disorders rather than metabolic, percentage of vascular ulcers in our study is about 76% somewhat comparable to the above study. However, this is controversial and in diabetes it is a combination of factors that are considered in the causation of leg ulcers.

According to study done by Anderson E et al,^[6] ratio between male and female leg ulcers was 1:1. In our study male accounted for 60% of leg ulcers and female accounted for 40%.

According to study done by Anderson E et al,^[6] 70% of patients had ulcers on the leg and 30% of patients had ulcers on the feet. As per studies done by Gilliland EL and Wolfe JH⁴ on Leg and foot ulcers, ulcers below the line of shoe and feet are considered to be mostly

caused by arterial insufficiency and or diabetes. Ulcer on the medial aspect of the ankle in the gaiter zone are mostly caused by venous insufficiency. In the present study ulcers had the same site of distribution i.e. ulcer in the Gaiter zone were caused by venous insufficiency and ulcers in the foot below the line of shoes were mostly caused by arterial insufficiency and or diabetes.

About 35% of patients in our study had ulcer in the foot only. This is almost comparable to study done by Anderson E et al,^[6] which showed only 30% of the ulcers in the foot.

Lindholm C et al,^[7] in their study had 88% of leg and foot ulcer patients overage of 75 years. Median age was 79.5 years, with 80 for women and 76.5 for men. Anderson E et al,^[6] in their study showed that median age for women was 76 years and for men 70 years. According to study by Callam MJ et al,^[8] the elderly are not the only population at risk. In this study ulceration began before the age of 40 years in 22% of the patients.

Incidence of the leg ulcers in present study group were found to be maximum in the age group of 51 and above with 39 cases, with 49% cases of diabetic leg ulcer were above 51 years of age, 44% of venous leg ulcer patients were in the age group of 30-50 years, while 66% of traumatic leg ulcer patients were above 30 years of age. In our study ulceration began before the age of 40 years in 40% of the patients.



Peripheral vascular disease increases with age. In the present study the median age for arterial ulcer was 68.5 years. In our study 36-40% of leg ulcer belonged to 30-40 years of age. This discrepancy may be due to the fact that our study group patients in the above age group belong to the working class and ulcer they suffer from hamper their working capacity making them seek medical help early.

Arterial ulcer were found to be common in the age group of above 51 years which is comparable to western studies.

In the present study the patients of diabetic leg ulcer mostly suffered from difficulty in walking. Pain, surrounding oedema and purulent discharge indicating infection were present in almost half of the cases. Bleeding and gangrene were relatively rarer features. The risk factors of foot ulceration included neuropathy, vasculopathy spontaneous blisters, walking without shoes, and wearing inadequate shoes.^[10] Venous leg ulcer Patients presented with dilated and tortuous veins, swollen ankle, pigmentation and thickening of surroundings, and pain and difficulty in walking were common features among traumatic leg ulcer patients. Treatment must address oedema, infection and pressure, managing peripheral oedema using compression bandage is more important than the topical dressing.^[11] Arterial ulcer patients had claudication type of pain and pallor of the surrounding area along the loss of hair,

paresthesia and brittleness of the nails are presenting features.

Although there are several basic tenets of good wound care, the remains static regardless of wound aetiology, such as maintaining a moist clean wound healing environment. Many of the maneuvers that have been shown to improve the chances of healing must be individualized to the wound type. Many of the techniques in wound management have not changed over the past century. Compression remains the cornerstone of venous leg ulcer.^[12]

CONCLUSION

The highest number of case were found to be ulcer associated with diabetes mellitus. Other causes of ulcer include venous valve incompetence, arterial occlusion secondary due to atherosclerosis and trauma. The highest age incidence of leg and foot ulcer in this study were in the age group 51 years and above. The median age was 42 years and mean age was 45.7 years. Ratio between male and female was 60:40. Most of venous ulcer were situated on the Gaiter's area. Arterial ulcer were situated on foot. Diabetes and traumatic ulcer situated both on leg and foot. Overall 35% of leg ulcer were situated on foot. Out of 100 cases, 47 were of diabetic ulcers. They were more commonly distributed on right leg. Incidence was almost equal in both sexes. 47.8% of total diabetic ulcer patient belonged to 51 or above age group.



REFERENCES

1. Debroah A simon, Francis P Dix, Charle n Mccollum, management of various leg ulcers. BMJ. 2004;328;1358-62.
2. Moffatt CJ, Franks PJ, a prerequisite underline the treatment programme: risk factors associated with venous disease. Professional Nurse. 1994;9:637-42.
3. Young JR. Differential diagnosis of leg ulcers. cardiovascular clinics. 1983;13:171-93.
4. Gilliland EL, Wolfe JH. ABC of vascular diseases. Leg ulcers. BMJ: British Medical Journal. 1991 Sep 28;303(6805):776-79
5. Beclaro G, Sager P, Borgwaldt A. Arterial pressure measurements correlated to symptoms and signs of peripheral arterial disease. ActaChirurgicaBelgica. 1983;83(5):320-26.
6. Andersson E, Hansson C, Swanbeck G. Leg and foot ulcers. An epidemiological survey. ActaDermVenereol 1984;64(3):227-32.
7. Lindholm C, Bjellerup M, Christan OB, Zederfeldt B. A demographic survey of leg and foot ulcer patients in a defined population. ActaDermVenereol
www.ncbi.nlm.nih.gov/punmed/1357869?ordinalpos=1&itool=EnterzSystem2.Penter...Cited on 21-11-09.
8. Callam MJ, Harper DR, Dale JJ, Ruckley Cv. Chronic ulcer leg of the leg: Clinical history. Br Med J (Clin Res Ed). 1987;294(6584):1389-91.
9. Nelzon O, Berqqvist D, Lindhagen A. Leg ulcers etiology-a cros sectional population study. J Vasc Surg. 1991;14(4):557-64.
10. Ogbera OA, Osa E, Edo A, Chukwum E. Common clinical features of diabetic foot ulcers: Perspectives from a developing nation. Int J Low Extrem Wounds. 2008;7(2):93-98.
11. Dean S. Leg ulcers - causes and management. AustFam Physician. 2006;35(7):480-84.
12. Kantor J, Margolis DJ. Management of leg ulcers. SeminCutan Med Surg. 2003;22(3):212-21.

Source of Support: Nil, Conflict of Interest:
None declared