



## EVALUATION OF PREVALENCE OF VARICOSE VEINS AND PROSPECTIVE RANDOMIZED STUDY COMPARING VARIOUS MODALITIES OF TREATMENT OF VARICOSE VEINS

### KEYWORDS

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### ABSTRACT

**Objective** - Evaluation of prevalence of varicose veins and prospective randomized study comparing various modalities of treatment of varicose veins.

**Material and methods** - The study was conducted in January 2010 to September 2011 in Department of Surgery, G.S.V.M. Medical College, Kanpur. In OPD and emergency a total of 112 patient presented and were admitted and treated by various methods for varicose vein.

**Result** - While to compare the significance between different type of surgeries with EVLT and combined surgery, EVLT and combined surgery is significant at  $p < 0.05$ . It means EVLT is significant in comparison to other type of surgeries.

**Conclusion** - In our study maximum no. of patients (50%) were found in 41-50 years age group. Male prevalence (73.21%) was more than female prevalence (26.79%). EVLT is significant in comparison to other type of surgeries. In our study we used FISHER-Z test for statistical analysis.

**Introduction** - The word "Varicose" is an old one. The origin of the word comes from the Greek "grapeliike". It was probably first used as medical description by Hippocrates in 460 BC.

Superficial venous insufficiency of lower extremities is the most common of all vascular alteration.<sup>(1)</sup>

Hippocrates wrote some of the earliest medical descriptions of varicose veins. The Hippocratic treatise, written in 460 BC, took treatment one step further and whilst he did not recommended the excision of varicose veins, he prescribed compression following multiple punctures.

Today, crossectomy forms part of the gold standard procedure for the treatment of primary great saphenous varicose veins.

A number of techniques including cryostripping endovenous laser obliteration saphenous valvuloplasty (EV-SFJ and CHIVA), angioscopic techniques, transposition of a competent tributary vein and echosclerotherapy using a sclerosant foam have been introduced in last decade.<sup>(2,3,4,5,6,7)</sup>

In modern scenario varicose vein surgery is considered minor and safe procedure performed for more than 100 years with few variations and technical innovations and known results.

In recent years minimally invasive procedures like radio frequency ablation (RFA), endovenous laser ablation (EVLA) and sclerotherapy have been added to enrich the range of therapy amongst these EVLT is unique in being simple, which minimally invasive, less recovery time, reduced post operative pain and excellent clinical and anaesthetic results.

The present study was undertaken to compare and assess outcomes of various treatment modalities for primary GSV, SSV, perforator incompetence.

### MATERIAL AND METHOD

The study was conducted in January 2010 to September 2011 in Department of Surgery, G.S.V.M. Medical College, Kanpur. In OPD and emergency a total of 112 patient presented and were admitted and treated by various methods for varicose vein.

### Patients Selection

#### Inclusion criteria

1. Varicose veins caused by incompetence of SFJ or SPJ with GSV or SSV as demonstrated by bidirectional continuous wave Doppler and duplex US imaging

2. Age atleast 18 yrs.

3. Completed written informed consent form

4. Ability to return for scheduled follow up examinations for 1 yr after EVLT

#### Exclusion criteria

1. Non-palpable pedal pulses.

2. Inability to ambulate

3. Deep vein thrombosis

4. General poor health

5 In women, pregnant women or p[ans to become pregnant at same time during the course of study.

### Method

All patients were examined with bidirectional continuous wave Doppler examination and duplex US to identify sources of venous incompetence and precisely map out abnormal venous pathways. Transverse measurements of the GSV were made 2 to 3 c.m. below SFJ in the standing position.

### Follow-up

Follow-up Duplex USG was done at one month, three month and six months and yearly thereafter to assess treatment efficiency and adverse effects.

### TREATMENT MODALITIES

#### Non operative procedures

1. Compression therapy is most commonly achieved with gradient elastic compression stocking.

2. Injection sclerotherapy - Sclerosing agents include hypertonic saline sodium tetradecyl sulphate and polidocanol.

### Operative Procedure

#### 1. Open surgery

Ligation and division of SFJ] with saphenectomy of long saphenous vein from the groin to the ankle by stripping.

Ligation of division of saphenopopliteal union, saphenectomy of the varicose short saphenous vein from popliteal space to the ankle by stripping.

SEPS Carbon dioxide is used to insufflate the subfacial space. The thigh tourniquet implied to prevent air embolism, after procedure leg wrapped via compression bandage for 5 days post operatively.

**2. Subfacial endoscopic perforator ligation surgery**

Foam sclerotherapy TESSARI METHOD one volume of polidocanol and four volumes of air are aspirated into the injectors and the two injectors are attached via a three way stop cock. The sclerosant and air are missed by pushing the piston of the injectors 1530 times so thick foam is created.

**3. Laser**

Anesthesia used in tumescent anesthesia (include 500 ml saline, 5 ml 10% lidocaine, 10 ml 84% sodium bicarbonate and 1 ml adrenaline). Under sonographic guidance the GSV was entered at knee/ankle level. A 5-F introducer sheath was placed into the GSV over a 0.035 inch diameter J guide wire. Sheath length ranged from 25-45 cm. Intraluminal position within the GSV was confirmed by aspiration of non pulsatile venous blood and visualization with US. The distal tip of laser fibre was position 1-2 cm below SFJ.

**Observation and Result**

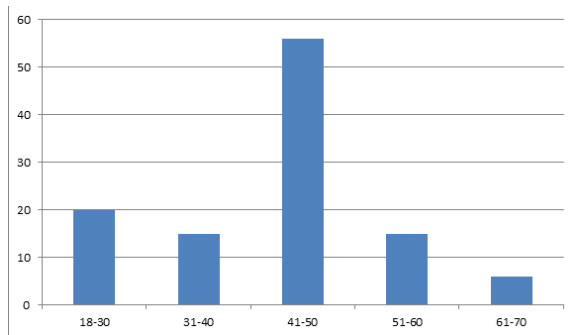
In our study a total of 112 patients undergone treatment for varicose veins.

**Table 1:** Age distribution of patients

Age group	No. of patients	Percentage
18-30	20	17.85
31-40	15	12.39
41-50	56	50
51-60	15	13.39
61-70	6	5.35

In this study maximum no of patients (50%) were found in 41-50 yrs age group.

Age distribution of patients (112 Patients)



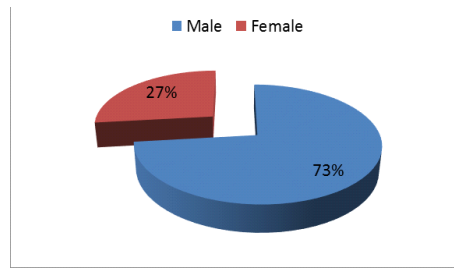
**Figure - 1**

**Table 2:** Sex distribution of patients (112 Patients)

Sex	No. of patients	Percentage
Male	82	73.21
Female	30	26.78

In our study male prevalence (73.21%) were more than female prevalence (26.78%).

Sex Distribution of Patients



**Figure - 2**

**Table 3:** Treatment modalities given to patients (154 limbs in 112 patients)

Non-operative		No. of limbs
1.	Compression therapy	7 (4.54%)
S.No.	Operative treatment	No. of limbs (percentage)
1.	Ligation of incompetent SFJ with venous stripping	23 (14.93%)
2.	Incompetent perforators ligation	10 (6.49%)
3.	SEPS	7 (4.50%)
4.	Injection sclerotherapy	13 (8.44%)
5.	Foam sclerotherapy (TESSARI METHOD)	4 (2.59%)
6.	EVLT	31 (20.12%)
7.	Combined treatment	59 (38.31%)

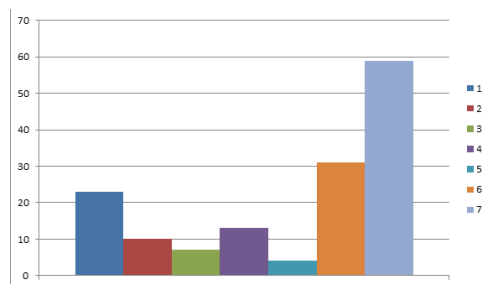
In our study most no. of patients have gone under combined treatment (EVLT +Foam sclerotherapy +ligation of incompetent SFJ/SPJ+ incompetent perforator ligation) for varicose veins 59 (38.31%).

As per above table Type 1 (SFJ ligation with venous stripping) is significant at p<0.05 to other type of surgeries as 2, 3, 4, 5.

While to compare the significance between different type of surgeries with EVLT and combined surgery, EVLT and combined surgery is significant at p<0.05.

It means EVLT is significant in comparison to other type of surgeries.

Treatment modalities given to patients (154 limbs in 112 patients)



Operative treatment

**Figure - 3**

**Discussion**

During the past decade, increased interest in venous disorders and the development of new non-invasive diagnostic test and minimally invasive treatment options have led to tremendous advancement in the understanding and management of varicose veins.<sup>(8)</sup>

A more modern techniques of the use of RF energy (VNUS) to eliminate saphenous vein reflux has been developed.

Study have demonstrated success rate of 73-90%. As stated by Kanter A. et al, Merchant RF, et al, Weiss RA, et al, Zan S, et al.<sup>(9,10,11,12)</sup>

EVL ablation was introduced as a alternative to ligation and stripping by Navarro L et al in 2001 and has rapidly become the treatment of choice for treating saphenous vein insufficiency EVL ablation is proven to be very successful and durable in the treatment of saphenous vein. High success rate more than 90% EVL was reported. In this prospective followup study with 112 consecutive patients and 154 treated limbs, an occlusion rate of 94.60% could be demonstrated after a mean follow-up of 15 months which correlate well with previous study (Oh CK et al).<sup>(13)</sup>

All patients at our centre were given low molecular weight heparin prophylaxis for 5 days, since we have used spinal anesthesia and also we wanted to avoid the thrombus formation in the veins although there is no good evidence to support this strategy in literature of Bounameaux H, et al. we prefer spinal anesthesia instead of local anaesthesia because we ablate whole of GSV and also its tributaries in the same setting.<sup>(14)</sup>

In our study age specific prevalence was most in 41-50 years group (50%). Male prevalence was more than female prevalence (73.21% vs. 26.78%).

In our study most no. of patients have gone under combined treatment (EVL ± Foam Sclerotherapy ± Ligation of incompetent SFJ/SPJ ± Incompetent perforator ligation) for varicose veins 90 (58.44%).

Carradice D et al (2011) they concluded that the morbidity associated with SSV incompetence is greater than suggested by its clinical severity and responds differently following treatment to that of the GSV.

EVL of PVs and VCs is effective and faster than surgery in 2-6 mm PVs and VCs using an 808-nm diode laser. (Corcos et al).<sup>(15)</sup>

For testing the significance of proportion we used FISHER-Z test to declare that aim is significant or not at  $p < 0.05$  (significant) or  $p > 0.05$  (non-significant) at different degree of freedom and tabulated value of Z.

### Conclusion

In our study maximum no. of patients (50%) were found in 41-50 years age group followed by 18-30 years age group (17.86%)

In our study male prevalence (73.21%) were more than female prevalence (26.79%).

In our study most no. of patients have gone under combined treatment (EVL ± Foam Sclerotherapy ± Ligation of incompetent SFJ/SPJ ± Incompetent perforator ligation) for varicose veins 90 (58.44%).

As per above Table-3 Type 1 (SFJ ligation with venous stripping) is significant at  $p < 0.05$  to other type of surgeries as 2, 3, 4, 5.

While to compare the significance between different type of surgeries with EVLT and combined surgery, EVLT and combined surgery is significant at  $p < 0.05$ .

It means EVLT is significant in comparison to other type of surgeries. In our study we used FISHER-Z test to declare that aim is significant or not at  $p < 0.05$  (significant) or  $p > 0.05$  (non-significant) at different degree of freedom and tabulated value of Z.

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