

ORIGINAL RESEARCH

Comparison of the efficacy of endovenous radiofrequency ablation and conventional surgery in treating patients with primary varicose veins

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ABSTRACT:

Aim: To compare the efficacy of endovenous radiofrequency ablation and conventional surgery in treating patients with primary varicose veins. **Materials & methods:** 40 patients with presence of primary varicose veins were included and were broadly divided into two study groups as follows: Group 1: Patients who were treated with endovenous radiofrequency ablation; and Group 2: Patients who were treated with conventional surgery. Complete demographic and clinical details of all the patients were obtained. All the patients were categorized according to CEAP score. Venous color Doppler was used for diagnosing venous insufficiency. All the patients were treated according to their respective study groups. Follow-up was done and assessment of patients was carried out on successive visits. VAS score was used for assessing the postoperative pain. Return to normal activity was evaluated by assessing the BRAVVO score. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. **Results:** In the Group 1, mean VAS at immediate postoperatively, one week postoperatively and one month postoperatively was found to be 4.96, 2.95 and 0 respectively. In the Group 2, mean VAS at immediate postoperatively, one week postoperatively and one month postoperatively was found to be 7.11, 4.12 and 0.73 respectively. Wound infection was absent in group 1 while it was present in 20 percent of the patients of the group 2. Mean BRAAVO score among the patients of the Group 1 and group 2 at 10th day postoperative was 14.2 and 11.9 respectively. Mean time to return to normal activity among the patients of the Group 1 (7.9 days) was significantly lower in comparison to the patients of the Group 2 (15.5 days). **Conclusion:** Endovenous radiofrequency ablation is better as compared to conventional surgery for treating patients with primary varicose veins.

Key words: Varicose, Veins, Radiofrequency ablation

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INTRODUCTION

Varicose veins patient's present from asymptomatic to significant symptoms, including discomfort, aching, pain, itching or eczema, and deep vein thrombosis. No consistent definition of varicose veins is present in the literature. The presence or absence of reflux caused by venous incompetence can be determined by clinical examination, handheld Doppler, or duplex ultrasound.¹ All management modalities for varicose veins are safe and effective at short-term and midterm follow-up. The methods to manage great saphenous veins traditionally include ligation and division of the saphenofemoral junction and its tributaries in the groin, stripping the great saphenous veins from groin to knee level. Endovenous thermoablation approaches include EVLA and

radiofrequency ablation; these belong to the category of minimally invasive catheter-based procedures.²⁻⁴ Hence; we conducted the present study for comparing the efficacy of endovenous radiofrequency ablation and conventional surgery in treating patients with primary varicose veins.

MATERIALS & METHODS

The present study was conducted for comparing the efficacy of endovenous radiofrequency ablation and conventional surgery in treating patients with primary varicose veins. A total of 40 patients with presence of primary varicose veins were included and were broadly divided into two study groups as follows:

Group 1: Patients who were treated with endovenous radiofrequency ablation; and

Group 2: Patients who were treated with conventional surgery

Complete demographic and clinical details of all the patients were obtained. All the patients were categorized according to CEAP score. Venous color Doppler was used for diagnosing venous insufficiency. All the patients were treated according to their respective study groups. Follow-up was done and assessment of patients was carried out on successive visits. VAS score was used for assessing the postoperative pain. Return to normal activity was evaluated by assessing the BRAVVO score.⁵ All the results were recorded in Microsoft excel sheet and were analysed by SPSS software.

RESULTS

A total of 40 patients were enrolled and were broadly divided into two study groups; Group 1 and Group 2. Mean age of the patients of group 1 and group 2 was 50.2 years and 51.9 years respectively. Majority of the patients of both the study groups were females. In the Group 1, 50%, 25%, 20% and 5% of the patients were of CEAP category C2, C3, C4 and C5 respectively. In the Group 2,

60%, 20%, 15% and 5% of the patients were of CEAP category C2, C3, C4 and C5 respectively. In the Group 1, mean VAS at immediate postoperatively, one week postoperatively and one month postoperatively was found to be 4.96, 2.95 and 0 respectively. In the Group 2, mean VAS at immediate postoperatively, one week postoperatively and one month postoperatively was found to be 7.11, 4.12 and 0.73 respectively. We also observed that 20 percent of the patients of the group 2 showed presence of postoperative local hematoma while it was absent in group. Saphenous nerve paresthesia was present in 10 percent of the patients of the Group 1 and 20 percent of the patients of the group 2. Wound infection was absent in group 1 while it was present in 20 percent of the patients of the group 2. Mean BRAAVO score among the patients of the Group 1 and group 2 at 10th day postoperative was 14.2 and 11.9 respectively. Mean time to return to normal activity among the patients of the Group 1 (7.9 days) was significantly lower in comparison to the patients of the Group 2 (15.5 days). Also, while assessing the correlation of incidence of CEAP with hospital stay, significant results were obtained.

Table 1: Age-wise distribution

Age group (years)	Group 1		Group 2	
	Number of patients	Percentage	Number of patients	Percentage
18 to 40	5	25	6	30
41 to 60	8	40	8	40
More than 60	7	35	6	30
Total	20	100	20	100

Table 2: Category

CEAP Category	Group 1		Group 2	
	Number of patients	Percentage	Number of patients	Percentage
C2	10	50	12	60
C3	5	25	10	20
C4	4	20	3	15
C5	1	5	1	5
Total	20	100	20	100

Table 3: Comparison of VAS

Time period	Group 1	Group 2	p- value
Immediate Postoperative	4.96	7.11	0.02*
One week follow-up	2.95	4.12	0.01*
One month follow-up	0	0.73	-

*: Significant

Table 4: Mean BRAAVO score

Time period	Group 1	Group 2	p- value
10 th day follow-up	14.2	11.9	0.02*
1 st month follow-up	15	15	-

*: Significant

DISCUSSION

Varicose veins (VV) are dilated, tortuous subcutaneous veins that permit reverse flow. They are most commonly found in the lower limb and may be primary, or secondary to deep venous pathology. The GSV system is most frequently affected with the SSV being involved in about 20% of cases. The aetiology of VV at a microscopic level is still disputed but the essential defect macroscopically is generally agreed to be the failure of venous valve closure resulting in the superficial veins becoming dilated, elongated and tortuous. Varicose veins can cause a variety of symptoms of discomfort in the legs, but it is important to try to differentiate these from the many other reasons for leg pain.⁵⁻⁸ Hence; we conducted the present study for comparing the efficacy of endovenous radiofrequency ablation and conventional surgery in treating patients with primary varicose veins.

In the present study, a total of 40 patients were enrolled and were broadly divided into two study groups; Group 1 and Group 2. Mean age of the patients of group 1 and group 2 was 50.2 years and 51.9 years respectively. Majority of the patients of both the study groups were females. In the Group 1, 50%, 25%, 20% and 5% of the patients were of CEAP category C2, C3, C4 and C5 respectively. In the Group 2, 60%, 20%, 15% and 5% of the patients were of CEAP category C2, C3, C4 and C5 respectively. In the Group 1, mean VAS at immediate postoperatively, one week postoperatively and one month postoperatively was found to be 4.96, 2.95 and 0 respectively. In the Group 2, mean VAS at immediate postoperatively, one week postoperatively and one month postoperatively was found to be 7.11, 4.12 and 0.73 respectively. In a previous study conducted by Sydnor M et al, authors concluded that Radiofrequency ablation and endovenous laser ablation are highly effective and safe from both anatomic and clinical standpoints over a multi-year period and neither modality achieved superiority over the other.⁶ Potula VS et al, in another study, evaluated clinical, patient based outcomes after RFA and conventional surgery in a selected population. Their study concluded that compared to conventional surgery, RFA took longer time to perform but it gave better and significantly early outcome in patients with varicose veins.⁷

We also observed that 20 percent of the patients of the group 2 showed presence of postoperative local hematoma while it was absent in group. Saphenous nerve paresthesia was present in 10 percent of the patients of the Group 1 and 20 percent of the patients of the group 2. Wound infection was absent in group 1 while it was present in 20 percent of the patients of the group 2. Mean BRAAVO score among the patients of the Group 1 and group 2 at 10th day postoperative was 14.2 and 11.9 respectively. Mean time to return to normal activity among the patients of the Group 1 (7.9 days) was significantly lower in comparison to the patients of the Group 2 (15.5 days). Also, while assessing the correlation of incidence of CEAP with hospital stay, significant results were obtained. In another study conducted by Morshed AM et al authors compared the outcome of laser

ablation and conventional surgery in treatment of patients with primary trunkal varicose vein with a period of one year. They found that EVLA has the same results as surgical stripping regarding the efficacy and the recurrence rate, which was our primary outcome.⁸ Liu Y et al, in their study, reviewed the available data of randomized controlled clinical trials (RCT) to compare endovenous laser therapy (EVL) with conventional surgery of high ligation and stripping (HL/S) for the treatment of great saphenous varicose veins. systematic review of Pubmed, Cochrane Library, Embase, Web of Science, Ovid database, China National Knowledge Infrastructure (CNKI) database and Wanfang database was performed. Eight retrieved RCT studies and 1743 limbs were evaluated. The ratios of recurrence were the same for EVLT and HL/S at 1 and 2 years post-operation. For the ratios of major postoperative complications, there was no statistical difference between EVLT and HL/S in thrombosis, wound infection and phlebitis. But EVLT could reduce the ratio of paresthesia. Compared with HL/S, EVLT shows no significant difference in the 1/2-year recurrence rate or the rates of thrombosis, wound infection and phlebitis.⁹

CONCLUSION

Endovenous radiofrequency ablation is better as compared to conventional surgery for treating patients with primary varicose veins.

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