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Original Research Article

To Compare Radio Frequency Ablation vs Open Surgical Techniques with the Help of Venous Severity Scoring System in Varicose Vein Patients

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Abstract

Background & Methods: The aim of the study is to compare Radio frequency ablation vs open surgical techniques with the help of venous severity scoring system in varicose vein patients. Prior to the surgery, the venous clinical severity scoring (VCSS) of the affected limb was calculated. Post op wound dressing was opened on the 2nd post-operative day, and regular compression wound dressings were done.

Results: We found 84% Male in Open Technique whereas in 88% in RFA & 16% & 12% in Female respectively. Mean for Pre-operative - 13.48, Post operative 1week - 10.76, Post operative 1 month - 8.91 & Post operative 2 months – 8.33. Mean for Pre-operative – 14.76, Post operative 1week - 11.29, Post operative 1 month - 8.47 & Post operative 2 months – 8.36.

Conclusion: This prevalence could be attributed to the occupational habits of males and the fact that access to healthcare in females were less. The prevalence of varicose vein were higher in older age, which was similar to the prevalence of Indian and world population. The efficacy and safety of endovenous treatment of varicose veins, compared with conventional surgery, have been well demonstrated in a number of studies. But none have showed clinical significance for the same. In our study we have found that patients undergoing Radio Frequency Ablation fared slightly better clinically than the ones undergoing conventional surgery but results were statistically insignificant .

Keywords: Radio, ablation, surgical, varicose & vein.
Study Design: Prospective Comparative Study.

1. Introduction

Chronic venous insufficiency is a major health and socioeconomic issue the world over , causing long term morbidity and high cost of treatment. The definition of chronic venous leg ulcer is "An area of discontinuity of the epidermis of the skin of the lower leg, persisting for more than 4 weeks, occurring as a consequence of chronic venous hypertension and calf muscle pump insufficiency"[1].

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It is clinically, a common problem in the Western world. From reports confined to active venous leg ulcers, the point prevalence was estimated to be 0.06-0.1% [2]. It is a chronic, non - fatal condition that mainly affects the elderly. Because of the cycles of ulcer healing and recurrence, the prevalence studies of active ulcers certainly underestimate the actual number of patients. In studies where patients had a history of ulcer disease were also included, the overall prevalence is 1 and 3% of the total population[3]. At any point of time, approximately one - fifth of patients with venous ulcer disease have had an active ulcer[4].
About 60% of individuals who have primary valvular incompetence that causes cutaneous venous hypertension experience a range of cutaneous symptoms, the most severe of which present as ulcers over the medial malleolus[5].

2. Material and Methods

100 Patients were included in the study, splitting them into group ‘A ’and group ‘B ’using systematic randomization technique. After enrolment of the patient into the groups, Patients were kept in nil per oral for a minimum of 8 hours prior to surgery. Both sets of patients underwent surgery under spinal anaesthesia. Surgery was carried out by an experienced surgical team, which included the investigator, guides and the co - investigators. VCSS score was calculated at 1 week post - op. Patients were asked to be in regular follow up, and were asked to review back 1 month post-surgery, when the VCSS Score was again calculated.
• Group A Open surgery - 50 patients of which one patient had bi lateral varicose veins.
• Group B – radio frequency ablation - 50 patients of which 3 patients had bi lateral varicose veins.
The VCSS Score was again calculated 2 months post-surgery and all the scores were statistically evaluated to obtain the results.

INCLUSION CRITERIA
1. Patients with varicose veins of the lower limb (Long saphenous/ short saphenous/ perforators) including al l complications.
2. Age group 18 -80 years

EXCLUSION CRITERIA
1. Age group <18 & >80
2. Congenital / secondary varicose veins
3. Physiological causes for varicosity including pregnancy

3. Result

Table No. 1: Statistical analysis of age in Open and RFA groups

	Mean (in years)	Standard Error	p value
Open Technique	**45.4**	**2.31**	**0.09**
RFA	**41.2**	**2.44**	

We found mean for 45.4 Open Technique & 41.2 for RFA. P value (0.09).

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Table No. 2: Statistical analysis of age in Open and RFA groups

	Male	Female	p value
Open Technique	**42**	**08**	**0.047**
RFA	**44**	**06**	

We found 84% Male in Open Technique whereas in 88% in RFA & 16% & 12% in Female respectively.

Table No. 3: Statistical analysis of mean VCSS score in Open group over time

	Mean (in years)	Standard Error	p value
Pre-operative	**13.48**	**2.89**	
Post operative 1 week	**10.76**	**2.35**	**0.0001**
Post operative 1 month	**8.91**	**1.98**	
Post operative 2 months	**8.33**	**1.71**	

Mean for Pre-operative - 13.48, Post operative 1week - 10.76, Post operative 1 month - 8.91 & Post operative 2 months – 8.33.

Table No. 4: Statistical analysis of mean VCSS score in RFA group over time

	Mean (in years)	Standard Error	p value
Pre-operative	**14.76**	**3.13**	
Post operative 1 week	**11.29**	**2.42**	**0.0001**
Post operative 1 month	**8.47**	**1.84**	
Post operative 2 months	**7.36**	**1.64**	

Mean for Pre-operative – 14.76, Post operative 1week - 11.29, Post operative 1 month - 8.47 & Post operative 2 months – 8.36.

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4. Discussion

Our study was a prospective comparative study of Radio Frequency Ablation vs open surgical techniques in varicose vein patients with venous clinical severity score, of 50 patients with duplex scan confirmation of venous incompetence. After obtaining consent from the patients to be included in the study the patients were assessed on VCSS score preoperatively, 1 week, 1 month and 2 months postoperatively and the results were compared for its significance[6].

It was observed in our study that the majority of the patients were male and the male to female ratio was 6:1. In a study reported by Vashist et . al . in Indian journal of surgery also reported that 70 patients out of 100 were males and 30 were females. But in the world populat ion, as reported Harvey et. al. and the large Lothian and Forth val ley ulcer study, the predominance was more in females[7].

The mean age of patients in our study was 44.3 years, which was similar to Indian and world prevalence as reported by Vashist et . al . [8].

It was observed in our study that in the open technique, the mean VCSS scores decreased during the post-operative period when compared to the star t of the study and the results were statistically significant, in both Open surgical and RFA groups. These results were similar to the previous studies as discussed by Georgiev et . al. [9].

Also, we didn't encounter any major complications like DVT or saphenous nerve damage. The minor complications encountered were post-operative pain, paraesthesia, hematoma or serous wound discharge. But as our study was done with only a short term follow up, they cannot be compared with previous studies which assessed the morbidity of the procedure. Most studies which showed recurrences were on a long term basis as stated by Winterborn et . al[10].

Similarly, in the Radio Frequency Ablation technique, the VCSS score decreased progressively during the post-operative period and the results were statistically significant. Patients also had a good post-operative quality of life and early return to work which were similar to previous studies enumerating the advantages of RF technique like the Lohr et . al . (49) , Ravi et . al . (50) and Sugiyama et. al . [11-12]studies.

5. Conclusion

Chronic venous insufficiency of the lower limb is a common medical condition. There is a predominance of this condition in females in well developed countries whereas i t is higher in males i n developing countries.

This prevalence could be attributed to the occupational habits of males and the fact that access to healthcare in females were less. The prevalence of varicose vein were higher in older age, which was similar to the prevalence of Indian and world population. The efficacy and safety of endovenous treatment of varicose veins, compared with conventional surgery, have been well demonstrated in a number of studies. But none have showed clinical significance for the same. In our study we have found that patients undergoing Radio Frequency Ablation fared slightly better clinically than the ones undergoing conventional surgery but results were statistically insignificant .

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6. References

1. Gohel MS, Barwel l JR, Taylor M, Chant T, Foy C, Earnshaw JJ, Heather BP, Mitchel l DC, Whyman MR, Poskitt KR. Long term results of compression therapy alone versus compression plus surgery in chronic venous ulceration (ESCHAR): randomised controlled trial . BMJ. 2007 Jul 1 4;335(7610):83.
2. Van Gent WB, Hop WC, van Praag MC, Mackaay AJ, de Boer EM, Wi t tens CH. Conservat ive versus surgical treatment of venous leg ulcers: a prospective, randomized, multicenter trial. J Vasc Surg. 2006 Sep; 44(3):563 - 71. PubMed PMID: 16950434.
3. Sel l H, Vikatmaa P, Albäck A, Lepäntalo M, Malmivaara A, Mahmoud O, Venermo M. Compression therapy versus surgery in the treatment of pat ients wi th var icose veins: A RCT. Eur J Vasc Endovasc Surg. 2014 Jun;47(6): 670 -7. doi :10. 1016/ j . ejvs. 2014. 02 .015. Epub 2014 Mar 24. PubMed PMID: 24675145 .
4. Winterborn RJ, Earnshaw JJ. Crossectomy and great saphenous vein str ipping. J Cardiovasc Surg (Torino) . 2006 Feb;47(1):19 -33. Review. PubMed PMID: 16434942.
5. Jaworucka- Kaczorowska A, Oszkinis G, Huber J, Wiertel - Krawczuk A, Gabor E, Kaczorowski P. Saphenous vein stripping surgical technique and frequency of saphenous nerve injury. Phlebology. 2015 Apr; 30(3): 210 -6. doi :10.1177/ 0268355514539316. PubMed PMID: 24906907;PubMed Central PMCID: PMC4390525.
6. Cheat le T. The long saphenous vein: to strip or not to strip? Semin Vasc Surg. 2005 Mar;18(1):10 - 4. Review. PubMed PMID: 15791547.
7. Papakostas JC, Douitsis E, Sarmas I , Avgos S, Kyri tsis A, Matsagkas M. The impact of direct ion of great saphenous vein total stripping on saphenous nerve injury. Phlebology. 2014 Feb;29(1):52 -7. doi : 10.1258/ phleb .2012.012061 . PubM ed PMID: 23155130.
8. G. Vashist & Vijay Malik & Nitin Singhal Role of Subfascial Endoscopic Perforator Surgery (SEPS) in Management of Perforator Incompetence in Varicose Veins : A Prospect ive Randomised Study : Indian journal of surgery March - April 2014: .DOI 10.1007/ s 12262 - 012-0675 -5
9. Georgiev M, Ricci S, Carbone D, Ant ignani P, Mol i terno C. Stab avulsion of the shor t saphenous vein. Technique and duplex evaluat ion. J Dermatol Surg Oncol. 1993 May; 19(5):456- 64. PubMed PMID: 8496490.
10. Winterborn RJ, Earnshaw JJ. Crossectomy and great saphenous vein str ipping. J Cardiovasc Surg (Torino) . 2006 Feb;47(1):19 -33. Review. PubMed PMID: 16434942.
11. Morrison C, Dalsing MC. Signs and symptoms of saphenous nerve injury after greater saphenous vein stripping: prevalence, severity, and relevance for mod ernpract ice. J Vasc Surg. 2003 Nov;38(5):886 -90. PubMed PMID: 14603189 .
12. Gohel MS, Davies AH. Radiofrequency ablation for uncomplicated varicose veins. Phlebology. 2009;24 Suppl 1:42-9. doi : 10. 1258/phleb .2009 .09s005 . Review. PubMed PMID: 19307440.