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Surgical management of varicose veins and its complications

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Abstract

Background: Varicose veins affects at least 1 out of 5 in world. Varicose veins and their associated symptoms and complications constitute chronic vascular disorders requiring surgical treatment. In developing countries like India, studies encompassing the clinical evaluation and management of varicose veins on the conventional lines seems a necessity to improve the quality of care with the available resources.

Objectives: To study the clinical presentations, surgical management and its outcome and complications associated with varicose veins in lower limbs.

Methods: A total of 30 patients with primary varicose veins were sourced from cases admitted to Kamineni Institute of Medical Sciences from October 2019 to August 2021. They were investigated, operated and followed up, and the final outcome evaluated. All the information was taken down in the proforma designed for the study.

Results: In the study, it was noted that the varicose veins affect the young adult and middle age population (20-50yrs). Most of the patients were males (60%) and majority of patients sought medical help for one or the other complications (92%). Long saphenous vein involvement was seen in 93.3% of patients and both LSV & SSV involvement in 20%. A great number of patients had perforator incompetence (80%). Duplex Ultrasound of the venous system proved to be a crucial and clinching investigation. Sapheno-femoral flush ligation with stripping was the most commonly performed surgery (46.7%), with addition of Subfascial ligation in a few cases. Most patients had uneventful recovery, with a few cases suffering complications such as hematoma, seroma and wound infection. These resolved in follow-up, however, saphenous neuritis was a persistent complication in 3 patients.

Conclusion: Majority of the patients with varicose veins were 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 vein, duplex, venous ulcer, Sapheno-femoral, perforators, Sapheno-popliteal, Incompetence, flush ligation, saphenous neuritis, complications

Introduction

Varicose veins and their associated symptoms and complications constitute the most common chronic vascular disorder of the lower limb, affecting 10% of general population [1]. The term —varicosel is derived from a Latin word —varicosusl meaning dilated. Generally, these cause no major life threatening illness and yet, the morbidity of venous diseases places a substantial burden on the community health care and results in expenditure of large sums on daily management of this problem [1].

Varicose veins are treated by conservative techniques of elasto-crepe bandaging, sclerotherapy or by surgery. Traditionally, surgery has been the most important, and many a times, the only modality of treatment for this condition. Recent years have witnessed the emergence of various techniques in the management of varicose veins. The present day situation is complex and confusing, made so by the choices available and increasingly aware patients. It is a well-known fact that no single therapy has given completely excellent results in treating either varicose veins themselves or their complications [2-4].

Also, the response to each modality of treatment is patient-based, varying with build of the patient, co-morbidities and occupation. Thus, patients often undergo different management protocols, starting with conservative management and going on to multiple surgeries.

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The Doppler ultrasound and duplex imaging has become the mainstay of investigations in the diagnosis of chronic venous insufficiency [2].

In developing countries like India, where most of the general population cannot afford expensive treatments, surgery has remained the most common mode of interventional treatment. In the past, varicose vein surgery might have been regarded as 'safe' from the medicolegal standpoint. Now it is a common source of litigation [5-6].

Complaints range from relatively minor problems such as recurrent varices, venous flares or scarring, through nerve damage, to potentially lethal pulmonary embolism, amputation because of arterial injury.

Surgeons should be aware of the pitfalls, and have an idea of the risk of the various complications. The search for more effective means of treating varicose veins and prevention and management of its complications continues and this dissertation aims at studying the clinical features, various modes of investigations, surgical management and its complications of varicose veins of lower limbs.

Aim and Objectives

1. To study the various modalities of surgical management of Varicose Veins
2. To study the management of Post-operative complications.

Materials and Methods

Source of Data: This study includes all patients admitted with lower limb varicose veins to Kaminenei Institute of Medical Sciences, Hyderabad from November 2019 to August 2021.

Sample size: Total number of patients were 30. All the cases were admitted to the hospital & evaluated by taking detailed history & by carrying out thorough clinical examination. The findings were recorded in clinical proforma.

Collection of data

Inclusion Criteria

- All patients with primary varicose veins of the lower limb due to superficial and perforator venous incompetence.
- Patients with complications like:
 - i) Thrombophlebitis
 - ii) Skin changes (lipodermatosclerosis, eczema and pigmentation)
 - iii) Ulceration
 - iv) Cellulitis

Exclusion criteria

- Secondary varicose veins
- Recurrent varicose veins
- Deep venous incompetence with varicose veins
- Varicose veins other than lower limbs.

Informed consent was obtained from each patient before any investigations. Thorough physical examination done by investigator himself by using the forementioned clinical tests and confirmed by doing special noninvasive investigations such as Duplex ultrasound.

Non-specific tests:

- Complete Blood Count
- RBS, Blood Urea, Serum Creatinine, Serum Electrolytes

- HIV, HBsAg
- ECG, Chest X-ray

Specific investigations: Venous Doppler

Treatment

Surgical Treatment: Following surgical treatment were carried out in our Institute.

- 1) Trendelenburg's operation
- 2) Striping of long Saphenous vein
- 3) Subfascial or extra facial ligation of perforators.
- 4) Saphenopopliteal junction ligation

Patients were followed up 1 month, 6 month after discharge for delayed complications and were managed accordingly.

Data Analysis

The postoperative course was noted, minor complications were attended & treated accordingly. Patients were followed up further. Final outcome evaluated. All the clinical data of each patient were recorded in the pre coded clinical proforma designed for the study. Important data pertaining to each case is shown in the master chart & the results are analyzed by comparing with standard results of known Authors. Ethical clearance was taken from our institute for the study



Fig 1: SFJ- flush ligation with ligation of tributaries



Fig 2: LSV after stripping



Fig 3: Open subfascial ligation of perforators



Fig 4: Split skin grafting for ulcer & follow up



Fig 5: Thrombophlebitis post-surgery



Fig 6: Varicose veins before and after surgery

Varicose veins is one of the commonest venous diseases among the general population, but the incidence of hospital admission does not project the true prevalence rate. The hospitalized group is only a tip of the iceberg. An epidemiological study can give its true incidence in the general population.

A total of 30 with primary varicose veins admitted in surgical ward of KIMS, Narketpally for varicose veins who required surgical management who satisfied inclusion and exclusion criteria were included in the study.

Patients were followed up at 1 month and 6 months after

discharge for delayed complications and were managed accordingly. Post-operative complications of varicose veins and their management was done.

Table 1: Sex Distribution

No. of cases studied	No. of cases	Percentage
Males	18	60%
Females	12	40%

In the present study, 12 cases were female out of total 30 patients (40%). It is very low compared to the western studies. These females sought treatment for symptoms due to varicosities rather than cosmetic reason. Most probably Indian women cover their limbs with saree and hence, they are not much bothered about the appearance of dilated veins.

The age distribution is characteristically between 20 - 50 years. This group includes 80% of cases, with the age group 21-30 years being the most affected (12 patients, 40%). The youngest patient was aged 21 years and the oldest at 68 years.

Table 2: Age Distribution

Age (years)	Number of patients	Percentage
11-20	0	0 %
21-30	12	40 %
31-40	7	23.3 %
41-50	5	16.6 %
51-60	4	13.3 %
61-70	2	6.6 %

Occupation

Occupation has a definite role to play as a causative factor. Varicose veins are common in people whose occupation demands prolonged standing. It is the part of the penalty for adopting an erect posture. In the present study, 46.6% were in occupation that required prolonged standing.

Table 3: Occupations

Occupations	No. of patients
Involving prolonged standing	14
Others	16

Occupations that required prolonged standing were found to be statistically co relating to the incidence of varicose veins. The occupations studied were agriculturist, student, house wife, vegetable vendor, driver, manual laborer, retired person, police, clerk.

Clinical manifestations

Table 4: Clinical Manifestations

Symptoms	No. of Patients	% of Patients
Prominent veins	30	100
Prominent veins and pain	15	50
Prominent veins and edema	18	60
Pigmentation and Lipodermatosclerosis	9	30
Venous ulceration	3	10
Previous history of DVT	-	-

All patients had prominent varicosities as common symptom, associated with other manifestations and complications of varicose veins. Edema was the commonest complication, occurring in 18 patients (60%) followed by pigmentation and lipodermatosclerosis (9 patients, 30%).

Patients with previous history of DVT were excluded from the study.

CEAP classification

Table 5: Clinical class of CEAP

CEAP Classification	Limbs	Percentage
Class 0	-	-
Class 1	-	-
Class 2	13	43.3
Class 3	9	30
Class 4	5	16.7
Class 5	1	3.3
Class 6	2	6.7

The majority of the patients (13, 43.3%) belonged to clinical class II of CEAP classification. The other 56.7% of patients (17 patients) had some form of complications of varicose veins.

LIMB Involvement

Table 6: Limb Involvement

Limb involved	No. of Patients	Percentage
Left	16	53.3%
Right	11	36.7%
Both	3	10%

In the present study, right limb alone was involved in 11 patients (36.7%) and the left limb alone in 16 patients (53.3%). Three patients (10%) had involvement of both limbs.

Venous system involved

Table 7: Venous system involved

System involved	Limbs	%
Long saphenous vein	28	93.3%
Short saphenous vein	10	33.3%
Both	6	20%
Perforators	24	80%

Long saphenous vein was the most commonly involved, seen in 28 patients (93.3%), followed by perforator incompetence seen in 24 patients (80%). Involvement of both the systems was seen in 20% of the patients (6 patients). Short saphenous system was involved in one-third of the patients (10 patients).

Site of incompetence

Table 8: Sites of Incompetence

Sites of incompetence	No of patients	Percentage
Saphenofemoral alone (SF)	3	10%
Saphenofemoral + perforators (SF+ Perf)	16	53.3%
Saphenofemoral + Saphenopopliteal + Perforator incompetence (SF+SP+Perf)	7	23.4%
Saphenofemoral + Saphenopopliteal incompetence (SF+SP)	2	6.7%
Saphenopopliteal incompetence (SP alone)	1	3.3%
Perforators alone (perf alone)	1	3.3%

The majority of the patients (76.6%) had sapheno-femoral and perforator incompetence. Isolated perforator incompetence was seen only in one patient (3.3%). Seven patients (23.4%)

presented with combined sapheno-femoral, sapheno-popliteal and perforator incompetence.

Sites of perforator incompetence

Table 9: Sites of perforator incompetence.

Sites of Perforator	No. of Patients	Percentage
Above knee perforators	1	4.2%
Below knee perforators	6	25%
Lower leg & Ankle perforators	5	20.8%
Multiple perforator incompetence	12	50%

Twelve patients (50%) had multiple perforator incompetence. A quarter of patients (6 patients) had below knee perforator incompetence, five patients had incompetence of lower leg and ankle perforators (20.8%) and only one patient (4.2%) had above knee perforator incompetence.

Duplex ultrasound

Table 10: Correlation between clinical examination v/s Duplex ultrasound.

Findings	Clinical Examination	Duplex USG
Sapheno-femoral incompetence	28	28
Sapheno-popliteal incompetence	7	10
Perforator incompetence		
Above knee perforator	1	1
Below knee perforator	5	6
Lower leg perforators	5	5
Multiple perforator	10	12
Deep venous thrombosis	-	-

The Duplex ultrasound was helpful in picking up 3 missed sapheno-popliteal incompetence and one below knee, lower leg perforator each, thereby making it an essential investigation.

Surgical procedures

Table 11: Surgical procedures performed

Surgical procedures	Limb	Percentage
Sapheno-femoral flush ligation + Stripping	14	46.7%
Sapheno-femoral flush ligation + Stripping + Subfascial ligation	9	30%
Sapheno-femoral flush ligation + Stripping + sapheno popliteal ligation	2	6.7%
Sapheno-femoral flush ligation + Stripping + sapheno popliteal ligation+ Subfascial ligation	4	13.3%
Sapheno popliteal ligation alone	1	3.3%

Nearly half the patients (14 cases, 46.7%) underwent saphenofemoral flush ligation with stripping of the long saphenous vein. An additional procedure, Subfascial ligation, was added in 9 patients (30%) and saphenopopliteal ligation in 2 patients (6.7%). All four procedures were combined in 4 patients (13.3%). Only one patient underwent ligation of saphenopopliteal junction alone.

Early post-operative complications

All the patients were observed in the immediate follow up period of 15 days or till suture removal (whichever was earlier) in the wards. A close watch for post-operative complications was kept and surgical wounds were inspected serially. Hematoma was observed in 3 (4.28%) patients, seroma collection in 7 (10.0%) patients. The wound got infected in 1 (3.3%) persons.

Rest of the patients had an uneventful immediate post-operative recovery.

Table 12: Early post-operative complications

Complications	No. of Patients	Percent
Wound infection	1	3.3%
Saphenous neuritis	1	3.3%
Hematoma	3	10%
Seroma	4	13.3%
Femoral vein injury	-	-
Femoral artery injury	-	-
Deep vein thrombosis	-	-
Pulmonary embolism	-	-

Follow UP

Follow up was performed at 1 month and 6 months respectively, data regarding post-operative resolution of presenting symptoms (disappeared / reduced / same / worse) and late post-operative complications (persistent oozing, stitch abscess, neuralgia, thrombophlebitis, recurrence) was collected.

Attrition

In this study during the first follow up period at 1 month, 5 (16.6%) patients were lost to follow up. The remaining 25 (83.3%) were followed up as described earlier. At 6 months, the patients lost to follow up grew to 9 (30%), hence the remaining 21 (70%) were assessed.

Table 13: Attrition at 1 month

	Number of Patients	Percentage
Followed up	25	83.3%
Lost to FU	5	16.7%
Total	30	

Table 14: Attrition at 6 months

	Number of Patients	Percentage
Followed up	21	70%
Lost to FU	9	30%
Total	30	

Post-operative complications at 1 month

Table 15: Table 15. Post-op complications at 1 month

Complications	No. of patients	Percentage
Persistent oozing	0	0
Stitch abscess	0	0
Neuralgia	4	16%
Thrombophlebitis	5	20%
Recurrence	0	0

At the follow-up at the end of one month, 9 patients were observed to have complications. These included 5 patients with thrombophlebitis (20%) and 4 patients with neuralgia (16%). They were managed conservatively and asked to return to follow-up at 6 months.

Post-operative complications at 6 months

Table 16: Post-op complications at 6 months

Complications	No. of patients	Percentage
Neuralgia	3	14.2%
Thrombophlebitis	0	0
Recurrence	0	0

At 6 months, thrombophlebitis was completely resolved in the patient. However, neuralgia was persistent in 3 patients (14.2%). Varicosity of the lower limb is a common clinical problem. Varicosities often starts early in life but assume a silent course for variable length of time, before they develop complications due to venous hypertension.

Discussion

Sex distribution

The male sex appears to be more prone to the development of varicosity of lower limb veins than the females in this series. Though the western studies show a clear female predominance (Male: Female = 1:5), the present study showed Male: Female ratio of 3:2. It may be because, they do not undergo the occupational hazards of that of males, like prolonged standing, physical stress involving increased intraabdominal pressure.

Table 17: Sex Distribution (Comparison)

Sex	No. of Patients	%	Chang CJ <i>et al.</i> (%) ^[7]	AHM Dur, AJC Mackaay <i>et al.</i> (%) ^[8]
Male	18	60%	18.12	26.66
Female	12	40%	81.88	73.24

Age distribution

The varicose veins are more predominant in the age group of 20-50 years. In the present study about 80% of patients belonged to this age group. This is also corroborated in the studies by Lateef *et al.* (65%)^[9], Fegan *et al.* (75%)^[10] and Ratkal *et al.* (72%)^[12] So it affects the bread-earning members of the family, causing socioeconomic problems. This also indicates earlier health-seeking behavior in the present generation.

Table 18: Age Distribution (Comparison Study)

Age	Lateef (1971) ^[9]	Fegan (1972) ^[10]	Ratkal (1980) ^[11]	Present series
Below 20	05%	5%	06%	0%
20 - 40	65%	75%	72%	63.3%
Above 40	30%	20%	22%	36.7%

Occupation

Varicose veins are more common in persons, whose occupation force them to stand for prolonged hours. In the present study about 46.6% of patients had occupations, which involved prolonged standing like farmer, policemen, bus driver etc.

Table 19: Comparison study of occupation versus varicose veins

Occupation	Lateef (1971) ^[9]	Ratkal (1980) ^[5]	Present series
Occupation involving prolonged standing	35%	44%	46.6%

Clinical features

Almost all the patients (100%) had prominent veins as the presenting complaint. Pain was present in about 50% of patients, edema in 60% of patients, pigmentation and lipodermatosclerosis in 30% of patients and venous ulceration in 10% of patients. Cosmetic appearance was the commonest complaint which favors with the other comparative studies. Uniformly, edema was the second most common presenting feature in all studies, after prominent veins.

Table 20: Comparison of incidence of Clinical Features

Symptoms	Present series		Rudofsky G.	O'
	No of patients	% C	Langenbecks Arch Chir (%) [12]	Shaughnessy M <i>et al.</i> (%) [13]
Prominent veins	30	100	90	92
Prominent veins and pain	15	50	30	54
Prominent veins and edema	18	60	52	62
Pigmentation and Lipodermatosclerosis	9	30	13	22
Venous ulceration	3	10	9	14
Previous history of DVT	-	-	-	5

Ceap classification

The majority of the patients came to the hospital to seek treatment had one or the other complications of varicose veins (62%). 38% of the patients had only prominent veins, which belong to class II.

Limb involvement

In the present study, right limb involvement in 36.7%, left limb involvement in 53.3% was noted. Bilateral limb involvement was seen in 10% of patients. The cause for the increased incidence of left side is not known. This is probably because the loaded left colon constantly compresses the left iliac veins, the left common iliac artery crossing over the left common iliac vein and the longer course traversed by the left iliac veins. This favorably compares with the study conducted by A.H.M. Dur, A.J.C. Mackaay *et al.* [8]

Table 21: Comparison of limb involvement

Limb involved	Present Series		A.H.M Dur, A.J.C. Mackaay <i>et al.</i> , [8]
Left	16	53.3%	56.42%
Right	11	36.7%	43.48%
Both	3	10%	-

Venous system involved

Long saphenous vein was involved in 93% of patients, the second commonest being perforators which were involved in 80% of patients. Short saphenous veins was involved in about 33.3% of cases. Majority of the patients had combined saphenofemoral and perforator involvement. Similar results were observed in the study by Al- Mulhim *et al.* [14] at King Fahad Hospital

Table 22: Comparison of Venous System involved

System involved	Limbs	%	Al- Mulhim <i>et al</i> King Fahad Hospital (%) [14]
Long saphenous vein	28	93.3%	68.42%
Short saphenous vein	10	33.3%	7.02%
Both	6	20%	24.56%
Perforators	24	80%	87.29%

Site of incompetence

Majority of the patients had combined saphenofemoral and perforator incompetence (53.3%). Isolated perforator insufficiency was noted in only 3.3% of patients. Combined saphenofemoral, saphenopopliteal and perforator incompetence was seen in 23.4% of patients.

Site of perforator incompetence

Around 50% of the patients had multiple perforator incompetence. Patients who had multiple perforator incompetence had one or the other complications of varicose veins. Isolated above knee perforator incompetence was seen in

only one patient, below knee perforator incompetence was seen in 25% of patients and isolated lower leg and ankle perforator incompetence was seen in 20.8% of patients. The results observed were similar to study by Labropoulos *et al.* [15]

Table 23: Comparison of Perforator Incompetence

Studies	Incompetent perforator (%)
Present study	80%
Labropoulos N <i>et al.</i> [13]	68%

Investigations

Apart from the routine investigations all the patients underwent duplex ultrasound of the venous system of lower limbs. This investigation was required to accurately locate the incompetent perforator, to rule out deep venous thrombosis and to mark the site of perforator incompetence before surgery.

Treatment

Treatment was dependent upon the individual cases. The patients with complications were categorized separately and treated accordingly.

- Venous ulcers:** Bisgaard's method of treatment was followed till the ulcer healed and then the patient was subjected to further definitive treatment.
- Skin changes (lipodermatosclerosis, eczema and pigmentation):** Dermatological opinion was taken and patients were managed conservatively with steroid cream, calamine lotion and anti-histamines to prevent itching.
- Thrombophlebitis:** This was treated with firm compression bandage and encouraging the patient to walk and IV or SC heparin until the pain subsided. The patient was operated after the symptoms resolved.
- Cellulitis:** The patients were advised anti-edema measures like regular glycerine-MgSO₄ dressings, limb elevation, antibiotics and analgesics

Incompetent saphenofemoral valve is tackled by Trendelenburg operation with flush ligation of saphenofemoral junction and stripping of long saphenous vein. Saphenopopliteal incompetence was tackled by saphenopopliteal junction ligation. Incompetent perforators were managed either by Subfascial or extra-fascial ligation or multiple stab avulsion. These procedures were done individually or in combination with other procedures depending on the venous system involved and complaints that the patient presented with.

In this present study Sapheno-femoral flush ligation + Stripping (SFFL + STRP) was performed in 46.7% of patients, Sapheno-femoral flush ligation + Stripping + Subfascial ligation (SFFL + STRP + SFL) was performed in 30% of patients, Sapheno-femoral flush ligation + Stripping + Sapheno popliteal ligation (SFFL + STRP + SPL) was performed in 6.7% of patients, Sapheno-femoral flush ligation + Stripping + Sapheno popliteal ligation + Subfascial ligation (SFFL + STRP + SPL + SFL) was performed in 13.3% of patients, Sapheno popliteal ligation

(SPL) alone was performed in .3% of patients. Skin grafting was done in 2 patient for venous ulcer and follow-up was done

Table 24: Comparative study of treatment of varicose veins

Procedures	Present study	S.K. Sahu, S.Bhushan, P.K. Sacha, 2012 ^[16]
Trendelenburg operation	46.7%	42.85%

Complications

Patients were observed for complications both intraoperatively and postoperatively. Surgical outcomes were collected at pre-determined intervals, and were sorted as those recorded before the discharge of the patient, at 1 months and at 6 months. Similar grading of resolution of pre-operative symptoms was graded as disappeared, reduced, same or worse, was done by the patient. Complications were keenly searched for, observed, recorded and followed up during further visits.

Early post-operative complications

Early post-operative complications such as hematoma, seroma and wound infection were looked into when the patient was still admitted in the wards. Wound infection was observed in 3.3% of patients, Hematoma was observed in 10% of patients, saphenous neuritis was observed in 3.3% of patients, and seroma was observed in 13.3%. None of our patients had femoral vein injury, Femoral artery injury, deep vein thrombosis or pulmonary embolism. Complications though rare, do occur, and seroma was the most common one.

Sutures were removed at 7 to 10 days and patients discharged according to their status.

Table 25: Haggmuller G.W and Langenbecks Archchis study ^[17]

Complications	Percentage	Present study
Femoral vein injury	1%	0%
Femoral artery injury	0.02%	0%
Deep vein thrombosis	0.15%	0%
Pulmonary embolism	0.06%	0%

In the present study some minor complications occurred which were managed conservatively. The study conducted by Haggmuller G.M. ^[17] showed incidence of some major complications which are very rare and none of which occurred in the present study group.

Post-operative symptoms, follow up and complications

This aspect of the study was designed to look for resolution of pre-operative symptoms and complications, if any that occur after surgery and was assessed as mentioned before at 1 and 6 months intervals.

During the follow up visits, the results were divided into complications, and resolution of pre-operative symptoms. Each was scored and then graded, so as to form different categories.

Attrition

Attrition or loss of patients to follow up, is a known phenomenon. In this study during the first follow up period at 1 months 5 (16.6%) patients were lost to follow up. The remaining 25 (83.3%) were followed up as described earlier. At 6 months the patients lost to follow up grew to 9 (30%), hence the remaining 21 (70%) were assessed.

The probable reason behind this could be explained by the fact that the study population was mainly comprised of daily wage workers hailing from a low socio- economic strata of the society.

Regular follow up would mean loss of daily wages. Other plausible explanation could be disappearance of symptoms preventing the patient from reporting for follow up. Other known causes for attrition like death, change of address etc. could also be held responsible.

Follow UP

1. Follow up at 1 month

At 1 month, 6 (20%) of the patients had disappearance of their pre-operative symptoms. The complications looked for were persistent oozing, stitch abscess, neuralgia, thrombophlebitis and recurrence. Thrombophlebitis, noted in 5 patients (20%), was treated with compression stockings and mobilizing the patient. Neuralgia was seen in 4 patients (16%) and was treated with cobalamin capsules.

Neuralgia is one of the common complications arising after surgery, it is associated with stripping of the GSV and more so when the stripping is performed below knee. It occurs due to the inadvertent injury to saphenous nerve while stripping below knee. None of the patients developed recurrence.

2. Follow up at 6 months

At 6 months, the patients who claimed total resolution of symptoms rose to 14 (46.7%) and those who perceived a reduction in symptom intensity were 7 (23.3%). None of patients had worsening of their symptoms.

As mentioned earlier the most common symptom of pain is due to the venous reflux, hence surgical treatment of reflux causes marked improvement of symptoms.

Complications looked for were Neuralgia, Thrombophlebitis and Recurrence. There was complete resolution of symptoms in patients who previously had Thrombophlebitis. Neuralgia was seen to be persistent in 3 patients (10%). Persistent symptoms that caused morbidity and loss of livelihood were treated aggressively with physical therapy, medications like amitriptyline or nortriptyline, which are effective in treating nerve pain and narcotic pain medications for the short-term like codeine.

Patients were advised elastic compression stockings for 1 year post operatively. None of the patients developed recurrence.

Conclusion

In this study of 30 patients (and 33 limbs) conducted in KIMS, Narketpally between November 2019 – August 2021, the following conclusions were drawn:

1. Our study shows that the prevalence of varicose veins of lower limbs is more in people of younger age group.
2. Males are more commonly affected than females.
3. Occupations involving prolonged standing are an important predisposing factor in the development of lower limb varicose veins.
4. The great saphenous and the communicating systems are most commonly involved, followed by great saphenous system alone.
5. Most of the patients had dilated veins as presenting symptom.
6. Duplex ultrasonography is the investigation of choice.
7. Long standing varicosities will have associated complications like ulceration, edema and thrombophlebitis.
8. Trendelenburg operation with stripping is very effective in the treatment of varicose veins.
9. Bisgaard's method of treatment is effective for healing ulcers.
10. Complications due to surgery were mainly wound infection,

wound dehiscence, hematoma formation and saphenous neuritis.

11. Seroma is the most common early post-operative complication.
12. There is a significant improvement in the symptoms post operatively. Patients with GSV involvement had the maximum resolution of symptoms.
13. Postoperative neuralgia is the other common complication. It is associated with stripping of GSV.
14. Most of the postoperative complications can be managed conservatively and they show excellent resolution with time.
15. None of the patients had life threatening or major debilitating complications.
16. Mortality was nil in this study.
17. None of the patients had recurrence.

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