

A Prospective Comparative Study of Radio Frequency Ablation versus Subfascial Endoscopic Perforator Surgery for the Treatment of Varicosities in Varicose Veins Patients

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Abstract: *Introduction:* Dilated & tortuous subcutaneous veins 3mm or more in diameter are known as varicose veins. When perforating veins become incompetent, it causes chronic venous insufficiency. Majority cases are managed conservatively. Cases with significant skin changes and ulcers, requires surgical procedures. *Aim and Objectives:* Aim: To compare the radiofrequency ablation (RFA) versus subfascial endoscopic perforator surgery (SEPS) in the treatment of varicose veins. Objective: 1) To compare the change in clinical severity of the disease after 4 weeks of the surgery using Venous Clinical Severity Score (VCSS). 2) To compare the rate of complications in RFA and SEPS. *Methods:* A prospective comparative study of 30 patients of varicosities, divided into two groups, A and B according to CEAP classification were assessed for VCSS preoperatively. They underwent radiofrequency ablation (RFA) and subfascial endoscopic perforator surgery (SEPS) respectively and postoperative VCSS was calculated at follow up at 4 weeks. Collected data was assessed for the change in clinical severity of the disease and compared for the complications of both surgical methods. *Results:* The mean difference of pre op and post op VCSS in patient treated by RFA is 6.0 and the mean difference of pre op and post op VCSS in patient treated by SEPS is 5.4. Post RFA complications include pain (20%) and ecchymosis (13.3%). Paraesthesia and DVT was not noted.

Keywords: Radio Frequency Ablation, Subfascial Endoscopic Perforator Surgery, Varicose Vein

1. Materials and Methods

- This study is a fixed duration study (1st Nov. 2021 to 31st July 2022) where whatever number of patients (with both truncal and perforator incompetency) we will get will become the sample size of the study.
- Patient's history will be first taken and then they will be examined clinically according to the CEAP classification, and we will clinically confirm the truncal and perforator incompetence.
- Patients will be then assessed by venous duplex study and the sites of incompetent perforators as well as truncal varicosities will be marked.
- Diagnosis will be confirmed and patients will be divided into two groups by random allocation of numbers to the patients i.e. Group A and Group B (both having C2 and above, Ep, Ap, Pr.) where group A will be treated by RFA and group B will be treated by SEPS.
- Pre op VCSS will be done and then actual plan of treatment will be employed.
- After 4 weeks of surgery, patients will be followed up with Postop VCSS to compare the change in the clinical severity of disease.
- Appropriate statistical tests will be then applied to obtain the results.

2. Results

1) Age wise distribution

In this study, age varies from 18 to 75 yrs. 1 cases was in the age range of 18 – 20 years, 6 (20%) were in between the age ages of 21 to 40 yrs, 15 (49.99%) were found to be in the age group of 41 – 60 yrs and 8 (26.66%) cases were aged more than 61 yrs.

In our study, more than half (17 pts.) of the study population (56.67%) were in the age group between 30 to 60 years.

Sr. No.	Age in Years	No. of Cases	% of Cases
1	18-20	1	3.33
2	21-30	3	10
3	31-40	3	10
4	41-50	11	36.66
5	51-60	4	13.33
6	> 61	8	26.66

1) Sex Distribution

In this study, out of 30 cases, 21 (70%) were males and 9 were (30%) females.

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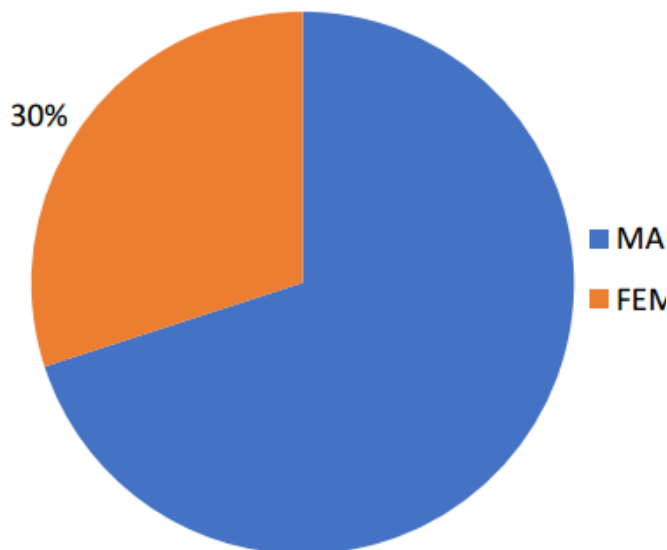
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Table 2: Sex Distribution

Sr. No.	Sex Distribution	No. of Cases	% of Cases
1	Male	21	70
2	Female	9	30

• Pie Chart (2) showing Sex Distribution

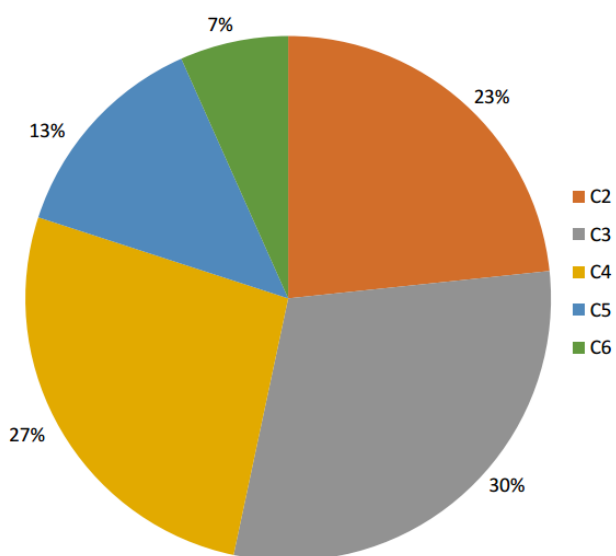
Sex distribution



3) Distribution according to CEAP classification

Out of 30 cases, 16 of the cases presenting with perforator incompetence were in the CEAP classification of C class 2 and 3 (53.33%), 8 cases were in class 4 (26.66%) and 6 cases were class 5 and 6 category (19.99%) with ulcer.

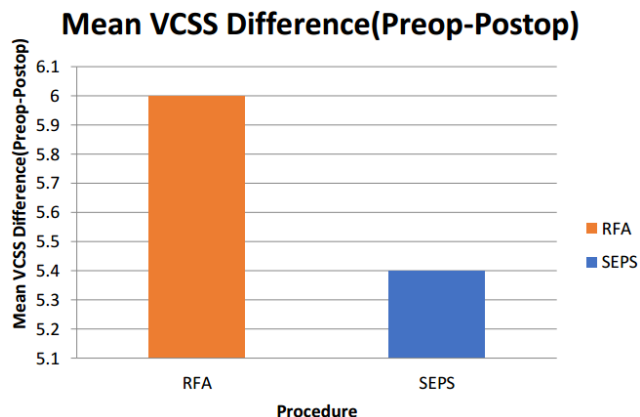
CEAP Classification



(4) Mean Pre op and post op VCSS difference

In the present study, the mean VCSS difference of pre op VCSS and post op VCSS in patient who underwent RFA is 6.0 and the mean VCSS difference of pre op VCSS and post op VCSS in patient who underwent SEPS is 5.4.

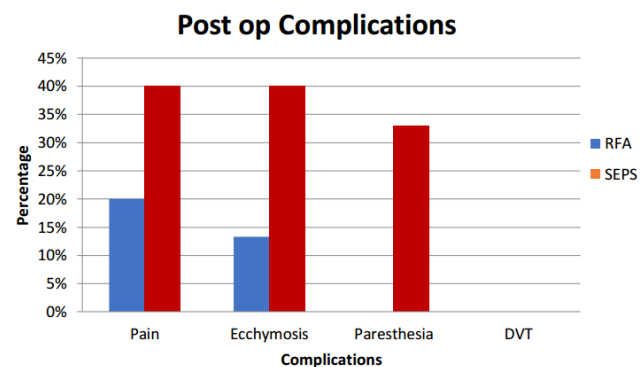
• Bar chart (4) showing Mean pre op and post op VCSS difference



(5) Post Op Complications

In the present study, post RFA complications include pain in 3 patients (20%), ecchymosis in 2 patients (13.3%). None of the patient has developed paraesthesia and DVT. Post SEPS complications include pain in 6 patients (40%), ecchymosis in 6 patients (40%) and paraesthesia in 2 patients (13.33%). No patient has developed DVT post SEPS.

• Bar Chart (5) showing Post op complications



6) Mean post procedure hospital stay

In the present study, the mean post procedure hospital stay of patient who underwent RFA is 2.0 and the mean post procedure hospital stay of patient who underwent SEPS is 2.13.

Table 6: Mean post procedure Hospital stay

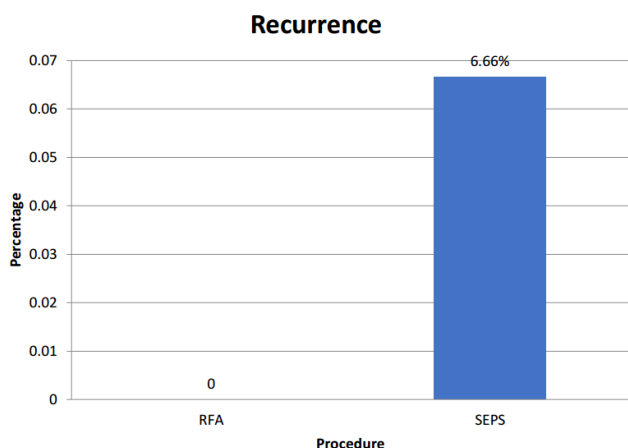
Sr. No.	RFA (Mean)	SEPS (Mean)
1	2	2.13

(7) Recurrence

In the present study, no recurrence was found in patients who underwent RFA.

From all those patients who underwent SEPS, 1 patient has developed recurrence found on post op Doppler which is due to new incompetent perforator.

• Bar Chart (7) Recurrence rate post RFA and SEPS



8) Statistical comparison of two surgical methods on basis of mean VCSS

In the present study, on the basis of mean VCSS, the two surgical procedures used showed no significant difference (P-value >0.05).

Group	Therapy	Mean	SD	P value	Significance
A	RFA	6	0.98	> 0.05 (2.048)	Not Significant
B	SEPS	5.4	0.96		

3. Discussion

This is a prospective, unbiased, randomized interventional comparative study of RFA versus SEPS in the treatment of varicose veins cases treated at Sir T. General Hospital, Bhavnagar; the randomization being done on odd and even basis. The outcomes are measured by assessing the change in clinical severity of the disease using Venous Clinical Severity Score (VCSS) and postoperative complications of both RFA and SEPS are compared. Post operative hospital stay was also compared.

Out of 30 cases, 15 cases were grouped in group A (operated by RFA) and other 15 cases in Group B (operated by SEPS).

The mean difference of pre op and post op VCSS in patient who underwent RFA is 6.0. The mean VCSS difference of pre op VCSS and post op VCSS in patient

who underwent SEPS is 5.4. Statistically it is non-significant.

The mean post procedure hospital stay of patient who underwent RFA is 2.0 and the mean post procedure hospital stay of patient who underwent SEPS is 2.13; it is statistically not significant.

In the present study, post RFA complications include pain in 3 patients (20%), ecchymosis in 2 patients (13.3%). None of the patient has developed paresthesia and DVT. Post SEPS complications include pain in 6 patients (40%), ecchymosis in 6 patients (40%) and paresthesia in 2 patients (13.33%). No patient has developed DVT post SEPS. Recurrence was seen in one case operated by SEPS.

Based on observations we can conclude that, RFA and SEPS are two different approaches for symptomatic varicose veins, RFA being truncal therapy and SEPS for perforators, both are more or less similarly effective in context of postoperative hospital stay and improvement of VCSS (Venous Clinical Severity Score); safe in terms of post operative complications. However, none is a single comprehensive therapy for complete cure of the venous reflux and need to be combined with other procedures very often. Hence it can be stated that whatever therapy available at a particular center can be offered to the patients with equal results.

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