



“COMPARISON OF VARIOUS MODALITIES OF TREATMENT OF VARICOSE VEINS OF LOWER LIMB”

**Dr. Kondakrindi Rameshkumar Reddy\***

General Surgery Department, Bhagwan Mahaveer Jain Hospital, Bangalore. \*Corresponding Author

**Dr C.r.chhallani**

HOD & Professor of General Surgery Department, Bhagwan Mahaveer Jain Hospital, Bangalore.

**KEYWORDS :**

**OBJECTIVES OF THE STUDY**

- To study various surgical modalities of treatment and effectiveness of each modality.

**MATERIALS AND METHODS:**

**Study Area:**

- The present study is a prospective study conducted in BHAGWAN MAHAVEER JAIN HOSPITAL , BANGALORE between 2017 to 2019 over a period of 2 years.

**Sample size:**

- Total numbers of patients studied were 150 (183 limbs) .

**INCLUSION CRITERIA :**

- All patients admitted with lower limb varicose veins in hospital
- Patients aged 18 to 70 years
- CEAP: C1-C6

**EXCLUSION CRITERIA**

- Patients aged below 18 and above 70 yrs
- Patients in the outpatient department.
- DVT patients
- Anaphylaxis to sclerosants
- Bad medical status
- Pregnancy status
- Infected venous ulcer
- Venous malformations
- Varicose veins other than lower limb
- Medical treatment
- Management of leg ulcers

**In our study, MATERIALS USED are-**

Sclerosant : STDS (FOAM)  
Stripper : Plastic stripper  
Laser : 1020 nm  
Radiofrequency : 120J per 20 secs

All the clinical tests were applied & subjected to duplex USG to confirm the diagnosis. The patients underwent treatment based on their clinical and investigational profile. The post-operative course was noted the and were followed up.

**Data Analysis :**

**Study design:**

An observational clinical study

**Statistical Methods:**

Descriptive and inferential statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean +/-2 SD (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5 % level of significance.

Student t test (two tailed, dependent) has been used to find the significance of study parameters on continuous scale with in each group. Paired Proportion test has been used to find the paired significance.

**Significant figures :**

- + Suggestive significance (P value: 0.05 < P < 0.10)
- \* Moderately significant (P value: 0.01 < P < 0.05)
- \*\* Strongly significant (P value : P < 0.01)

**STATISTICAL SOFTWARE:**

The Statistical software namely SAS 9.2, SPSS 15.0, Stata 10.1, MedCalc 9.0.1 ,Systat 12.0 and R environment ver.2.11.1 were used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc.

**SALIENT FINDINGS:**

- Varicose veins, though a common condition many a times remain asymptomatic. In developed countries patient turn up for cosmetic reasons but in India complications brings the patients to the doctor.
- Total numbers of 150 patients were studied & underwent treatment based on their clinical and investigational profile, all patients were followed up and final outcome
- Almost all patients involved in this study had prominent veins. But majority of the patients presented with complications and advanced hemodynamical changes (Oedema, pigmentation & ulcer).
- Long saphenous vein was involved both alone & combinedly in 96.7% of the cases and only 3.3% patients had sapheno-popliteal incompetence.
- In present study most of the patients presented with saphenofemoral incompetence and combined perforator and saphenofemoral incompetence.

**In all patients routine Duplex USG was done, and has been found to have impotent role in accurate diagnosis of valvular as well as perforator incompetency and routine preoperative duplex examination lead to improved surgical result and lower recurrence rates.**

- Management of the varicose veins depends on individual case, incompetent perforators are tackled by foam sclerotherapy and for the saphenofemoral incompetence , Endovenous procedures , Trendelenberg operation and stripping of GSV was done. Only three patients, presented with recurrent varicosities, who underwent perforator ligation & multiple stab avulsion. This shows the impotence of perforators and accurate diagnosis of their dysfunction and management to prevent recurrence.

**Table 1 : FS procedure done**

FS	No. of patients	%
Not underwent (-)	31	20.7
Underwent (+)	119	79.3
Total	150	100.0

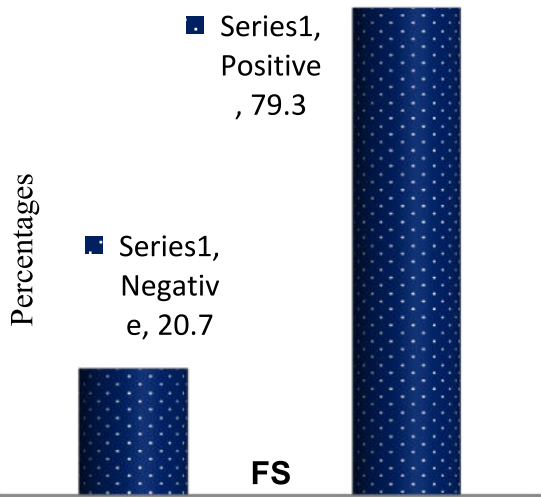


Fig 1 : FS procedure done

Table 2: EVLT of patients studied

EVLT	No. of patients	%
Not underwent (-)	107	71.3
Underwent (+)	43	28.7
Total	150	100.0

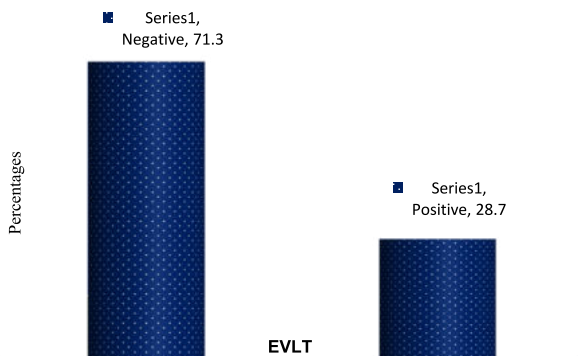


Fig 2 : EVLT of patients studied

Table 3 : RFA of patients studied

RFA	No. of patients	%
Not underwent (-)	107	71.3
Underwent (+)	43	28.7
Total	150	100.0

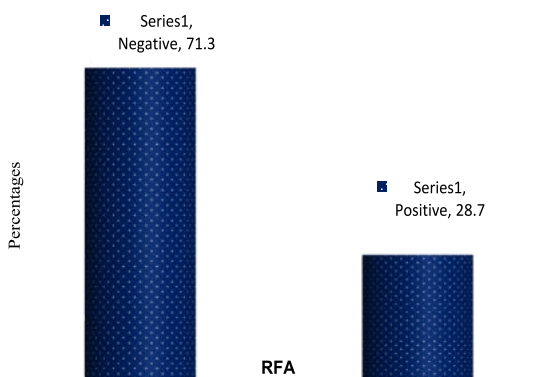


Fig 3: RFA of patients studied

Table 4 : Ligation Stripping of patients studied

Ligation Stripping	No. of patients	%
Not underwent (-)	115	76.7
Underwent (+)	35	23.3
Total	150	100.0

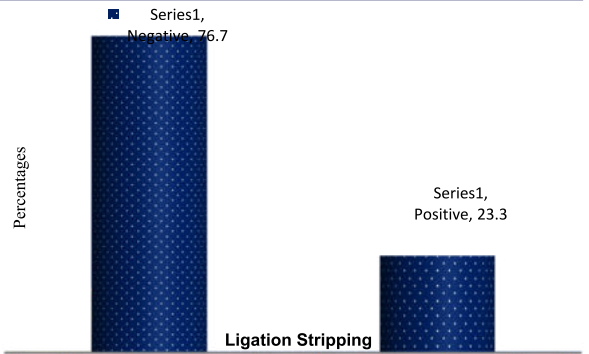


Fig 4: Ligation Stripping of patients studied

Table 5: SPJL + SSV of patients studied

SPJL+SSV	No. of patients	%
Not underwent (-)	130	86.7
Underwent (+)	20	13.3
Total	150	100.0

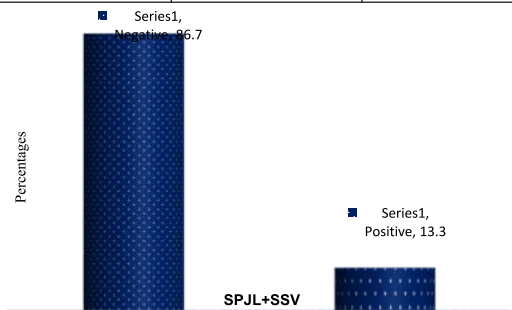


Fig 5 : SPJL + SSV of patients studied

Table 6: AL of patients studied

AL	No. of patients	%
Not underwent (-)	145	96.7
Underwent (+)	5	3.3
Total	150	100.0

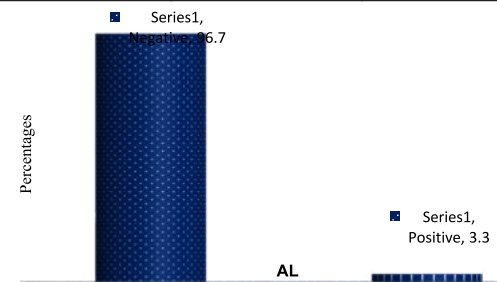


Fig 6 : AL of patients studied

Table 7 : CPT of patients studied

CPT	No. of patients	%
Not underwent (-)	13	8.7
Underwent (+)	137	91.3
Total	150	100.0

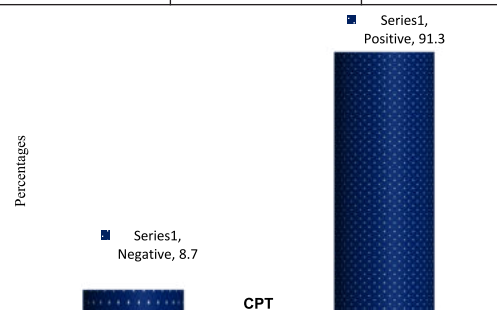
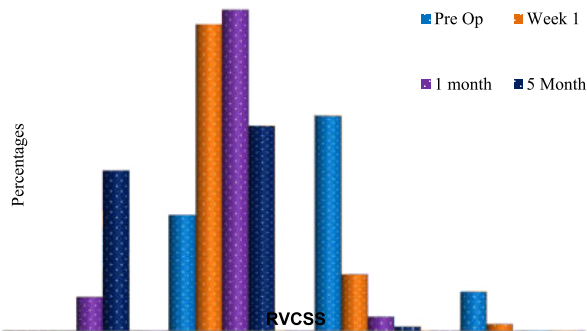


Fig 8 : CPT of patients studied

**Table 9: RVCSS: An Evaluation**

RVCSS	Pre Op	Week 1	1 month	5 Month	% change
0	0(0%)	0(0%)	14(9.3%)	65(43.3%)	43.3%
1-5	47(31.3%)	124(82.7%)	130(86.7%)	83(55.3%)	24.0%
6-10	87(58%)	23(15.3%)	6(4%)	2(1.3%)	-56.7%
11-20	16(10.7%)	3(2%)	0(0%)	0(0%)	-10.7%
Total	150(100%)	150(100%)	150(100%)	150(100%)	0.0%

Improvement at 67.3% is statistically significant with P<0.001\*\* (Paired Proportion test)



**Fig 9 : RVCSS: An Evaluation**

**CONCLUSIONS:**

- Duplex USG is the investigation of choice.
- Many patients simply require reassurance, and a thorough discussion of options at the primary care level may circumvent unnecessary, delayed referral at a later stage.
- Compression stockings alone may be appropriate for patients who are too unfit for intervention or those who do not wish to have any form of surgical intervention.
- Minimally invasive treatment options such as injection sclerotherapy and endovenous modalities are becoming increasingly popular and have shown equivalence in short term outcomes.
- Conventional open surgery has also improved, with better outcomes due to detailed pre-operative duplex mapping of affected veins and smaller incisions.
- RF ablation is associated with less pronounced post procedural pain syndrome compared with EVLA
- Occlusion rates of main trunks and recanalization rate of the target vein are not significantly different in follow-up among endovenous procedures
- Improvement of RVCSS scores and clinical severity scores was noted after treatment with RF ablation compared with EVLA procedure, though clinical significance of this difference is quite low
- EVLA & RFA provides an excellent alternative to conventional surgery in the treatment of symptomatic varicosities due to an incompetent GSV with SFJ.
- ENDOVENOUS and OPEN surgery provide similar Quality of Life and clinical improvements in patients with varicose veins. Standard surgical treatment of varicose veins however, is associated with QoL limitations in the early postoperative period. ENDOVENOUS has been shown to remove the QoL limitations experienced by patients in the early surgical postoperative period.
- The hope (or assumption) is that the less invasive interventions would lead to a reduction in complications, length of hospital stay, and cost.
- Not every patient or every varicose vein will be suitable for endovenous ablation; therefore surgery would still play an important role in management of varicose veins. The growth in the use of foam sclerotherapy, means that there is yet another tool for the treatment of suitable veins and patients.
- In spite of its current status as gold standard, it is inevitable that the role of standard surgery in the

treatment of lower limb varicose vein will shrink significantly in the nearest future, in line with the expansion of minimally invasive techniques.

**11. RECOMMENDATIONS:**

1. Thorough history and detailed clinical examination are essential to make the diagnosis and site of incompetence
2. Duplex USG is the most sensitive and specific investigation in the management of varicose veins and to be used in all cases for accurate diagnosis.
3. Foam sclerotherapy is best for perforators and can be done on OPD basis and recommended for perforators incompetence.
4. Surgery is the primary modality of treatment for varicose veins, stripping along with the saphenofemoral flush ligation is superior to the Trendelenberg surgery.
5. Endovenous techniques (endovenous laser and radiofrequency ablation) have replaced the surgeries as these are minimally invasive, can be performed as an out patient and patient can return to normal activity soon after the treatment.

**REFERENCES**

1. O'Hare JL, Parkin D, Vandenbroeck CP, Eamshaw JJ. Mid term results of ultrasound guided foam sclerotherapy for complicated and uncomplicated varicose veins. Eur J Vasc Endovasc Surg 2008;36:109-13.
2. Cavezzi A, Tessari L. Foam sclerotherapy techniques: different gases and methods of preparation, catheter versus direct injection. Phlebology 2009;24:247-51.
3. Guex JJ. Complications and side-effects of foam sclerotherapy. Phlebology 2009;24:270-4.
4. Munavalli GS, Weiss RA. Complications of sclerotherapy. Semin Cu- tan Med Surg 2007;26:22-8.
5. Bush RG, Derrick M, Manjoney D. Major neurological events following foam sclerotherapy. Phlebology 2008;23:189-92.
6. Picard C, Deltombe B, Duru C, Godefroy O, Bugnicourt JM. Foam sclerotherapy: a possible cause of ischaemic stroke? J Neurol Neuro- surg, Psychiatry 2010;81:582.
7. Goren G, Yellin AE. Minimally invasive surgery for primary varicose veins: limited invaginated axial stripping and tributary (hook) stab avulsion. Ann Vasc Surg 1995;9:401-14.
8. Oesch A. "Pin-stripping": a novel method of atraumatic stripping. Phlebology 1993;4:171-3.
9. Lurie F, Creton D, Eklof B, Kabnick LS, Kistner RL, Pichot O, et al. Prospective randomized study of endovenous radiofrequency obliteration (closure procedure) versus ligation and stripping in a selected patient population (EVOLVE Study). J Vasc Surg 2003;38:207-14.
10. Lurie F, Creton D, Eklof B, Kabnick LS, Kistner RL, Pichot O, et al. Prospective randomised study of endovenous radiofrequency obliteration (closure) versus ligation and vein stripping (EVOLVE): two-year follow-up. Eur J Vasc Endovasc Surg 2005;29:67-73.
11. Enzler MA, van den Bos RR. A new gold standard for varicose vein treatment? Eur J Vasc Endovasc Surg 2010;39:97-8.
12. Bergan JJ. Varicose veins: hooks, clamps, and suction: application of new techniques to enhance varicose vein surgery. Semin Vasc Surg 2002;15:216.