ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 7, Issue – 2, March – 2022 , Page No. : 223 - 230

Management of varicose ulcers

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Citation this Article: Dr. Rajesh Vaswani, Dr. Satya Narayan Meena, Dr. Omesh Kumar Meena, Dr. Sunil Kumar Meena, Dr. Ankit Kumar, "Management of varicose ulcers", IJMSIR- March - 2022, Vol – 7, Issue - 2, P. No. 223 – 230.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background: Venous ulcers are well known problem of humankind since ancient history. Calf muscle pump dysfunction results in ambulatory venous hypertension and the venous overload resulted in to venous ulcers, vary in size and location but are most common on the distal medial aspect just above the medial malleolus (Gaiter area). Sustained graduated compression overcomes the venous hypertension by reducing venous stasis and preventing tissue edema. Superficial venous surgery improves ulcer healing and also reduced ulcer recurrence. The aim of study to evaluate the efficacy and usefulness of various treatment modalities of venous ulcer, ensure rapid healing of venous ulcer, ensure rapid healing of venous ulcer and prevent complications.

Methods: This study was conducted in department of general surgery at hospitals attached to government medical college kota, between May 2019 and September 2021. During this period 50 patients having primary or recurrent varicose veins with venous ulcers were selected by purposive random sampling.

Results: In the present series of 50 cases, 16(32%) were in the age group between 51 and 60 years and 12(24%) were more than 60years of age, 44(88%) were males and 6 (12%) were females. Skin changes were the most common 44 (88%) patients followed by aching pain 36 patients (72%). Among 50 patients with venous ulcers, 5 (10%) underwent conservative treatment alone as they were not fit for surgery or not willing for same. Complete ulcer healing was achieved in 2-4 weeks in 23 (51.1%) patients, in 4-6 weeks in 18(40%), in 6-8 weeks in 2

(4.4%) and 1-2weeks in 2(4.4%) patients. Among 5 patients who underwent only conservative therapy, complete ulcer healing was achieved in 4-6 weeks in 3 (60%) patients, 2-4weeks in 1 (20%) and 6-8 weeks in 1 (20%) patient. Six (12%) patients developed hematoma and 3 (6%) developed infection.

Conclusions: Most candidates were fit for surgery and willing for same, underwent high ligation of the saphenofemoral junction and ligation of tributaries with or without stripping and subfascial ligation of incompetent perforators. Following surgery, more rapid healing of ulcer, faster return to work, less hospital visits and lesser expenditure were achieved which indicate the usefulness of surgery over compression therapy alone. Thus, surgery must be considered in all patients with varicose ulcers and proven venous insufficiency as socioeconomic burden and morbidity can be reduced.

Keywords: Venous ulcer, perforators, saphenofemoral junction.

Introduction

Venous ulcer is an increasingly common condition which comprises between 60%-70% of all ulcers in the lower leg[1,2]. Despite the high frequency of venous ulcer, it's frequently neglected or managed deficiently and therefore has a significant socioeconomic impact in terms of medical care, days off work and reduced quality of life[3,4,5]. It is more common in middle-aged group and in males. The classical presentation of a venous leg ulcer is an irregularly shaped partial thickness wound with well-defined borders surrounded by erythematous or hyper pigmented indurated skin[6]. Venous ulcers vary in size and location but are most common on the distal medial aspect just above the medial malleolus (Gaiter area). Calf muscle pump dysfunction results in ambulatory venous hypertension and the venous overload may be from deep, superficial, perforator veins or combination disease[7]. All patients were subjected to a detailed venous Doppler/duplex examination. Long saphenous system with the communicating system is the most common venous system affected with mid-calf perforator being the most common incompetent perforators[1,8]. Sustained graduated compression overcomes the goods of venous hypertension by reducing venous stasis and preventing tissue oedema. leg elevation enhances healing. pinch skin grafting has been found to be cost effective, accelerating healing when used with multilayer compression dressing[9,10,11]. Superficial venous surgery improves ulcer healing and also reduced ulcer recurrence. This study was conducted to evaluate the efficacy and usefulness of various treatment modalities of venous ulcer, ensure rapid healing of venous ulcer, to minimise hospital, stay, cost, socioeconomic burden on the patient and prevent complications.

Methodology

This clinical study of different modalities of treatment of venous ulcer was conducted in department of general surgery at hospitals attached to government medical college & associted group of hospital Kota between May 2019 and September 2021. Clearance was obtained from hospital ethical committee. During this period 50 patients having primary or recurrent varicose veins with venous ulcers were selected by purposive random sampling. Patients admitted with venous ulcer who satisfied the inclusion criteria were included in the study. All the required data was collected from patients during their stay in the hospital, during follow up at regular intervals and from medical records.

Inclusion criteria

Patients with the following criteria were included for the study

1. Patients with primary venous ulcers
2. Patients with recurrent venous ulcers
3. Patients with recurrent or primary varicose veins and venous ulcers.

Exclusion criteria

1. Patients with ulcers of non-venous origin-arterial ischemia, trauma, burns, rheumatoid, neuropathic, neoplastic.
2. Patients with combined arterial ischemia and venous ulcers.
3. Patients with DVT and venous ulcers.
4. Patients with secondary varicose veins and venous ulcer.

Management

Cases were first seen in OPD, history was taken, symptoms and signs recorded Followed by general and local examination. They were then subjected to various routine and specific investigations such as

1. Hb g%, BT, CT RBS and urine sugar to rule out diabetes mellitus S. urea, Creatinine
2. Hand held Doppler
3. Duplex scan
4. X ray of the foot to rule out periostitis or osteomyelitis.
5. Culture sensitivity of swab from ulcer site.
6. Edge biopsy to rule out malignancy in chronic venous ulcers.
7. Ultrasound abdomen and pelvis, CT abdomen-in case of secondary varicose veins due to mass abdomen.
8. Complete hemogram to rule out cause for DVT or secondary varicose veins.

Cases who weren't fit for surgery or weren't willing for surgery conservative treatment with regular ulcer care and dressing, compression bandaging or stocking passive and active exercise, postural elevation, massage of indurated area and whole calf and bed rest, and antibiotics treatment following culture and sensitivity reports.

Others were taken up for surgery. Conservative treatment was given to all the patients pre-operatively with the idea of improving the limb and making it fit for surgery and post operative compression treatment to prevent hematoma formation after stripping and were advised elastic crepe bandage/stockings for two to three months.

Sclerosant remedy wasn't tried in this series, because of the paucity and non-availability of the sclerosant agents and also because of presence of major incompetence.

Patients who presented with bilateral varicose veins got their symptomatic limb operated first, while the other limb was treated conservatively.

Patients with other complications of varicose veins such as acute or chronic dermatosclerosis, eczema, stasis dermatitis, haemorrhage, infection, talipes equino varus deformity, periostitis. Osteomyelitis, and calcification were managed accordingly.

For chronic venous ulcers a thorough wound debridement with topical enzymatic agents, collagen dressings, and angiogenic agents were done to promote ulcer healing.

Cases with saphenofemoral incompetence were treated with saphenofemoral junction high ligation with or without stripping of long saphenous vein. Patients with sapheno popliteal junction incompetence were treated with sapheno popliteal junction ligation with or without stripping of short saphenous vein. Patients with perforator incompetence were treated with subfascial ligation of perforators. For ulcers more than 5cm in size skin grafting or flaps were done.

Data were codified and entered in MS Excel spread sheet. Frequency distribution tables were prepared to

show results. Chi-square/ Fisher Exact test has been used to find the significance of study parameters.

Result

In this series, 8 patients (16%) were in the 31-40 Age group, 14(28%) were between 41 and 50 years, 16(32%) were in the age group between 51 and 60 years and 12(24%) were more than 60years of age. In the present series of 50 cases, 44(88%) were males and 6 (12%) were females.

Out of 50 patients studied, 29(58%) patients were farmers, who admitted of having been exposed to prolonged hours of standing. 4 (8%) were coolie, 12 (24%) were self-employed, 2(4%) were drivers, 1 (2%) housewife and 1(2%) govt. employee.

Right limb was affected in 14 patients (28%) and left limb in 31 patients (62%). In 5 patients (10%), both the limbs were involved.

Our patents presented with varied symptoms, out of which skin changes were the most common 44 (88%) patients followed by aching pain 36 patients (72%).

Among 50 patients, 21(42%) presented with symptom duration of 1-2 years and 18(36%) less than 1 year,7(14%) for 3 to 5 years and 4(8%) had symptoms for >5 years.

Among the 50 patients studied,5 (10%) patients had only long saphenous vein involvement,10 (20%) had only communicated system involvement ,1(2%) patient had both long saphenous and short saphenous systems involved,27 (54%) had long saphenous and communicating system involvement, 1 (2%) had involvement of both short saphenous and communicating system and 6 (12%) had involvement of long saphenous. short saphenous and communicating systems.

System involved	No. of patients (n=50)	Percentage
LSV	5	10%
SSV	-	-
CS	10	20%
LSV+SSV	1	2%
LSV+CS	27	54%
SSV+CS	1	2%
LSV+SSV+CS	6	12%

Table 1

Among 5 patients with LSV only involvement- 3 of them had pain, one had edema and all 5 complained of skin changes. In 1 patient with LSV and SSV involvement, skin changes were the only complaint. Among 27 patients with LSV and CS involvement,25 had pain,5 had edema and 25 of them complained of skin changes.1 patient had SSV+CS involvement and skin changes and pain were the complaints. Among 10 patients with CS involvement, 8 had pain and all 10 had skin changes. Among 6 patients with LSV+SSV+CS involvement, had pain, 2 had edema and 5 complained of skin changes.

System	Pain	Edema	Skin Changes
LSV	3	1	5
LSV+SSV	-	-	1
LSV+CS	25	5	25
SSV+CS	1	-	1
CS	8	-	10
LSV+SSV+CS	6	2	5
TOTAL	43	8	47

Table 2

Among 44 patients with perforator incompetence, 32 of them were mid-calf incompetence, 24 had below knee, 24 had ankle incompetence.11 patients had incompetent above knee perforator and 1 patient had mid-thigh incompetence.

Among 50 patients with venous ulcers, 46 (92%) had skin pigmentation as well, 21(42%) had eczema and 2 (4%) patients had stasis dermatitis.

Among 50 patients with venous ulcers, 5 (10%) underwent conservative treatment alone as they were not fit for surgery or not willing for same. The remaining underwent surgery. All patients subjected for surgery had conservative treatment pre- operatively with the idea of improving the limb and making it fit for surgery and post operative compression treatment with elastic crepe bandage/stockings for two to three months was advised.

Among 45 patients with venous ulcer that underwent surgery,18(40%) underwent saphenofemoral flush ligation and sub facial ligation of incompetent perforators.13 (29%) underwent saphenofemoral flush ligation with stripping and subfascial ligation of incompetent perforators.6 (13%) patients underwent saphenofemoral flush ligation + sapheno popliteal junction ligation + stripping and subfascial ligation of incompetent perforators.1(2%) patient underwent SFFL+SPJL+SFLP. 1(2%) patient underwent SFFL+SPJL+S. 3 (7%) patients underwent SFFL+S. 2 (5%) patients underwent SFFL alone, 1(2%) patient underwent SFLP alone.

Surgery	No. Of patients(n=45)	Percentage
SFFL	2	5%
SFFL+S	3	7%
SPJL	-	-
SPJL+S	-	-
SFFL+SPJL+S	1	2%
SFLP	1	2%
SFFL+SFLP	18	40%
SFFL+S+SFLP	13	29%
SFFL+SPJL+SFLP	1	2%
SFFL+SPJL+S+SFLP	6	13%

Table 3

Complete ulcer healing was achieved in 2-4 weeks in 23 (51.1%) patients, in 4-6 weeks in 18(40%), in 6-8 weeks in 2 (4.4%) and 1-2weeks in 2(4.4%) patients.

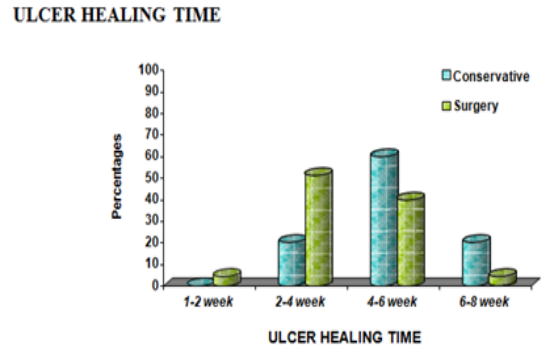

Fig. 1

Among 5 patients who underwent only conservative therapy, complete ulcer healing was achieved in 4-6 weeks in 3 (60%) patients, 2-4weeks in 1 (20%) and 6-8 weeks in 1 (20%) patient.

Follow up	Total (n=50)		Conservative (n=5)		Surgery (n=45)		P value
	No	%	No	%	No	%	
Ulcer healing time							
• 1-2 week	2	4.0	0	0.0	2	4.4	0.039*
• 2-4 week	24	48.0	1	20.0	23	51.1	
• 4-6 week	21	42.0	3	60.0	18	40.0	
• 6-8week	3	6.0	1	20.0	2	4.4	
• Mean ± SD	4.75±1.44		6.00±1.41		4.61±1.39		

Symptomatic relief							
• Absent	1	2.0	1	20.0	0	0.0	0.100
• Present	49	98.0	4	80.0	45	100.0	
Return to work in days							
• <3 weeks	0	0.0	0	0.0	0	0.0	0.004**
• 3-4 weeks	22	44.0	0	0.0	22	48.9	
• 5-6 weeks	19	38.0	3	60.0	16	35.6	
• 7-8 weeks	8	16.0	1	20.0	7	15.6	
• > 8 weeks	1	2.0	1	20.0	0	0.0	
• Mean ± SD	5.14±1.38		6.80±1.92		4.95±1.21		
Number of hospital visits							
• 1-5 visits	5	10.0	0	0.0	5	11.1	<0.001**
• 6-10 visits	40	80.0	0	0.0	40	88.9	
• 10-15 visits	5	10.0	5	100.0	0	0.0	
• Mean ± SD	8.02±2.55		13.60±1.14		7.40±1.79		
Reccurence							
• Absent	50	100.0	5	100.0	45	100.0	1.000
• Present	0	0.0	0	0.0	0	0.0	

Most patients following surgery returned to work in 3-4 weeks (22 patients-48.9%), 5-6 weeks (16 patients-35.6%),7-8weeks (7 patients 15.6%) whereas patients following only conservative treatment returned to work much later (5-6 weeks – 3 patients 60%).

Most patients following surgery had 6-10 subsequent hospital visits whereas with only conservative treatment patients had more hospital visits 10-15.

Six (12%) patients developed hematoma and 3 (6%) developed infection. Symptomatic relief was achieved in all patients following surgery and was not achieved in one patient with only conservative treatment.

Discussion

In this study, most of the patients fell in the age group between 51 – 60 years. This age distribution correlates well with other studies conducted by W.B. Campbell et al. who showed the commonest age at presentation to be 30-40 yrs.

Majority of the patients were men 44(88%) and there were 6 females (12%). This disparity may be due to the fact that men are involved in more strenuous activities demanding longer hours of standing compared to women. Thus, female sex is probably not a true risk factor for venous leg ulcer as supported by earlier studies, moreover, men now have become more positive in seeking professional help for leg ulcers. 29 (58%) of patients were farmer by occupation who admitted of having been exposed to prolonged hours of standing, about 10 hours per day. This may point towards the possibility of prolonged erect posture being a etiology for varicose veins.

The left limb was affected in 31 (62%) of the patients, right limb in 14 (28%) of patients and both limbs were affected in 5 (10%) patients.

Skin changes was the most common symptom (44-88%) followed by pain in 36 (72%) patients.

21(42%) patients presented with symptom duration of 1-2 years and 18 patients (36%) less than 1 year.

The most common system involved was the long saphenous vein with the communicating system in 27 (54%) patients, 10 patients (20%) had involvement of only communicating system and 6 patients (12%) had involvement of long saphenous, short saphenous and communicating systems.

Among 27 patients with LSV+CS involvement – 25 had pain, 25 skin changes and 5 complained of oedema.

Among patients with only communicating system involvement (10), all 10 complained of skin changes and 8 had pain and among the 6 patients with lsv+ssv+cs involved,6 had pain,5 had skin changes and 2 had oedema.

Among patients with incompetent perforators, 32 of them had incompetent mid-calf perforators, 24 had incompetent ankle perforators and another 24 had incompetence of below knee perforators. This complies with studies that show that Boyd's perforating vein in the anteromedial calf is frequently the site of the first varicose veins or the first reticular veins that become varicose. Experience with duplex ultrasonography scanning reveals that venous incompetence at this level may be isolated and may be the first reflux to appear.

50 patients with venous ulcers also had other complications of varicose veins such as skin pigmentation 46(92%), 21(42%) had eczema and 2 (4%) patients had stasis dermatitis.

Among 50 patients with venous ulcers, 5 (10%) underwent conservative treatment alone as they were not fit for surgery or not willing for same. The remaining underwent surgery. All patients subjected for surgery had conservative treatment pre- operatively with the idea of improving the limb and making it fit for surgery and post operative compression treatment with elastic crepe bandage/stockings for two to three months, avoiding long standing hours and passive and active exercise was advised.

The most common surgery performed was high ligation of the long saphenous vein, ligation of feeders with subfascial ligation of the incompetent perforators - 18(40%). Another 13 patients (29%) underwent high ligation of the saphenous vein with subfascial ligation of incompetent perforators along with stripping. 6 patients underwent ligation of both saphenofemoral and sapheno popliteal junctions and stripping and subfascial ligation of incompetent perforators.

On follow up, more rapid healing of ulcer was seen in 2-4weeks in most operated patients whereas ulcer healing took 4-6 weeks in patients without surgery. Following surgery, most patients were able to return to work within 3-4 weeks whereas patients with only conservative treatment took longer (5-6weeks). Operated patients visited hospital less often subsequently (6-10 visits) compared to 10-15 visits in non-operated patients for more frequent need of ulcer dressings. Moreover, expenses incurred with more frequent need for hospital visits and more dressings were more in non-operated patients thus emphasizing on more socio-economic burden. Symptomatic relief was achieved in majority of patients with both surgery and compression therapy. No recurrence of ulcer was seen with a follow up of a minimum of 3 months.

Conclusion

In this study of 50 patients with varicose ulcer the following conclusions can be made. The most common affected age group is between 51-60 years, men presented more often. Most patients were farmer by occupation with work demanding long hours of standing which could contribute to varicose vein formation. The left limb was affected in most of the patients, most common complaint was skin changes such as blackish discoloration of the skin. The most commonly involved system was long saphenous with incompetent perforators, and most common incompetent perforators involved were the mid-calf perforators. Overall, among patients who underwent surgery, more rapid healing of ulcer, quicker return to work, lesser subsequent hospital visits and lesser expenditure was seen. Symptomatic relief was achieved in all patients. Post op complications were minimal and surgery was well tolerated. No recurrence of varicose ulcer occurred in period of 3 months.

Venous ulcers have a significant effect on the patient in terms of increased morbidity-cost of medical care, prolonged stay in the hospital, days off work, ulcer recurrence, complications, disability and overall reduced quality of life. Thus, by achieving rapid healing of ulcer with adequate, timely treatment and early intervention, socioeconomic burden and morbidity can be reduced.

References

1. Kevin Burnard. Venous Disorders. Bailey and Love Short Practice of Surgery 25th edition 2008; 54:933.
2. Late Peter L Williams, Lawrence H, Bannister, Martin M Berry, Patricia Collins, Mary Dyson, Julian E Dussek, Mark W J Ferguson, Veins of lower limb, gray's anatomy,38th edition, ELBS with Churchill Livingstone,1995 :1595-1602
3. Albanese A. R., Albanese A.M. Albanese E.F., Lateral sub dermic varicose vein system of the legs; its surgical treatment by the chiseling method. Vasc Surg.1969; 3:81-89
4. Porter JM, Moneta GL: Reporting standards in venous disease: An update. International Consensus Committee on Chronic Venous Disease. J Vasc Surg 1995; 21:635-645
5. Classification and grading of chronic venous disease in the lower limbs. A consensus statements. In: Gloviczki P, Yao JST, ed. Handbook of Venous Disorders: Guidelines of the American Venous Forum, 2nd ed. London: Arnold; 2001:25-35.
6. Kakos SK, Rivera MA, Mat sagas MI, et al: Validation of the new venous severity scoring system in varicose vein surgery. J Vasc Surg 2003; 38:224-228.
7. Varicose veins: Pathology; Browse NL, Burn and KG, Irvine AT, Wilson NM, ed. Dise aces of the Veins, New York: Oxford University Press; 1999:145-162.
8. Mary E. Giswold, Gregory L. Moneta; Nonoperative Treatment of Chronic Venous Insufficiency, Rutherford vascular surgery,2005;156.
9. Michael J. Stirling and Cynthia K. Short ell; Endovascular Techniques for Superficial Vein Ablation in Treatment of Venous Ulcers; Venous ulcers;2007;13 :173-184
10. Alessandro Frullini; Treatment of Chronic Venous Insufficiency with Foam Sclerotherapy, Venous ulcers,2007;14:195-197
11. Stephen J. Kovach and L. Scott Levin; Treatment of Recalcitrant Venous Ulcers with Free Tissue Transfer for Limb Salvage; Venous ulcers;2007; 19:261-274.