

ORIGINAL RESEARCH

To study the effectiveness and safety of polidocanol sclerotherapy and cyanoacrylate adhesive embolization in patients of varicose insufficiency in an OPD setup- An observational retrospective study

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ABSTRACT

Introduction: Insufficiency of varicose veins ranges from dilated veins to severe chronic venous stasis skin changes and venous ulceration. As a result, there is associated variable morbidity. Treatment options range from surgical (stripping, venesection, and perforator ligation) to radiofrequency ablation, cyanoacrylate adhesive, and foam sclerosing.

Aims: Tocom parefoamsclerotherapy (by Polidoca cyanoacrylate late adhesion sodium tetradecyl sulfates sclerotherapy) for the treatment of patients with symptoms of persistent or recurrent lower limb venous insufficiency due to incompetent perforators to assess the feasibility, efficiency, and safety of an outpatient procedure.

Materials and Methods : At the Adesh Institute of Medical Sciences and Research, an observational retrospective study was undertaken on 100 consecutive patients with primary varicose veins. To rule out secondary causes, all patients of varicose veins presenting to the OPD were treated to a Doppler investigation. The study comprised patients hospitalized with varicose veins who met the inclusion and exclusion criteria.

Results: In our current study, 35 (35.0%) of the 100 patients had Long saphenous veins, 3 (3.0%) had Short saphenous veins, and 5 (5.0%) had solely perforator veins. 57 (57.0%) patients had Long saphenous + perforator in Varicose Systems, which was statistically significant (P.00001), and out of 26 patients, 10 (46.20%) patients had Hematoma, 5 (15.30%) patients had Neuritis, 4 (30.80%) patients had Infection, and 7 (7.70%) patients had Recurrence within 6 months of surgery after the operation, but this was not statistically significant (p=0.09692).

Conclusion: Varicose veins appear during the third and fifth decades of life. Occupations that require extended standing and vigorous physical exertion are more likely to develop varicose veins. The most prevalent presenting symptoms were large swellings in the lower limbs and discomfort.

Keywords: Varicose Veins, Venous Disease, Insufficiency and Sclerotherapy.

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INTRODUCTION

More than one-third of the general population suffers from chronic venous insufficiency of the lower leg.^{1,4} Insufficiency of varicose veins ranges from dilated veins to severe chronic venous stasis skin changes and venous ulceration. As a result, there is associated variable morbidity. Treatment options range from surgical (stripping, venesection, and perforator ligation) to radiofrequency ablation, cyanoacrylate adhesive, and foam sclerosing. Endovenous thermal ablation methods such as laser and radiofrequency have largely supplanted surgery as the predominant way of therapy globally.⁵ However, they are costly, time-consuming, and need Tumescant anaesthetic,

which is not available in an outpatient department. Varicose is derived from the Latin word varix, which means 'bent'. In a standing posture, the varicose limb that has lost its valvular efficiency and as a result of the resulting venous hypertension becomes dilated, tortuous, elongated, and thickened.⁶ Varicose veins have been recognized since Hippocrates' time, and therapy in its length and connected with varicose ulcers. The most prevalent vascular condition affecting humans is varicose veins of the lower leg. It's almost probably the cost of maintaining an upright posture. Delicate valves that developed over millions of years of four-legged ambulation are unable to raise gravity pressure in an upright posture - alexander.c.j.⁶

Although death is low, morbidity from the disease causes significant agony and suffering since it occurs in the prime of life. As projected, there is a significant loss of labor and production. Interestingly, there is an excellent cure for this ailment, which is why I chose varicose veins as a dissertation topic. ⁶ Venous disorders of the lower limb continue to be prevalent, affecting 20% of the adult population. In general, they do not cause serious life-threatening sickness, but the morbidity of venous ulceration creates a significant strain on community health care and results in considerable quantities spent on daily management of this condition. Despite the prevalence of venous illness, little is known about the causes of valvular incompetence or the processes by which chronic venous insufficiency leads to venous ulcers. Our understanding of the underlying pathologic processes has evolved significantly in the recent decade, necessitating a reassessment of many disorders. Color duplex ultrasonography, in particular, has increased diagnosis accuracy in patients with venous illness. Before undergoing any procedure for venous illnesses of the lower leg, this should be the bare minimum of examination. Venous ulceration may be caused in part by a failure of the skin's microcirculation to give nutrients, but inflammatory mediators and toxic chemicals from inflammatory cells are likely to play a significant role in generating skin damage. Duplex ultrasound imaging paired with a plethysmographic approach of measuring venous function can be used to thoroughly explore complex venous illness. Sclerotherapy is still an effective treatment for people with varices who do not have substantial truncal incompetence or who have had long saphenous or short saphenous veins surgically repaired. During surgery, stripping of a lengthy saphenous vein is preferred to saphenofemoral ligation alone. In more than half of instances, the latter course of action permits venous reflux to remain in the trunk of a lengthy saphenous vein. When all causes of venous reflux are managed, individuals with chronic venous insufficiency will have a better clinical prognosis. When combined with surgery through minor incisions, individuals with varicose veins will get better cosmetic outcomes.

MATERIALS AND METHODS

Study Design: An Observational Retrospective Study

Sample Size: Patient treated in AIMS OPD last year.

- Patients who presented to the surgical outpatient department with symptoms of chronic or recurrent lower limb venous insufficiency were treated with cyanoacrylate embolization of

incompetent perforators or sclerotherapy (Polidocanol) of dilated collateral veins under USG supervision. After mutual agreement, the choice between

- polidocanol sclerotherapy and cyanoacrylate glue embolization was made.
- For the first examination, the Chronic Venous Insufficiency Questionnaire (CIVIQ) was used in conjunction with the Clinical Etiological Anatomical Pathophysiological Classification (CEAP).
- Clinical improvement, perforator occlusion, venous occlusion, procedural pain, ulcer healing, and technical success were all evaluated. Follow-up was carried out after 15, 30, and 90 days.
- The Venous Severity Scoring (VSS) System and post-procedure ultrasound/color doppler were used to evaluate the results.
- • Ultrasound and color Doppler were used to detect procedure failure. If the results were unsatisfactory, the same operation was repeated, but if the patient's varicose veins persisted, they were submitted to surgical techniques such stripping and ligation.
- Three to five days after each session, an immediate post-op follow-up ultrasound was performed to check for post-operation findings and rule out complications including DVT, phlebitis, and cellulitis that could arise from the surgery.

INCLUSION CRITERIA

1. Males and non-pregnant females of any age over 18 years.
2. Primary varicose veins due to great saphenous vein reflux with or without perforator reflux.
3. Good mental health to understand and consent for the procedure with investigative nature.
4. CEAP classification from C2 to C6.

EXCLUSION CRITERIA

1. Great saphenous vein diameter is more than 8 mm.
2. Varicose veins due to small saphenous veins, accessory saphenous veins, or pudendal reflux.
3. Recurrent varicose veins.
4. Deep venous reflux present or previous DVT.
5. Lower limb arterial disease.
6. Hypercoagulable status.
7. Systemic infection.
8. Morbid obesity.
9. Patients are not willing to follow up.

Table: Distribution of Varicose Systems

Varicose Systems	No Of Patients	%
Long saphenous vein	35	35.0%
Short saphenous vein	3	3.0%
Only perforator	5	5.0%

Long saphenous + perforator	57	57.0%
Total	100	100.0%

The value of z is 8.3324. The value of p is <.00001. The result is significant at $p < .05$

Table: 2 Distribution of Symptoms

Symptoms	No ofPatients	%
Pain	55	55.0%
Edema	17	17.0%
Ulcer	14	14.0%
Disfigurement	29	29.0%
Cramps	0	0.0%
Total	100	100.0%

The value of z is 8.7099. The value of p is <.00001. The result is significant at $p < .05$.

Table: 3 Distribution of Pre-Operative Complications

Complications	Right	%	Left	%	Total	%
Hemorrhage	0	0	0	0	0	0
Thrombophlebitis	0	0	1	0.78	1	0.78
Pigmentation	28	21.87	31	24.21	59	46.09
Dermatitis	13	10.16	15	11.71	28	21.87
Eczema	4	3.13	6	4.68	10	7.81
Lipodermatosclerosis	6	4.69	10	7.81	16	12.5
Ulcer	7	5.47	7	5.46	14	10.93
Equine deformity	0	0	0	0	0	0
Total	58	45.3125	70	54.6875	128	100

Chi-square Value:1.5843; P value:0.9031

Table: 4 Distribution of Post-Operative Complications

Post-Operative Complications	No Of Patients	%
Hematoma	10	46.20%
Neuritis	5	15.30%
Infection	4	30.80%
Recurrence within 6 months of surgery	7	7.70%
Total	26	100%

The value of z is 1.6628. The value of p is .09692. The result is not significant at $p < .05$

RESULT AND DISCUSSION

Women are 10 times more likely than men to have varicose veins. Only 20 patients (or 20%) of the 100 participants in this retrospective trial were female. This is because Indian women wear saree, which cover their legs all the way down to their feet, as opposed to Western women, whose costumes may expose their legs. As a result, Indian women are less worried about cosmetic disfigurement, which may explain why they seek therapy less frequently. In this study, the age incidence was highest in the group of patients aged 31 to 40, which made up 29% of patients, and was followed by the group of patients aged 41 to 50, which had 30 patients. The majority of the patients in this study (50%) were employed as farmers, and 30 additional patients admitted to having spent a daily average of 15 hours standing up. This may indicate that a protracted erect posture may be the cause of varicose veins. The long saphenous and communication system was most frequently involved among the 100 limbs examined (55 limbs, or 55%), followed by long saphenous involvement alone (40, or 40%), and short saphenous system alone (five limbs,

or 5%). It was discovered that the left side was more affected than the right side. The majority of the patients' complaints were pain, which was present in 55 limbs (55%) and was followed by deformity in 30 limbs (30%), ulcer in 13 limbs (13%) and edema in 16 limbs (16%). No patients experienced cramping. More symptoms were present in the long saphenous and communication system-involved limbs than in the other systems, and then in the long saphenous and short saphenous and long saphenous involvement-involved limbs. In a study by Mohammad A7, long saphenous and communication system involvement was detected in 118 (44%) of the 266 limbs studied, and long saphenous involvement alone was found in 56 (21%). They demonstrated that these were the most typical tendencies at play. They also demonstrated a link between severe venous illness and limbs with involvement of the communication system or the long saphenous and short saphenous. Pigmentation was the most prevalent consequence, occurring in 28 limbs (40%) of the total, followed by ulceration in 15 limbs (21.4%), dermatitis in 14 limbs (20%), eczema in 8 limbs (11.4%), and lipodermatosclerosis in 6 limbs

(8.5%). None of them had bleeding, DVT, periostitis, stiffness, or equinus. Of the different treatment options, 48 of the 70 limbs had surgery, 20 were preserved, and 2 underwent sclerotherapy. Saphenofemoral flush ligation with the stripping of LSV and subfascial ligation of perforators was the most frequently performed procedure, involving 26 limbs (54.1%), followed by saphenofemoral flush ligation with the stripping of LSV in 10 limbs (20.8%). Saphenofemoral flush ligation with stripping of LSV, saphenopopliteal junction ligation, and subfascial ligation of perforators (2%), was the least frequent procedure. All patients received routine post-operative compression to avoid hematoma formation. After being released from the hospital, it was recommended to all patients to continue using elastic crepe bandages for two months. Hemostasis was the most frequent postoperative consequence (6 limbs 12.5%), perhaps as a result of the postoperative compression bandage's sloppy application. Infection and saphenous neuritis affected 4 of the limbs. A low incidence of neuritis may be attributed to good surgical skill and the fact that the majority of patients were farmers who were unconcerned about a small loss of sensation. The good antibiotic coverage and sterile theatre practice may be to blame for the low incidence of infection. The surgical treatment for the problems worked successfully. Six of the 12 patients with varicose ulcers required grafting; the other eight recovered on their own.

CONCLUSION

A retrospective study of 100 patients hospitalized to the Adesh Institute of Medical Sciences and Research with primary varicose veins of the lower limbs found that:

1. People in the 41–50 age range are most frequently afflicted.
2. There is a clear connection between primary varicose veins and jobs that require a lot of standing.

3. Long saphenous involvement is most frequent, followed by long saphenous involvement on its own.
4. The most frequent symptom is pain.
5. Patients with long saphenous and communication system involvement or long saphenous and short saphenous system involvement experienced more symptoms than the other patients.
6. Pigmentation is the most frequent problem.
7. Surgical treatment for varicose vein complications worked nicely.
8. Surgery produces positive results.
9. Death rates are zero.

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