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Research Article

Study of Clinical Profile of Benign Ulcers of the Leg and Foot in Navodaya Medical College, Hospital & Research Centre, Raichur

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Abstract: Leg and foot ulcers are one of the very common conditions presenting to our surgical OPD in NMCH&RC. The varying etiological factors, presence of complicated systemic diseases make the treatment of ulcers very difficult. Chronic ulcers in old people definitely cause considerable morbidity and mortality. This study was undertaken in the Department of General Surgery, Navodaya Medical College, Hospital and Research Center, Raichur. During the period between Dec 2013 and Jun 2015, 60 cases of benign ulcers of leg and foot ulcers admitted to various surgical units were studied according to the proforma IX. In a study group of 60 cases, most of the patients with leg ulcers had an underlying systemic disease such as Diabetes mellitus, venous valvular insufficiency, arterial occlusion secondary to Thromboangitisobliterans & atherosclerosis. Hence the treatment of the underlying cause is far more important than the choice of dressing.

Keywords: Ulcer, diabetes, venous, arterial, trauma, dressings, amputation

INTRODUCTION

Ulceration of the lower limb is a frequent condition seen in surgical ward and outpatient department in Navodaya Medical College & Research Centre. An ulcer can be described as a wound with a partial or full thickness depth with slow healing tendency. In general, the slow healing tendency is not simply explained by depth and size, but caused by underlying pathogenic factor that needs to be treated [1].

The various etiology of ulcers are chronic venous insufficiency, diabetes, lower extremity arterial disease, trauma, skin malignancies, infections, blood dyscrasias, vasculities and ulcerating skin diseases like pyodermagangrenosum. But rare conditions also exist such as recently discovered combination of vasculities and hypercoagulability [2].

For a proper treatment of patients with leg ulcers, it is important to be aware of the large differential diagnosis of leg ulcers. The best treatment of any leg ulcer depends upon the accurate diagnosis and the underlying etiopathogenesis of ulcer [3].

A multidisciplinary approach is needed to treat this condition as it is reported to have impact on virtually every aspect of daily life: pain, disturbed sleep, mobility and work capacity tend to be restricted, and personal finances are often adversely affected.

During the past three decades considerable knowledge has been gained regarding the patho-physiology and management of chronic leg ulcers. Despite all these, the management of chronic leg ulcers is still a fertile field for experimentation. Various studies have been conducted and a number of procedures and techniques have evolved with varying degrees of success. It is common to see patients with different types of ulcers due to various etiology and underlying systemic diseases.

The varying etiological factors, presence of complicated systemic diseases make the treatment of ulcers very difficult. Chronic ulcers in old people definitely cause considerable morbidity and mortality [4]. Hence, there is a need to do a careful clinical examination of the leg & foot ulcers so as to arrive at a diagnosis, and to create awareness levels of the patients coming to us and also to determine the best mode of treatment in our set-up.

Leg ulcers are classified pathologically into specific, nonspecific and malignant ulcers. In this study, the aetiopathogenesis, treatment and the management of the benign leg and foot ulcers are discussed excluding the malignant ulcers.

METHODOLOGY

Source of data

60 cases of benign ulcers of leg and foot admitted to the Department of Surgery, Navodaya

Medical College, Hospital and Research Center, Raichur between 01/12/2013 to 30/06/2015.

Method of collection of data:

Definition of a study subject

Patients with symptoms pertaining to leg and foot ulcers admitted to Department of Surgery, Navodaya Medical College, Hospital and Research Center, Raichur.

The method of study consists of-Detail history taking & clinical examination as per the proforma Investigations after taking written informed consent:

Routine blood and urine investigations: Hb%, TC , DC, Peripheral smear, ESR, Renal function tests, Liver function tests, Lipid profile, FBS/PPBS, HIV, HB_sAg, VDRL test, Urine for albumin, sugars, ketone bodies, microscopy.

Specific investigations: ABPI, X-ray of the chest and the affected foot, Wound culture & sensitivity, Biopsy from the ulcer edge, Skin biopsy, Duplex ultrasound imaging, FNAC (Fine Needle Aspiration Cytology) of the lymph node, Nerve biopsy if required.

Diagnosis of the primary cause of the ulcer

- Selecting only the benign ulcers, excluding the malignant ulcers.
- Appropriate management of the ulcer and the primary cause:
- Appropriate dressing materials were used depending on the characteristics of the ulcer.

Evaluation of the preoperative status in cases of chronic non healing ulcers.

- Surgical treatment according to the merits of the case as decided by the attending surgeon under suitable anaesthesia as decided by the anaesthesiologists.
- Post-operative course and management of postoperative complications.
- Rehabilitation through adjunctive foot wear was provided appropriately.
- Education regarding foot care was provided to prevent future recurrence.

Inclusion Criteria:

- 60 cases of benign ulcers of leg and foot admitted to the NMCH & RC, Raichur
- All age groups

Exclusion Criteria:

- Malignant ulcers excluded

RESULTS

Among the 60 cases studied, the commonest was found to be diabetic ulcer accounting for 18 cases (30%) followed by venous ulcer (25%), traumatic ulcer (20%), arterial ulcer (18%), infective ulcer (5%) and trophic ulcer (2%) (Table-1).

Incidences of leg ulcers in this study group were found to be maximum in the age group of 51 & above. The youngest patient was 10 years old and the oldest was 80 years old (Table-2).

Ulcers were more common on dorsum of the foot (38%) when compared to leg (37%) and plantar foot (18%). Most common base of the ulcer in our study was found to be bone to an extent of 30% of study population followed by deep fascia (27%), muscle (23%) and tendon (20%) (Table-3).

Purulent exudate which represents infection of ulcer was present in 50% of study population. 10 % of the study population had greenish discharge from the ulcer which indicates pseudomonas infection. Rest of the study group (40%) had serous discharge.In this study, long saphenous vein (54%) was found to be the commonest venous system affected in case of venous ulcers (Table-4).

Thromboangitisobliterans(TAO) was found to be the commonest association with arterial ulcers constituting 73%. The only other association with arterial ulcers was Atherosclerosis accounting for 27% (Table-5).

44% of patients with diabetic ulcers had grade I ulcer i.e., superficial diabetic ulcer (partial or full thickness), 44% patients had grade II ulcers extending to tendon or capsule followed by grade IV & V in 6%.(Table-6).

The discharge from the ulcer was sent for culture and sensitivity. Among the different culture growth obtained in this study, the most common organism was streptococcus pyogenes to an extent of 28% followed closely by staphylococcus aureus in 26% (Table-7).

Table 1: Distribution of various types of leg & foot ulcers

Sl. No.	Etiological type	No. of cases	%
1.	Diabetic ulcer	18	30
2.	Venous ulcer	15	25
3.	Arterial ulcer	11	18
4.	Traumatic ulcer	12	20
5.	Trophic ulcer	1	2
6.	Infective ulcer	3	5

Table 2: Age distribution of various types of leg & foot ulcers

Sl. No.	Age group(years)	No. of cases	%
1	10-20	3	5
2	21-30	7	12
3	31-40	12	20
4	41-50	12	20
5	Above 50	26	43

Table 3: Distribution of location of ulcer

Sl. No.	Location of ulcer	No. of cases	%
1	Leg	22	37
2	Dorsal foot(DF)	23	38
3	Plantar foot(PF)	11	18
4	DF+PF	3	5
5	Foot + Leg	1	2

Table 4: Distribution of exudate of ulcer

Sl. No	Exudate	No. of cases	%
1	Serous (S)	24	40
2	Purulent (P)	30	50
3	Greenish (G)	6	10
4	Pus+ bony spicules(P+BS)	0	0

Table-5: Distribution of pathology in arterial ulcers

Sl. No.	Pathology	No. of cases	%
1	Thromboangitisobliterans (TAO)	8	73
2	Atherosclerosis	3	27

Table 6: Distribution of Wagner grading of Diabetic ulcers

Grade	No. of cases	%
I	8	44
II	8	44
III	0	0
IV	1	6
V	1	6

Table 7: Distribution of types of bacteria isolated from the ulcers

Sl. No.	Pathogen	No. of cases	%
1	Staphylococcus aureus	16	26
2	E coli	4	7
3	Klebsiellapneumoniae	4	7
4	Proteus mirabilis	2	3
5	Streptococcus pyogenes	17	28
6	Pseudomonas aeruginosa	6	10
7	Citrobacterfreundii	1	2
8	No growth	10	17

DISCUSSION

The prevalence of leg ulcers is probably between 0.18% and 1% [5]. 95% of leg ulcers are due to vascular etiology, [6] and among all chronic wounds in the lower extremity, venous ulcer dominates the differential diagnosis accounting for up to 90% of the cases. Arterial diseases account for 5% to 10%, most others are due to neuropathy or a combination of both [7, 8].

In this study chronic ulcer with vascular etiology accounted for only 43% of all chronic ulcers. Out of this, venous ulcers accounted for 25% and arterial ulcers accounted for 18%. Chronic ulcers

associated with diabetes accounted for nearly 30%. Traumatic ulcers accounted for 20% of the cases.

It has been reported that ulcers related to venous insufficiency constitute 70%, arterial disease 10%, and ulcers of mixed etiology 15% of leg ulcer presentations [9]. The remaining 5% of leg ulcers result from less common pathophysiological causes, and this latter group comprise considerable challenges in diagnosis, assessment, and management [10].

In the Western world, leg ulcers are mainly caused by venous insufficiency, arterial insufficiency, neuropathy, diabetes, or a combination of these factors [11]. Venous ulcers are the most common type of leg ulcers, accounting for approximately 70% of cases. Arterial disease accounts for another 5% to 10% of leg ulcers; most of the others are due to either neuropathy (usually diabetic) or a combination of those diseases [11, 12]. The study from India shows that etiology of chronic wounds included systemic conditions such as diabetes, atherosclerosis, tuberculosis, and leprosy. Other major causes included venous ulcers, pressure ulcers, vasculitis, and trauma. The study report stated that inappropriate treatment of acute traumatic wounds was the most common cause of the chronic wound [13]. Chinese study shows that the principle etiology (67%) of ulceration is trauma or traumatic wounds compounded by infection. Diabetic ulcers, venous ulcers, and pressure ulcers accounted for 4.9%, 6.5%, and 9.2%, respectively. The majority of these wounds were seen in farmers and other agricultural workers [14, 15].

In the Western world, leg ulcers are mainly caused by venous hypertension, arterial insufficiency, and neuropathy, especially in the diabetic, pressure, vasculitis, or a combination of these factors. Most of the ulcers in India are undoubtedly due to venous etiology, but many other causes such as filariasis, tuberculosis, and leprosy, not frequently seen in the western countries, add to the misery of the Indian patient. The study from India shows that etiology of chronic wounds included systemic conditions such as diabetes and atherosclerosis. Other major causes included pressure ulcers, vasculitis, and trauma. Not surprisingly, the study stated that an inappropriate treatment of acute traumatic wounds was the most common cause of the chronic wound [16].

In this study diabetic ulcer accounted for 30% venous ulcer(25%), arterial ulcer(18%), traumatic ulcer(20%), trophic ulcer(2%) and infective ulcer(5%) respectively.As observed above the present study was not comparable with the published studies mentioned probably because of following reasons:-

The study group of 60 patients was too small a number to draw any comparative conclusions.

Some investigators have classified diabetic ulcers 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 73% - 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 [17] 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 the present study, ulcers had the same site of distribution i.e., ulcers in the gaiter zone were mostly caused by venous insufficiency and ulcers in the foot below the line of shoes were mostly caused by arterial insufficiency and or diabetes.

About 56% of patients in our study had ulcers in the foot only. This is rather high figure in comparison to Hansson's 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.

Cornwall [18] et al in his study had 70% of patients over the age of 70 years. In this study, 20% of patients were aged between 41-50 years and 43% of the patients were aged above 50 years. But according to study done by Callam MJ [8], the elderly are not the only population at risk: 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 37% of the patients.

Peripheral vascular diseases increase with age and are 7 times more frequent in 60 year old patients when compared to 20 year old [17]. In this study, arterial and venous diseases were found to be maximum in the age group of 31 to 50 years. This discrepancy may be due to the fact that, our study group patients in the above age group belong to the working class and the ulcers they suffer hamper their working capacity making them to seek medical help early. And also venous ulcers were found to be the most common in the age group of 31 to 50 years which is rather early when compared to western studies as most of our patients belong to the working class which involves long hours of standing.

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. Several researches are still going on other modalities of treatment of leg ulcers.

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