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A Clinical Study on Chronic Leg and Foot Ulcers

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Abstract

An observational to study and analyze the Age and sex distribution, Types, Etiology, Co-morbid factors, Microbiology, Treatment modalities Outcome and follow up of various leg and foot ulcers. Peripheral neuropathy, peripheral vascular diseases are the significant contributing factors in diabetic ulcers. All Malignant ulcers are treated in a multimodality approach like surgery, radiotherapy. Amputations can be prevented by health education and proper care.

Keywords: Leg and Foot Ulcers; Clinical Presentation; Management.

Introduction

Ulceration of the leg and foot is a frequent condition seen in most of the surgical wards and out-patient department. The main causes are trauma, chronic venous insufficiency, lower extremity arterial disease and diabetes. Less frequent conditions are blood dyscrasias, infections, skin malignancies, vasculities . But even rare condition exists such as recently discovered combination of vasculities and hypercoagulability. 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 etiology.

Materials and Methods

Source of data: 600 cases of ulcers of leg and foot admitted to the Department of General Surgery, between JUN 2010 and JUN 2012.

Method of Collection of Data

1. Definition of a study subject: Patients with symptoms pertaining to leg and foot ulcers admitted to Department of General Surgery.
2. The method of study: Consists of- Detailed 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, HBsAg, 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, Colour doppler imaging, FNAC (Fine Needle Aspiration Cytology) of the lymph node, Nerve biopsy if required. Diagnosis of the primary cause of the ulcer. Appropriate management of the ulcer and the primary cause.

Results

Among the 600 cases were studied traumatic ulcers accounting for 334 cases (55.6%), Followed by Diabetic ulcers (29.11%), Venous ulcers (7.6%), Arterial ulcers (6.63%), Malignant ulcers (1%). Incidence of leg ulcers age group of above 50 yrs (82.6%). Chronic leg ulcers were more common in males than in females accounting for about 79.3%. Smoking is is seen in 386 (64.3%) cases. counterirritant application is seen

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in 376(62.6%) cases. Klebseilla pneumonia isolated in pus culture accounting 62.6%.

Traumatic Ulcers

Out of 600 cases were studied traumatic ulcers accounted for 334 cases. Majority of the cases were treated by thorough debridement in 228(68.26%) cases. Among the 24 patients who underwent different types of amputations, BKA amputation is done in 14 cases, sepsis seen in 38 cases, 4 cases died due to sepsis.

Diabetic Ulcers

Out of 600 cases were studied diabetic ulcers accounted for 174 cases. Most of the cases presented to our op department in wagner grade2 (114 cases; 65.51%) followed by grade 1(13.21%)>grade 3(9.77%)>grade 4(6.32%)>grade 5(5.17%). In present study peripheral vascular disease is seen in 62 (35.63%) cases. Peripheral neuropathy is seen in 58(33.3%) cases. Osteomylitis of bones seen in 8(4.6%) cases92 cases were treated by thorough debridement with split skin grafting.36 amputations were done of those 18 were ray amputations, 14 were BKA amputations and 4 were AKA amputations. Diabetic ketoacidosis is observed in 33 patients. 14 patients died due to diabetic ketoacidosis with sepsis.

Venous Ulcers

Out of 600 cases were studied venous ulcers accounted for 46 cases(7.6%%). 24 of cases were treated with trendelenberg operation + stripping.18 patients were treated with trendelenberg operation. Pigmentation around the ulcer is seen in 44 (95.65%) cases.

Arterial Ulcers

Out of 600 cases were studied Arterial ulcers accounted for 40 cases.70% of the arterial ulcers were due to atherosclerosis.14 cases underwent lumbar sympathectomy, 14 cases underwent minor amputations followed by 10 cases underwent major amputations. Sepsis is seen in 2 cases, Myocardial infarction is seen in 4 cases, 1 case got ischemic stroke. one patient died due to myocardial infarction.

Malignant Ulcers

Out of 600 cases were studied malignant ulcers accounted for 6 cases. Of those 3 cases were having malignant melanoma, 3 cases were having squamous cell carcinoma.

Malignant Melanoma

3 Cases were noted, 2 cases were treated by wide local excision+split skin grafting. 1 case was treated by wide local excision+local rotation flap.

Squamous cell carcinoma:3 Cases were noted 2 of them were treated by wide local excision+split skin grafting. One case underwent BKA amputation.

Table 1: Type of ulcers

Type of ulcer	No of cases	%
Traumatic ulcers	334	55.6%
Diabetic ulcers	174	29.11%
Venous Ulcers	46	7.6%
Arterial Ulcers	40	6.63%
Malignant Ulcers	6	1%
Total	600	100%

Table 2: Age distribution of ulcers

Age	No of cases	%
>60 yrs	254	42.3%
50-60 yrs	242	40.3%
40-50 yrs	62	10.4%
30-40 yrs	25	4.2%
<30 yrs	17	2.8%
Total	600	100%

Table 3: Sex distribution of ulcers

	No of cases	%
Male	476	79.3%
Female	124	20.7%
Total	600	100%

Table 4: Various organisms isolated in pus culture & sensitivity

Organism	No. of cases	%
Klebseilla pneumonia	376	62.6%
Pseudomonas species	312	52%
Proteus species	257	42.3%
E.coli	62	10.3%
Staphylococci	52	8.9%

Table 5: Distribution of various types of amputations in traumatic ulcers

Type of amputation	No of patients	%
Ray Amputation	6	25%
BKA Amputation	14	58.33%
AKA Amputation	4	16.67%
Total	24	100%

Table 6: Mode of clinical presentation of diabetic ulcers

Wagner grade	No of patients	%
Wagner Grade I	23	13.21%
Wagner Grade II	114	65.51%
Wagner Grade III	17	9.77%
Wagner Grade IV	11	6.32%
Wagner Grade V	9	51.7%
Total	174	100%

Table 7: Peripheral vascular disease in patients

Peripheral vascular disease	No of patients	%
Present	62	35.63%
Absent	112	64.37%
Total	174	100%

Table 8: Surgical treatment of diabetic ulcers

Treatment received	No of patients	%
Thorough debridement without SSG	42	24.16%
Thorough debridement with SSG	92	52.87%
Thorough debridement with local flaps	4	2.29%
Amputations	36	20.68%
Total	174	100%

Table 9: Treatment received in venous ulcers

Treatment received	No of patients	%
Bisgards line of management	4	8.7%
Trende lenberg operation+ Bisgards line of management	18	39.13%
Trendelenberg operation+stripping+ Bisgards line of management	24	52.17%
Total	46	100%

Table 10: Treatment received in arterial ulcers

Treatment	No of patients	%
Conservative management	2	5%
Lumbar symp athectomy	14	35%
Minor amputations	14	35%
Major amputations	10	25%
Total	40	100%

Discussion

Traumatic ulcers accounting for 334 cases (55.6%), Followed by diabetic ulcers (29.11%).This may be as result of low incidence of arterial and venous diseases in developing countries like India. Traumatic ulcers incidence is more as agricultural laborers, barefoot individuals are more in our study group and they are more prone for trauma. In this study, chronic ulcer with vascular etiology accounted for only 14.23% [1,2] of all chronic ulcers. Out of this, venous ulcers accounted for 7.6% [1,2] and arterial ulcers accounted for 6.63% [1,2].

Incidence of leg ulcers in our study was found to be maximum in patients above 50 yrs (82.6%) [3]. It is more common in males than in females accounting for about 79.3% [4]. Smoking is the most common associated factor is seen in 386 (64.3%) cases. We found counterirritant application in 376(62.6%) cases. We found that it is a significant contributing factor in ulceration and progression of the ulceration. Klebseilla pneumonia is the most common organism isolated in pus culture [5].

Traumatic Ulcers

In our study majority of the cases were treated early thorough Debridement [6]. Uncontrolled infection was the major complication and it was the major indication for amputation.

Diabetic Ulcers

Most of the cases presented to our department in Wagner grade II. In the present study out of 174 cases 58 were having neuropathy accounting for 33.3% of study sample, which is correlated with the Walter DP et al 99(39.4%). In our study associated peripheral vascular disease (PVD) is seen in 62(35.63%) cases correlated with the study of Moss et al 98 (39%). In our study osteomylitis was found in 18(4.6%) cases out of 174 cases. All cases were treated with broad spectrum antibiotics and local resection of the bone. According to WHO Study incidence of osteomylitis in diabetes is 15%. In our study RBS was done 8th hourly to monitor the blood sugar level of the patient. Based on the RBS levels we have used oral hypoglycemic drugs or insulin regime or both. Debridement has given a favorable outcome [9]. Cases where debridement was not done properly came late, progressed and eventually some of them underwent amputation. In the present study diabetes accounted for majority of the major extremity amputation. This was due to the fact that health awareness was low in the population studied and many of the patients were diagnosed with diabetes only following admission for advanced lower limb infections and /or gangrene. Diabetic ketoacidosis is seen in 33 patients and Out of 174 patients 14(8.04%) patients died due to uncontrolled diabetes and septic shock. This high mortality due to the fact that many of the patients were diagnosed with diabetes only following admission for advanced lower limb infections and / or gangrene Venous ulcers: In this study, long saphenous system was found to be by far the

commonest system [11]. All patients were treated with Bisgard's line of management initially [12] 24 cases were treated with Trendelenberg operation + stripping. Mc complication: pigmentation around the ulcer.

Arterial Ulcers

Most of them are due to atherosclerosis [13]: lumbar sympathectomy was found to be a good option in some cases for pain relief and healing.

Duration of Hospital Stay

In the present study duration of hospital stay is more in diabetic ulcers (45.6 days) when compared with ulcers of other etiology. It is due to the fact that many cases were presented to us in advanced disease and also uncontrolled sepsis & with diabetic neuropathy and vasculopathy were also the contributing factors.

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Conclusions

M / C were Traumatic ulcers. M / C age group was > 50 years. Males predominanted . M / C association was smoking. Counter irritant application was observed in majority cases.Broad spectrum antibiotics should be used. Peripheral neuropathy, peripheral vascular diseases are the significant contributing factors in diabetic ulcers. Meticulous glycemic control has given the good results in wound healing. Various off loading methods should be advised to all patients with diabetic ulcers. Colour Doppler is a very useful diagnostic tool in evaluating vascular ulcers. Elevation of limb and compressive therapy are gold standard in treatment of venous ulcers. Implement anticoagulant therapy in cases of DVT. Lumbar sympathectomy can be done where pain could not be relieved with analgesics or narcotics in arterial ulcers. All Malignant ulcers are treated in a multimodality approach like surgery, radiotherapy.An Amputee is a burden not only for himself, but to the total Community as well.Amputations can be prevented by health education and proper care.Foot must be taken care equal to face

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