

A Study to Assess the Role of Conservative Treatment and Surgical Management of venous Ulcers: An Observational Study

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Abstract

Aim: The aim of the present study was to assess the role of conservative treatment and surgical management of venous ulcers.

Methods: An observational study was conducted at the Department of General Surgery, Lord Buddha Koshi Medical College and Hospital, Saharsa, Bihar, India for the period of 2 years. 200 patients were studied who were patients attending the outpatient department and casualty during the study period with venous ulcers over the leg.

Results: Out of 200 patients, 32 (16%) were 21-30 years old, 30 (15%) 31-40, 44 (22%) 41-50, 78 (39%) 51-60, and 16 (8%) 60+. The mean age was 48. There were 160 men (80%) and 40 women (20%). Of the total patients, 36 (18%) had a normal BMI, 104 (52%) were overweight, and 60 (30%) were obese. Fat was present in all 40 women. Individuals with ulceration, discomfort, edoema, and skin abnormalities included 88 (44%) and 140 (70%) individuals. All of our patients had venous anomalies on clinical or radiological imaging. Out of the total number of patients, 84 (42%) had right leg venous ulcers and 106 (53%) had left leg ulcers. Ten people (5%) developed bilateral venous ulcers. In our analysis, 144 (72%) patients exhibited severe saphenous vein pathology, 46 (23%) had perforator incompetence, and 10 (5%) had short saphenous vein involvement. In our research, 40 patients (20%) had conservative therapy while 160 (80%) underwent surgery. 112 of 160 surgical patients had their Sapheno-femoral junction drained and GSV stripped to the knee. Each patient had a below-knee phlebectomy. Subfascial endoscopic perforator ligation was performed on 14 instances. Phlebectomy was performed alone on 32 individuals. 14 instances underwent SSV ligation.

Conclusion: Treatment focuses on venous insufficiency correction. Surgery has the finest long-term outcomes.

Keywords: Chronic venous ulcer, Sapheno-femoral junction, Short saphenous vein, Great saphenous vein

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Introduction

Venous ulcers are open skin wounds occurring in regions of the leg or foot affected by venous hypertension. [1] 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 peri-malleolar area. [2] Although ulcer depth is typically limited to the subcutaneous layers, infection can cause extensive deep tissue injury.

An understanding of venous anatomy provides a better comprehension of chronic venous disease.

The venous structure of the lower extremities can be categorized into superficial and deep systems. Superficial veins (e.g., greater saphenous vein, lesser saphenous vein and accessory saphenous vein) are located between the dermis and the muscle fascia, whereas deep veins (e.g., femoral vein, common femoral vein, deep femoral vein, popliteal vein, anterior and posterior tibial vein) are located beneath the muscle fascia. [3,4] These deep and superficial venous systems are connected by perforating veins. Most of the venous blood volume—approximately 85% is reserved in the deep venous system.

Obstruction is an important factor in the pathogenesis of venous ulcers. Proximal venous obstruction has a higher prevalence in chronic venous disease and implies poorer outcomes in treatment. [5] Marston et al [6] reported the importance of identifying venous obstruction in venous ulcer patients. Though frequently occurring in post-thrombotic veins, venous obstruction is difficult to detect non-invasively and thus often goes unnoticed. Intravascular ultrasound has proven its efficacy in assessment of the degree and extent of iliac vein stenosis compared to ascending phlebography which had previously been considered the standard. [7]

The diagnosis of venous ulcers is clinically based on patient history and clinical presentation, augmented when necessary by diagnostic tests. While color-flow duplex ultrasound is currently the gold standard diagnostic procedure for chronic venous disease³, other examinations can be performed in adjunct to duplex sonography. The ankle-brachial index (ABI) is a non-invasive test which identifies peripheral arterial disease (PAD) in the lower extremity. If the ABI is less than 0.8, it is mandatory to evaluate and rule out arterial insufficiency because application of compression therapy in such instances can cause detrimental consequences.

The aim of the present study was to assess the role of conservative treatment and surgical management of venous ulcers.

Materials and Methods

A cross-sectional study was conducted at the Department of General Surgery, Lord Buddha Koshi Medical College and Hospital, Saharsa, Bihar, India for the period of 2 years. 200 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, immunocompromised 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 were 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	32	0	32
31-40	20	10	30
41-50	30	14	44
51-60	70	8	78
>60	8	8	16
Total	160	40	200

Out of 200 patients, 32 (16%) patients were from 21-30 years age group, 30 (15%) from 31-40 years, 44 (22%) from 41-50 years, 78 (39%) from 51-60 years and 16 (8%) from 60 and above years of age. The mean age was noted to be 48 years. There were 160 (80%) males and 40 (20%) females.

Table 2: BMI based distribution

BMI	Male	Female	Total
<25	36	0	36
25.1 - 30	80	24	104
>30+	44	16	60
Total	160	40	200

Total 36 (18%) patients had a normal BMI, 104 patients (52%) were overweight and 60 (30%) patients were obese. All 40 females were overweight or obese.

Table 3: Symptomatology and investigations

Parameters	N	%
Ulceration	200	100
Pain	88	44
Oedema	140	70
Skin changes	144	72
Ulcer		
Right leg	84	42
Left leg	106	53
Both legs	10	5
Doppler study		
GSV+incompetent perforator	144	72
Incompetent perforator	46	23
SSV incompetent	10	5

Along with ulceration, 88 (44%) patients had pain, 140 (70%) patients had edema and 144 (72%) patients had skin changes. All our patients had underlying venous abnormalities either clinically or radiologically. Of the patients, 84 (42%) patients had venous ulcer in the right leg, 106 (53%) in the

left leg. 10 (5%) had bilateral venous ulcers. In our study, 144 (72%) patients had pathology of great saphenous vein, 46 (23%) patients had perforator incompetence, and 10 cases (5%) had involvement of short saphenous vein.

Table 4: Management of venous ulcers

Surgery	N
SFJ ligation	112
Phlebectomy	160
Alone	32
With SFJ ligation	112
SEPS	14
SSV ligation	14

In our study, 40 patients (20%) underwent conservative management alone and 160 patients (80%) underwent surgery. Amongst 160 patients who underwent surgery, flush ligation of Sapheno-femoral junction with stripping of GSV up to knee was done in 112 patients. All of these patients had phlebectomy below the knee also. 14 cases underwent subfascial endoscopic perforator ligation (SEPS). Phlebectomy alone was done in 32 patients. 14 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. [8] 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. [8,9] 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.

Out of 200 patients, 32 (16%) patients were from 21-30 years age group, 30 (15%) from 31-40 years, 44 (22%) from 41-50 years, 78 (39%) from 51-60 years and 16 (8%) from 60 and above years of age. The mean age was noted to be 48 years which was on par with the findings of Rao et al and Zolotukhin et al. [10,11] Males were affected more than females which was similar to findings from Chandrasekhar et al and other Indian and international studies, which challenges the age old notion of female preponderance. [12] There were 160 (80%) males and 40 (20%) females. Total 36 (18%) patients had a normal BMI, 104 patients (52%) were overweight and 60 (30%) patients were obese. All 40 females were overweight or obese. Along with ulceration, 42 (42%) patients had pain, 69 (69%) patients had

edema and 72 (72%) patients had skin changes. 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%. [13] In our study, left limb was more commonly involved, similar to findings of Samane et al and Kumar et al. [14,15]

Along with ulceration, 88 (44%) patients had pain, 140 (70%) patients had edema and 144 (72%) patients had skin changes. All our patients had underlying venous abnormalities either clinically or radiologically. Of the patients, 84 (42%) patients had venous ulcer in the right leg, 106 (53%) in the left leg. 10 (5%) had bilateral venous ulcers. In our study, 144 (72%) patients had pathology of great saphenous vein, 46 (23%) patients had perforator incompetence, and 10 cases (5%) had involvement of short saphenous vein. In our study, 40 patients (20%) underwent conservative management alone and 160 patients (80%) underwent surgery. Amongst 160 patients who underwent surgery, flush ligation of Sapheno-femoral junction with stripping of GSV up to knee was done in 112 patients. All of these patients had phlebectomy below the knee also. 14 cases underwent subfascial endoscopic perforator ligation (SEPS). Phlebectomy alone was done in 32 patients. 14 cases were operated with SSV ligation. Lawrence et al. 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. [16] Amongst 65 patients who underwent surgery, flush ligation with stripping was done in majority of our cases. Most of the studies both in India (Patra) and elsewhere have reported adoption of similar lines of management. [17] The ESCHAR study established the role of surgical therapy along with compression therapy and noted high recurrence rates with the compression therapy alone. [18] Nelzen et al reported decreased recurrence rates if SEPS was combined with the conventional procedure. [19]

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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