



## Surgery

## CONCOMITANT RADIOFREQUENCY ABLATION AND FOAM SCLEROTHERAPY FOR VARICOSE VEINS – EFFECTIVENESS & OUTCOME, AND COMPLICATION – OUR INSTITUTIONAL EXPERIENCE – A RETROSPECTIVE ANALYSIS

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**ABSTRACT**

**Introduction:-** Varicose veins affect 26% of the adult population. Long standing CVI result in skin changes - eczema, pigmentation, lipodermosclerosis, and ulceration. Endo venous treatments for varicose veins emerged in response to the disadvantages of open surgery and are now the standard of care due to improved efficacy and safety. The aim of the study is to analyze effectiveness and outcome, and complication of concomitant RFA and foam sclerotherapy for various CEAP classes of lower limb varicose veins

**Material And Method:**

- 1- Period of study – 4 years – AUG 2018 – JULY - 2022
- 2- Total no of patients – 149
- 3- Study method – Retrospective study

**Results:** Total of 149 patients were retrospectively analyzed who underwent RFA + FOAM SCLEROTHERAPY for various CEAP classes of varicose veins. All patients were followed up till now. Mean age group was 39.32 (18-75 years) and 112 (75.1%) were male and 37 (24.9%) were female. 47(32%) had B/L LL involvement, with left LL (n-62,42%) predominantly involved than right LL (n-40,27%). Most common presentation was non healing ulcer (75% n- 110) followed by pain, lipodermosclerosis. Mean GSV diameter ablated was 6.8mm. Mean hospital stay was 1-3 days. Post procedure complete GSV thrombosis observed in 94%. Major complication was hematoma , pain , paraesthesia , recurrence. **Conclusion:** In our study RF ablation of varicose vein has success rate of 94% .Concomitant RFA with Foam sclerotherapy for varicose veins have shown promising results with better patient compliance as they are highly effective, better cosmetic results with early return to routine life activities.

**KEYWORDS :****INTRODUCTION:**

Subcutaneous veins in the lower extremities which are dilated to  $\geq 3$  mm in diameter in the upright position are referred as varicose vein. Varicose veins affect approximately 26% of the adult population. Chronic venous insufficiency (CVI) of the lower limbs is a common condition afflicting 25% of women and 15% of men, with venous reflux at the sapheno-femoral junction (SFJ) being the most common cause leading to VV.

The elimination of refluxing superficial veins represents a fundamental management principle in the treatment of chronic venous insufficiency. Surgical ligation and stripping of refluxing truncal veins was once the standard treatment. Endovenous treatments for varicose veins emerged in response to the disadvantages of open surgery and are now the standard of care due to improved efficacy and safety. Current retrospective study is done to analyse the effectiveness, outcome and complication of concomitant RFA and foam sclerotherapy for various CAEP classes of varicose vein in our institution for last 4 years from AUG 2018 - JULY 2022

**AIM & OBJECTIVE:**

To analyze effectiveness & outcome and complication of concomitant RFA and foam sclerotherapy as treatment for varicose vein

**MATERIAL AND METHOD:**

- 1- Period of study – 4 years – AUG 2018 – JULY - 2022
- 2- Total no of patients – 149
- 3- Study method – Retrospective observational study
- 4- Period of follow up – 6 months – 2 years

The information regarding socio-demographic details of the patients, detailed history, risk factors, symptoms & signs, size of GSV ablated, post op duplex report & outcome, complications were recorded in pre designed proforma.

S NO	INCLUSION CRITERIA	EXCLUSION CRITERIA
1	AGE 18- 75years	Patient with torturous vein unsuitable for RFA
2	Patient with varicose veins with CEAP classification above C2	Patient with SPJ incompetence alone
3	Patient with SFJ and perforator incompetence	Patient with coagulation disorder
4	GSV size 4- 15mm	Patient with PAD, DVT
5	Patient with all comorbidities	Previous trendelenberg, endovenous procedure
6		Pregnancy

All patients underwent duplex scanning at our ward before surgery.

All patients who satisfied inclusion criteria underwent RFA alone if only SFJ incompetence is present and RFA with US guided foam sclerotherapy if SFJ and perforator incompetence is present. All procedure were done under spinal anaesthesia.

**Primary End Points:**

- 1- Symptomatic improvement
- 2- ulcer healing
- 3- thrombosis of GSV on duplex

**Secondary End Points**

- 1- recurrence
- 2- non healing ulcer

detailed analysis of patient, treatment, outcome and complication were analyzed and results were tabulated

**RESULTS & DISCUSSION:****I – Age & Sex**

S NO	VARIABLES	NUMBER OF n	% PERCENTAGE
1	AGE	39.3	
2A	MALE	112	75.1%
B	FEMALE	37	24.9%

**Table-1**

- 1- Mean age group in our study was 39.3 with youngest being 21 years and oldest 75years
- 2- SFJ incompetence was more common in male 75% when compare to female

**II - Limb And Bilaterality**

S NO	LIMB AFFECTED	NUMBER OF n	% PERCENTAGE
1	LEFT	62	42%
2	RIGHT	40	27%
3	BILATERAL	47	32%

**Table-2**

- 1- Left LL varicosities were most common in our study group
- 2- 32% of patients has B/L LL varicosities although symptoms were predominant in only one

**III- Risk Factors**

S NO	RISK FACTORS	NUMBER	% PERCENTAGE
1	OCCUPATION – PROLONGED STANDING/SITTING	112	75%
2	SMOKING	75	50.3%
3	OBESITY	65	44%
4	ALCOHOL	58	39%
5	COMORBIDITIES – DM,HTN,CAD	45	30%
6	TRAUMA/SURGERY AT GROIN	2	1.3%
7	FAMILY HISTORY	12	8%

**Table-3**

- 1 – occupation related varicose veins remains the primary risk factor in our study
- 2 – smoking, obesity and alcohol also remain a significant risk factor for developing SFJ incompetence

**Iv –Symptoms**

S NO	SYMPTOMS	NUMBER	% PERCENTAGE
1	ULCER IN LEG	113	75%
2	DISCOLOURATION	87	58%
3	PAIN LOWER LIMB	78	52%
4	HEAVINESS OF LEG	65	44%
5	ITCHING	46	31%
6	ANKLE SWELLING	35	23%

**Table – 4**

Most common symptom in our study was ulcer in leg either healed or active followed by discoloration and pain

**V – Ceap Classification And Varicose Veins**

S NO	CEAP	NUMBER	% PERCENTAGE
1	C2 – VARICOSE VEINS	149	100%
2	C3 – EDEMA	35	23%
3	C4a - PIGMENTATION	58	39%
4	C4b– LIPODERMOSCLEROSIS	26	17%
5	C4C– CORONA PHLEBECTATICA	39	26%
6	C5 – HEALED ULCER	85	57%
7	C6 – ACTIVE ULCER	28	19%

**Table – 5**

All patients in our study has visible varicosities with predominant CEAP classification being C5 followed by C4a

**VI – Size Of GSV Ablated**

S NO	SIZE OF GSV	NUMBER OF n	% PERCENTAGE
1	4 – 8MM	121	81%
2	8-11	20	13%
3	11-15	8	8%

**Table – 6**

- More than 80% of patient in our study has GSV size between 4-8mm
- Mean GSV diameter ablated was 6.8mm

**VII – Treated Veins**

S NO	TREATED VEINS	NUMBER OF n	% PERCENTAGE
1	GSV – RFA alone	32	21.4%
2	GSV + PERFORATORS - RFA + FOAM SCLEROTHERAPY	117	78.5%

**Table – 7**

**VIII – Outcome**

S NO	OUTCOME	NUMBER	% PERCENTAGE
1	COMPLETE THROMBOSIS OF GSV	140	94%
2	COMPLETE THROMBOSIS OF PERFORATORS	107 (n- 117)	91.4%
3	HEALED ULCER	101 (n- 113)	89%
4	BETTERMENT OF SYMPTOM	143	96%
5	COSMETICALLY ACCEPTABLE	149	100%

**Table – 8**

**Ix - Complications**

S NO	COMPLICATION	NUMBER	% PERCENTAGE
1	PAIN – POST OP	35	23%
2	CORD LIKE FEEL	15	10%
3	PARAESTHESIA	12	8%
4	RECURRANCE	9	6%
5	ECCYMOSES	6	3.5%
6	THROMBOPHELIBITIS	4	3%
7	ERYTHEMA	3	2.5%
8	BURNS	2	1.3%
9	INFECTION	1	0.6%

**Table - 9**

- Mean GSV size ablated was 6.8mm
- Mean hospital stay in our study was 1-3 days
- Most common symptom in our study was ulceration in leg followed by discoloration and pain
- Complete thrombosis of GSV noted in 94% and that of perforators following RFA + US guided foam sclerotherapy was 91.4%
- Ulcer healing rate following the procedure was 89%
- Symptom betterment was seen in 96% and patient compliance was nearly 100% with good cosmetic results
- Most common complication encountered was pain at the site of puncture 23% followed by cord like feel and paranesthesia
- Recurrence rate in our study was 6%

**CONCLUSION:**

In our study RF ablation of varicose vein has success rate of 94%. Concomitant RFA with Foam sclerotherapy for varicose veins have shown promising results with better patient compliance as they are highly effective, better cosmetic results with early return to routine life activities