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Outcome of Long Saphenous Vein Stripping and Multiple Phlebectomy for Treatment of Varicose Vein and Venous Ulcer

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Abstract: Background: Long saphenous vein stripping and multiple phlebectomy in leg is a classical surgical procedure for varicose vein. This operation consists sapheno-femoral junction ligation, long saphenous vein stripping and multiple ligation-avulsion of leg varicose veins. Endo-venous laser ablation, endo-venous radiofrequency ablation and sclerotherapy are minimal invasive technique for varicose vain. Many studies have shown that open surgery is still superior to minimal invasive techniques as postoperative recurrence is concerned. Minimal invasive technique is not available in many centers. It is expensive also. We presented outcome of this classical surgery for chronic venous insufficiency in lower limb and venous ulcer. **Materials and method:** We operated 59 limbs with varicose veins from 2015 to 2025 for a period of 10 years. We operated 48 patients with 59 lowers limbs. Seven of them presented with venous ulcer. All were evaluated by duplex imaging before surgery. Stripping of long saphenous vein and multiple ligation-avulsion of leg varicosities were done for all patient. Eleven of them had excision of short saphenous vein for short saphenous incompetence. They were followed for a period of one year. **Results:** 56 limbs had complete recovery from varicose vein. Venous ulcers have completely within 8 weeks. Two limbs developed deep vein thrombosis and was treated by Warferine. There were a single recurrence in one limb. **Conclusion:** Classical long saphenous vein stripping with multiple phlebectomy in leg has excellent outcome even in presence of venous ulcer. It has minimum recurrence. It is cheap compared to endo-venous procedure. Despite slightly more postoperative complication it is still gold standard treatment of varicose vein and its complication.

Keywords: Varicose vein, venous ulcer, Long saphenous vein stripping, multiple phlebectomy, recurrence.

INTRODUCTION

Varicose veins (VV) are defined as dilated tortuous veins in a subcutaneous plane, in an erect posture, due to reflux of blood from deep venous system to superficial venous system

in lowers limbs. These dilatation of veins and venous insufficiency occur due to incompetent valves in the superficial veins itself and also due to incompetent valves between superficial and deep venous system. Valve between long saphenous vein (LSV) and femoral vein is often found to be incompetent. This is called sapheno-femoral incompetence (SFI). As a result, LSV is more frequently affected. Sometimes short saphenous vein (SSV) is also involved due to sapheno-popliteal incompetence (SPI).

Patients with varicose veins usually present with dull pain in the leg, ugly-looking veins or ankle edema. Global prevalence of varicose veins is 10% to 30%.[1] Females have more incidence of VV compared to male (50% vs 30 %).[2] Profession which requires prolong standing posture are likely to have this condition. Untreated varicose vein may present with venous ulcer, (Fig-2,3) lipo-dermato-sclerosis, (Fig-1) pigmentation, eczema, bleeding, thrombophlebitis. [3] Traditionally, Trendelenburg test was used to locate perforators and sapheno-femoral and sapheno-popliteal incompetence. This test is often unreliable. Duplex imaging is used for accurate location of perforators and incompetent valves. Duplex imaging is an essential test to confirm patency and function of deep venous systems before embarking on surgical procedure.

There is still no consensus among surgeons regarding the treatment of VV. Various modalities of treatment are available. Compression stockings, foam sclerotherapy, radiofrequency ablation, and endo-venous laser therapy are used for managing VV [4-11]. However, the gold standard treatment of VV still is flush ligation of the long saphenous vein at sapheno-femoral junction and stripping of incompetent veins with ligation-avulsion of dilated leg varicosities. [12,13] In recent days, endo-venous laser ablation has gained popularity as it is a minimal invasive technique and it gives good cosmetic outcome. Multiple studies have shown that Classical long saphenous vein stripping is superior to Endo-venous laser treatment as far as recurrence is concerned. (Table-3)

MATERIALS AND METHOD

We collected data of varicose vein surgery on 48 patients from January 2015 to January 2025 for a period of 10 years. 59 limbs of 48 patients were operated. Eleven patients had bilateral varicosities. Out of 48 patients 41 were male and 7 were female. All patients were admitted through out-patient department with varicose vein or with its complication. Eight of them presented with venous ulcer. Patients were evaluated by duplex imaging before surgery. This test was done to find out SFI and SPI, location of perforators in leg and patency of deep veins. Stripping of long saphenous vein and multiple ligation-avulsion of leg varicosities were done for all patients.(Fig-4) Twelve patients had excision of short saphenous vein for short saphenous incompetence detected on duplex imaging. (Table-1) They were followed for a period of one year to see the recurrence and post-operative complications.

Table-1

Materials and method

Male/female ratio	41:7
Age range	18-52 years
Unilateral/bilateral=total	37/11=59 limbs
Venous ulcer	8
LSV+SSV	59+12

Fig-1: Varicose vein with lipo-dermato-sclerosis

Fig-2: Venous ulcer

Fig-3: Extreme varicosities

Fig-4: LSV stripping

RESULTS

53 limbs had complete recovery from varicose vein. Limbs with varicose ulcer healed completely within 8 weeks. Two limbs developed deep vein thrombosis and was treated by Warferine. There was a single recurrence in one limb. This patient came with persisted pain the leg. Duplex imaging revealed presence of intact LSV. This recurrence was due to missed LSV. She was re-operated and became alright after second surgery. Eight patients with venous ulcer got complete healing of their ulcer after surgery. Again, three patient developed leg ulcer at the surgical site. But all of them healed on application of gradual compression stocking. (Table-2)

Table-2

Summery of outcome

Average healing time	**50±7 days**
Post operative DVT	**2**
Post operative ulcer	**3**
Recurrence(due to missed LSV- re-operated)	**1**
Healed without complication	**53 limbs**

DISCUSSION

Several minimally invasive techniques have been developed to treat varicose veins. Recent innovations have also improved efficacy and patient comfort. Currently, conventional open varicose vein surgery, such as high ligation and stripping of the saphenous vein, has been replaced by endo-venous ablation.[14,15] A recent, well-designed systematic review evaluating endo-venous ablation and open surgical interventions found that primary failure and recurrence in endo-venous laser ablation (EVLA) and radiofrequency ablation (RFA) were not significantly different compared to surgery.[16] (Table-3)However, it was suggested that the incidence of reflux in tributaries and neovascularization might differ between the procedures. More reflux may occur in the tributaries in the procedures without sapheno-femoral ligation and more neovascularization may follow sapheno-femoral ligation. This may influence the long-term effectiveness of endo-venous techniques and surgery in addition to primary failure.[17] A metanalysis identified 18 publications (10 randomized controlled trials) with a total of 1936 patients.[16] There was no significant difference in procedural time, recovery time, recurrences between surgery and laser ablation after 1, 2, and 5 years follow up. Technical failures were more common in EVLA, whereas postoperative complications were more common in the surgery.[17] In our setting we found than surgery is 50% cheaper than EVLA procedure. EVRA is not available at all. Again, endo-venous procedures are not recommended when patient has hyper-cogulable state, pregnancy, peripheral vascular disease, bedridden patients, leg infection and tortuous saphenous vein.[17]The study

suggested that cost-effectiveness needed to be assessed at the hospital level before choosing the best modality for a patient.

Table-3

Three procedure compared

	Median time to normal function (days)	Recurrence
Stripping	4	4%
Laser ablation	2	5.8%
Radiofrequency ablation	1	4.8%

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CONCLUSION

Classical long saphenous vein stripping and multiple phlebectomy in leg is very effective in treating varicose vein and venous ulcer. It has minimum recurrence. Post-operative complications, if occurs, can be successfully treated. It is cheap compared to endo-venous procedure.

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