

A Clinical Study on Surgical Management of Primary Varicose Veins

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Abstract: The aim of study is to study the clinical presentations, surgical management and its outcome and complications associated with varicose veins in lower limbs. Patients and methods: This randomized prospective study includes 50 patients with primary varicose veins admitted in surgical units of Siddhartha Medical College/ Govt. general hospital Vijayawada from October 2015 to September 2017. Results: In the study, it was noted that the varicose veins more commonly affect the young adult and middle age population (20-60 yrs). Most of the patients were males (88%). Long saphenous vein involvement was seen in 88% of patients. A great number of patients had perforator incompetence. Sapheno-femoral flush ligation with stripping appears to be best option for LSV truncal involvement with no recurrence in followup. Conclusion: Majority of the patients with varicose veins associated with complications and surgical management with stripping of path of incompetence (i.e., LSV trunk) with incompetent perforator ligation appear to be best option for lower limb varicose veins under our settings.

Keywords: Varicose veins, Perforator ligation, Surgical management

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I. Introduction

Varicose veins and their associated symptoms and complications constitute the most common chronic vascular disorders leading to surgical treatment. —varicosity is the penalty for verticality against gravity. Though varicose veins were first recognized pre-historically, only in the present century considerable knowledge has been gained concerning the anatomy of venous system of the leg, the physiological mechanism of venous return to heart against gravity and pathology of the disorder, which has led to many newer modalities of treatment. Western studies have shown that 20% population suffers from varicose veins and 1% have skin changes preceding venous ulceration. The Edinburgh Venous study¹ (EVS)³ published in 2004 examined over 1000 adults in UK, showed that 50.3% of men and 32.2% of women had a dilated tortuous trunk of the long and/or short saphenous vein and their first or second order tributaries. The prevalence of webs or small reticular varicosities was even higher at over 80% for both males and females. Although it was previously believed that varicose veins are more common in women, few other population studies confirm that varicose veins are at least as common in men. The prevalence of varicose veins rises with age in virtually all published studies. The prevalence of varicosities in the EVS rose from 11.5% in the 18-24 years age group to 55.7% in those aged 55-64. In developing countries like India, a comprehensive study encompassing the clinical evaluation and management of varicose veins on the conventional lines seems a necessity to analyze and improve the quality of care and approach to therapy with the available resources.

II. Aim of Study

The aim of study is to study the clinical presentations, surgical management and its outcome and complications associated with varicose veins in lower limbs.

III. Objectives

1. To study the different clinical presentations of varicose veins and find out the incompetence in lower limb varicose veins.
2. To study the management of varicose veins and its outcome.
3. To study the complications associated with varicose veins in lower limbs.

IV. Materials And Methods

4.1 Source Of Data:

This randomized prospective clinical study includes patients with primary varicose veins admitted in surgical units of Siddhartha Medical college/ Govt general hospital Vijayawada from October 2015 to September 2017, who were taken for study considering the inclusion and exclusion criteria, after the clearance from the ethical committee was obtained.

4.2 Method Of Collection Of Data:

Sample size: The size of the sample is 50 patients. All the cases were admitted to the Hospital and evaluated by taking detailed history and by carrying out thorough clinical examination. The findings were recorded in a clinical proforma.

4.3 Inclusion Criteria:

Patients with the following symptoms of varicose veins: ulceration, phlebitis, bleeding, aching, skin changes or eczema, heaviness and cosmetic.

4.4 Exclusion Criteria:

1. Patients with deep vein thrombosis of calf or thigh veins.
2. Secondary varicose veins
3. Patients with varicose veins and peripheral vascular disease.

4.5 Method Of Collection of Data:

Informed consent was obtained from each patient before any investigations / interventions.

Thorough physical examination done by investigator himself by using following clinical tests:

1. Brodie Trendelenburg test
2. Multiple Tourniquet test.
3. Perthes' test
4. Schwartz's test etc.
5. Localize the site of incompetence and confirm by doing a special non-invasive gold standard technique i.e. Doppler ultra sound and also ruled out the presence or absence of deep vein thrombosis.

4.6 Surgical Treatment:

1. Trendelenburg's operation with stripping
2. Trendelenburg's operation with stripping with multiple stab avulsions of perforators
3. Sapheno popliteal ligation

V. Observations And Results

The Indian male appear to be more prone to the development of varicosity of veins of lower limb than the females.

Table 1: Sex Distribution of Patients in Present Study

No. Of Cases Studied	No. Of Cases	Percentage
Males	44	88%
Females	6	12%

In the present study, 6 cases were female out of total 50 patients. These females sought treatment for symptoms due to varicosities rather than cosmetic reasons. Indian women cover their body with saree and hence the cosmetic aspect of varicose veins seems to be of no concern in our country among females. The age distribution is characteristically between 20 - 60 years. This group includes 90% of the cases. The youngest patient is at the age of 23 years and the oldest is of 66 years of age. Occupations involving prolonged standing was noted in 56% of the patients.

Table2: Clinical Manifestations

Symptoms	Present Series	
	No Of Patients	Percentage
Prominent Veins	50	100%
Pain	43	86%
Edema	6	12%
Pigmentation	16	32%
Ulceration	14	28%

Table 3: Venous System Involved

System Involved	Limbs	Percentage
Long Saphenous Vein	42	84%
Short Saphenous Vein	2	4%
Both	1	2%
Perforators	30	60%

As the long saphenous vein extends along the whole length of the limb, it bears the brunt of the erect posture. Further, the second commonest being the known perforators, indicating that all the cases presenting to the hospital for treatment are advanced cases of hemodynamically disturbed limbs.

Table 4: Correlations between CEAP Class and Site of Incompetence

CEAP class	Limbs	Saphenofemoral incompetence	Sapheno femoral + perforator incompetence	Sapheno popliteal + perforator incompetence	Perforator Incompetence
0	-	-	-	-	-
1	-	-	-	-	-
2	23	7	12	1	3
3	3	1	1	-	1
4	10	5	3	-	2
5	14	4	8	1	1
6	-	-	-	-	-

Table 5: Surgical Procedures Performed

Surgical Procedures	Limbs	Percentage
Sffl + Strp	16	32%
Sffl + Strp + Msa	27	54%
Msa	6	12%
Spl + Msa	1	2%

SFFL – Sapheno-Femoral Flush Ligation; STRP – Stripping; MSA – Multiple Stab Avulsion; SPL – Sapheno-femoral Ligation

Table6: Post-operative Complications

Complications	Limbs	Percentage
Wound Infection	4	8%
Hematoma	5	10%
Saphenous Neuritis	0	0
Residual Varicosity	0	0

VI. Discussion

Varicose veins are common in persons, whose occupation forces them for prolonged standing, for long number of hours while executing their work. In present study 56% patients are affected by prolong standing. In the present study, the commonest symptom in 50 (100%) cases were that of dilated and tortuous veins. 43 (86%) cases had complaints of pain in the affected limb and 6(12%) cases had limb edema, venous ulcer was present in 14 (28%) of cases. These findings correlate well with other studies done by W.B. Campbell et al², with cosmetic symptoms being 90% and aching pain 57%. In this series, long saphenous vein was involved in 84% of cases (42 patients), the short saphenous vein in 4% (2 patients) and both long and short in 2% (1 patient). Mocquet³ in their study had found varicosity of long saphenous vein in 98% and only 2% in short saphenous vein. Incompetent perforator was noted in 41 (82%) cases.

Table 7: Comparison of Distribution of Incompetent perforators with other studies

STUDIES	INCOMPETENT PERFORATORS (%)
Present study	54%
Labropoulos N et al ⁴	68%

In the present study, right limb involvement of 36% and left limb involvement of 56%, favorably compares with the study conducted by A.H.M. Dur, A.J.C. Mackaay et⁵. The cause for the increased incidence of left side is not known.

Table 8: Comparison of Incidence in both limbs with other studies

Limb	A. H. M. Dur, A. J. C. Mackaay et al. ⁵	Present study
Right	48.55%	36%
Left	51.45%	56%

All the patients in the present study underwent Doppler Ultrasonography. Doppler/Duplex scanning is the primary non-invasive method of assessing chronic venous insufficiency, which has an overall accuracy of 94%. This finding is in conformity with Masuda E.M. et al⁶, where duplex scanning had an overall accuracy of 88%. Incompetent Sapheno-femoral valve is tackled by Trendelenburg-Brodie operation with flush ligation along with stripping of the long saphenous vein. Incompetent perforators were managed by excising them by multiple stab avulsions. These procedures were done in combination with other procedures depending on the venous system involved. In our series, in all patients stripping of long saphenous vein was done. No patient complained of sensory impairment of the cutaneous distribution of long saphenous nerve. Da Silva et. al.⁷, had reported sensory impairment in 6 out of 26 patients. The lower incidence of the sensory impairment in the present study may be because of the fact that our patients are mostly villagers and workers who may not be able to notice slight changes in limb sensation. Though antibiotics were routinely employed, 4 (8%) out of 50 cases had wound infection. They took 15-20 days to heal completely. 5 out of 50 patients (10%) developed hematoma. There was no incidence of deep vein thrombosis or pulmonary embolism post-operatively in our study. Complete relief was obtained in 41 out of 50 cases i.e., 82%. Defty C, Eardley N, Taylor M, et al⁸, reported around 18-20% of post op complications. There was no incidence of deep vein thrombosis or pulmonary embolism postoperatively in this series. Literature shows the incidence to be very low at 0.01%. Recurrence of incompetence was found in 5% at SFJ and 26% at SPJ. This pattern is very similar when compared to van Rij AM et al.⁹, who showed similar results. The post-operative follow-up was for one year.

VII. Conclusion

1. This study shows the distributions of varicose veins of lower limbs is more common in younger age group with male predominance. Occupation and family history are the other contributory factors.
2. Doppler ultrasound scanning is the investigation of choice.
3. Combined SFJ and perforator incompetence is more common rather than individual incompetence.
4. Trendelenburg-Brodie operation with flush ligation along with stripping of the long saphenous vein and perforator excision by multiple stab avulsions is the procedure done for effective treatment of varicose veins.
5. Hence early detection and timely proper management of the disease will reduce further morbidity.

VIII. summary

Total number of 50 cases of varicose veins of the lower limb has been studied in detail and an analysis of the data has been presented with few conclusions.

1. Varicosity of the veins of the lower limb is a fairly common clinical entity.
2. Majority of the patients presented only after complications. No patient presented solely for cosmetic concern.
3. The disease is more prevalent in active adults (80-90%). The majority of patients are males in the study.
4. The occupation that needs prolonged standing is found to be the major contributory factor (56%).
5. Hereditary factors may play an important role in development of varicose veins. In the present study 32.2% of patients gave history of a first-degree relative suffering from the disease.
6. Involvement of long saphenous system is more common.
7. Sapheno-femoral valvular incompetency (84%) associated with varicosity is the commonest valve deformity followed by Perforator incompetency (60%).
8. Left side limb varicosity (56%) is slightly more in incidence compared to that of the right side (36%).
9. Doppler scanning is most sensitive and specific non - invasive investigation in the management of varicose veins.

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