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Original Research Article

A Cross-Sectional Clinical Study on Management of Venous Ulcer

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Abstract

Aim: The aim of the present study was to evaluate the different approaches of treatment modalities for chronic venous ulcers.

Material & methods: A cross-sectional study was conducted at the Department of General Surgeryfor the period of one year. 100 patients were studied who were patients attending the outpatient department and casualty during the study period with venous ulcers over the leg.

Results: In our study, the age varied from 24 years to 68 years. Out of 100 patients, 18 (18%) patients were from 21-30 years age group, 20 (20%) from 31-40 years, 28 (28%) from 41-50 years, 28 (28%) from 51-60 years and 6 (6%) from 60 and above years of age. The mean age was noted to be 49 years. There were 80 (80%) males and 20 (20%) females. Total 20 (20%) patients had a normal BMI, 45 patients (45%) were overweight and 35 (35%) patients were obese. All 20 females were overweight or obese. Along with ulceration, 42 (42%) patients had pain, 68 (68%) patients had edema and 70 (70%) patients had skin changes. All our patients had underlying venous abnormalities either clinically or radiologically. Of the patients, 42 (42%) patients had venous ulcer in the right leg, 54 (54%) in the left leg. 4 (4%) had bilateral venous ulcers. In our study, 72 (72%) patients had pathology of great saphenous vein, 23 (23%) patients had perforator incompetence, and 5 cases (5%) had involvement of short saphenous vein. In our study, 20 patients (20%) underwent conservative management alone and 80 patients (80%) underwent surgery. Amongst 80 patients who underwent surgery, flush ligation of Sapheno-femoral junction with stripping of GSV up to knee was done in 56 (70%) patients. All of these patients had phlebectomy below the knee also. 6 (7.5%) cases underwent subfascial endoscopic perforator ligation (SEPS). Phlebectomy alone was done in 16 (20%) patients. 6 cases were operated with SSV ligation.

Conclusion: Venous ulcers are common ulcers of lower limb causing a progressive disability affecting patient with pain, disability, loss of work, and social isolation. Ulcers need prompt treatment with dressings and surgery.

Keywords: Chronic venous leg ulcers; Debridement; Compression; Negative pressure wound therapy, Hair punch graft; Platelet-rich plasma

Introduction

Leg ulcer refers to areas of epidermal discontinuity in lower limbs with causes of venous, arterial, diabetic, pressure, traumatic, allergic, or inflammation. venous, arterial, diabetic, pressure, traumatic, allergic, or inflammation. Chronic leg ulcer (CLU) also known as chronic lower limb ulcer is a chronic wound of the leg that shows no tendency to heal after 3 months of appropriate treatment or is still not fully healed at 12 months. [1]

Chronic venous leg ulcers (CVLUs) are defined as leg ulcers persisting for 4 week or more due to chronic venous insufficiency [2,3] and account for up to 70% of all chronic leg ulcers. CVLUs have an overall prevalence of up to 2% in the general population of western countries with significant morbidity and a negative socioeconomic impact. The pathophysiology of venous ulcers is a complex process with various associated signs such as varicose veins, chronic discharge, dermatitis, skin hyperpigmentation and fibrosis. These ulcers generally display a characteristic irregular shape with sharply demarcated borders, and are usually located in the perimalleolar area. [4] Although ulcer depth is typically limited to the subcutaneous layers, infection can cause extensive deep tissue injury. 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.

Chronic ulceration of the lower legs is a relatively common condition amongst adults, and ulcer symptoms usually include increasing pain, friable granulation tissue, foul odor, and wound breakdown instead of healing. This results in social distress and considerable healthcare and personal costs [5,6] Risk factors for venous ulcers include age 55 years

or older, family history of chronic venous insufficiency, higher body mass index, history of pulmonary embolism or superficial/deep venous thrombosis, lower extremity skeletal or joint disease, higher number of pregnancies, parental history of ankle ulcers, physical inactivity, history of ulcers, severe lipodermatosclerosis (panniculitis that leads to skin induration or hardening, increased pigmentation, swelling, and redness), and venous reflux in deep veins. [7] The goal of venous ulcer treatment is to improve symptoms, prevent sequelae, and promote ulcer healing. Compression therapy and ancillary treatment (e.g., physical therapy, manual lymphatic drainage, and phlebotonics) constitute the backbone of non-surgical venous ulcer treatment. [8]

Poor prognostic signs for healing include ulcer duration longer than three months, ulcer length of 10 cm (3.9 in) or more, presence of lower limb arterial disease, advanced age, and elevated body mass index. [9] Complications of chronic venous ulcers include infections and skin cancers such as squamous cell carcinoma. [10,11] CVLUs are susceptible to microbial invasion and can cause serious complications, such as delayed healing, cellulitis, increasing ulcer size, debilitating pain, and deeper wound infections causing systemic illness. [12] It is critical to assess and manage patients with effective approaches.

Hence the aim of study was to evaluate the different approaches of treatment modalities for chronic venous ulcers.

Material & Methods

A cross-sectional study was conducted at the Department of General Surgery, Netaji Subhas Medical College & Hospital, Bihta, Patna, Bihar, India for the period of one year. 100 patients were studied who were patients attending the outpatient department and casualty during the study period with venous ulcers over the leg.

Inclusion Criteria

All the patients presented with venous ulcers over the lower limb with or without varicose veins were included in the study.

Exclusion Criteria

Patients with; co-existing arterial disease, coexisting lymphatic disease, on steroid therapy, immuno-compromised status, pregnant patients, intra-abdominal tumors and varicose veins without ulceration were excluded from the study.

Procedure

A detailed clinical history was noted. A thorough clinical examination was done and findings were recorded. All patients had a biochemical screening which includes random blood sugars, routine hematologic indices, wound site culture &sensitivity, abdominal ultrasonography, and chest radiographs. Venous duplex Doppler studies were done.

Biopsy of the ulcer was done if necessary. The treatment policy included either conservative or surgical. Conservative modalities included wound dressings, compression bandaging, antibiotics in infected cases, anti- inflammatory analgesics, pentoxifylline, and aspirin. Limb elevation and active and passive exercises were advised. Foam sclerotherapy for small or residual varicosities; surgical modalities included debridement of the ulcer, dressings followed by split skin grafting. Ligation and stripping of varicose veins and perforator ligation with subfascial ligation or multiple ligations was done. All the data was entered in Microsoft spread sheet and were analysed.

Results

Table 1: Age and gender-based distribution

Age (years)	Male	Female	Total
21-30	18	0	18
31-40	14	6	20
41-50	22	6	28
51-60	20	8	28
>60 years	6	0	6
Total	80	20	100

In our study, the age varied from 24 years to 68 years. Out of 100 patients, 18 (18%) patients were from 21-30 years age group, 20 (20%) from 31-40 years, 28 (28%) from 41-50 years, 28 (28%) from 51-60 years and 6 (6%) from 60 and above years of age. The mean age was noted to be 49 years. There were 80 (80%) males and 20 (20%) females.

Table 2: BMI based distribution

BMI	Male	Female	Total
<25	20	0	20
25.1 - 30	33	12	45
>30+	27	8	35
Total	80	13	80

Total 20 (20%) patients had a normal BMI, 45 patients (45%) were overweight and 35 (35%) patients were obese. All 20 females were overweight or obese.

Table 3: Symptomatology and investigations

Parameters	N	%
Ulceration	100	100
Pain	42	42
Oedema	68	68
Skin changes	70	70
Ulcer		
Right leg	42	42
Left leg	54	54
Both legs	4	4
Doppler study		
GSV+ incompetent perforator	72	72
Incompetent perforator	23	23
SSV incompetent	5	5

Along with ulceration, 42 (42%) patients had pain, 68 (68%) patients had edema and 70 (70%) patients had skin changes. All our patients had underlying venous abnormalities either clinically or radiologically. Of the patients, 42 (42%) patients had venous ulcer in the right leg, 54 (54%) in the left leg. 4 (4%) had bilateral venous ulcers. In our study, 72 (72%) patients had pathology of great saphenous vein, 23 (23%) patients had perforator incompetence, and 5 cases (5%) had involvement of short saphenous vein.

Table 4: Management of venous ulcers

Management	N (%)
Conservative management	20 (20)
Surgery	80 (80)
SFJ ligation	56 (70)
Phlebctomy	70 (87.5)
Phlebctomy alone	14 (20)
Phlebctomy With SFJ ligation	56 (70)
SEPS	6 (7.5)
SSV ligation	6 (7.5)

In our study, 20 patients (20%) underwent conservative management alone and 80 patients (80%) underwent surgery. Amongst 80 patients who underwent surgery, flush ligation of Sapheno-femoral junction with stripping of GSV up to knee was done in 56 (70%) patients. All of these patients had phlebectomy below the knee also. 6 (7.5%) cases underwent subfascial endoscopic perforator ligation (SEPS). Phlebectomy alone was done in 16 (20%) patients. 6 cases were operated with SSV ligation.

Discussion

Chronic venous ulcer (CVU) is the most common ulcer affecting the lower limbs, with a prevalence of 1-2%. CVU is defined as an ulcer with duration of more than 6 weeks with evidence of chronic venous insufficiencies like varicose veins, edema, and pigmentation. [13] CVU significantly reduce quality of life due to pain, loss of function, reduced mobility, and social isolation. They are complicated with local eczema, scarring, lipodermatosclerosis, ankylosis of the ankle joint, bleeding, chronic osteomyelitis and sometimes Marjolin's ulcer. Risk factors for CVU are obesity, deep venous thrombosis, phlebitis, and venous valvular dysfunction. [13,14] Venous ulcers are diagnosed based on clinical findings like anatomic location in Gaiter's area, morphology, and characteristic skin changes. Diagnosis is confirmed by assessing the venous system functionally and structurally using imaging.

In our study, the age varied from 24 years to 68 years. Out of 100 patients, 18 (18%) patients were from 21-30 years age group, 20 (20%) from 31-40 years, 28 (28%) from 41-50 years, 28 (28%) from 51-60 years and 6 (6%) from 60 and above years of age. The mean age was noted to be 49 years. There were 80 (80%) males and 20 (20%) females. A large Indian study revealed that CVI is more prevalent at an average age of 43 years with its incidence increasing with age and it affects women more than men. [15] An ideal management plan for patients

with chronic leg ulcers should involve an early strategic and coordinated approach to delivering the correct treatment option for each individual patient, based on accurate assessment of the underlying pathophysiology. [16] The management of leg ulcers should include a detailed history of the onset of the problem, examination of the legs and skin, investigations, and modalities of treatments. Successful management of leg ulcers requires a clear diagnosis, establishment of a treatment plan, accurate monitoring, and adherence to the plan as the ulcer decreases in size. Education and training is vital for all those involved in caring for patients with chronic ulceration.

Total 20 (20%) patients had a normal BMI, 45 patients (45%) were overweight and 35 (35%) patients were obese. All 20 females were overweight or obese. Along with ulceration, 42 (42%) patients had pain, 68 (68%) patients had edema and 70 (70%) patients had skin changes. All our patients had underlying venous abnormalities either clinically or radiologically. Of the patients, 42 (42%) patients had venous ulcer in the right leg, 54 (54%) in the left leg. In a similar study by Reddy et al. in 2017, most common presenting complaint was skin changes. Ulceration was the most common symptom affecting 57.6% patients followed by pain affecting 56.5%. [17] In our study, left limb was more commonly involved, similar to findings of Samane et al and Kumar et al. [18,19] 4 (4%) had bilateral venous ulcers. In our study, 72 (72%) patients had pathology of great saphenous vein, 23 (23%) patients had perforator incompetence, and 5 cases (5%) had involvement of short saphenous vein.

In our study, 20 patients (20%) underwent conservative management alone and 80 patients (80%) underwent surgery. Amongst 80 patients who underwent surgery, flush ligation of Sapheno-femoral junction with stripping of GSV up to knee was done in 56 (70%) patients. All of these patients had phlebectomy below the knee also. 6 (7.5%) cases underwent subfascial endoscopic perforator ligation (SEPS). Phlebectomy alone was done in 16 (20%) patients. 6 cases were operated with SSV ligation. NICE guidelines (UK-NHS), compression therapy is recommended as first line therapy for varicosities. Lawrence et al [20] observed that 50% of patient's ulcers treated with only compression therapy healed with a 15 month median period and 75% healed within a period of 36 months. The ESCHAR study established the role of surgical therapy along with compression therapy and noted high recurrence rates with the compression therapy alone. [21] Nelzen et al reported decreased recurrence rates if SEPS was combined with the conventional procedure. [22]

Conclusion

Venous ulcers are common ulcers of lower limb causing a progressive disability affecting patient with pain, disability, loss of work, and social isolation. Ulcers need prompt treatment with dressings and surgery. Correction of underlying venous insufficiency is the main stay of the treatment. Surgery gives best results with long term benefits.

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