



ENDO VASCULAR LASER ABLATION OF VARICOSE VEINS –OUR EXPERIENCE IN A TERTIARY CARE CENTRE IN WESTERN INDIA

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ABSTRACT

Objective – To compare short term outcomes after EVLA in tropical conditions

Method – A total of 100 patients underwent endovenous laser ablation with a total of 100 lower limbs were operated and these patients were analyzed for the complication of laser ablation such as hyperchromia, Deep venous thrombosis, pulmonary embolism, paresthesia and pain in the way of a prospective trial. In this study the 1470-nm diode laser was used for ablation

Results – Out of the many patients who were operated the only 4(4 %) patients developed ulcer and there were no cases of DVT, pulmonary thromboembolism, 6(6%) patients of venous reflux, and 9 (9%) patients developed hyperchromia and 7(7%) patients developed persistent post operative pain lasting more than 7 days which was evaluated by phi square independence test it was found to be statistically significant ($p < 0.001$). It shows that with passage of time there was reduction of severity of pain in patients. When the mean VAS score was carried out at different time interval which was not quite statistically significant after applying ANOVA test (p value 0.06)

Conclusion – Our case series shows that the endo venous laser ablation using 1470 nm diode laser is a highly effective treatment with less number of post operative complications

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INTRODUCTION

The efficacy of endovenous laser treatments of varicose veins compared with conventional surgical treatment has been evaluated. Endovenous treatments of saphenous veins using laser have gained recognition in recent years, and results have demonstrated their efficiency and low morbidity when compared with surgical approaches.

METHODS

In this study 100 patients with saphenous vein incompetence were treated with endovascular laser ablation and were seen on after 1 week of treatment and 30th day after treatment and after 3 months. In all cases surgeries were performed under epidural or spinal anesthesia and the saphenous junction was dissected as shown in

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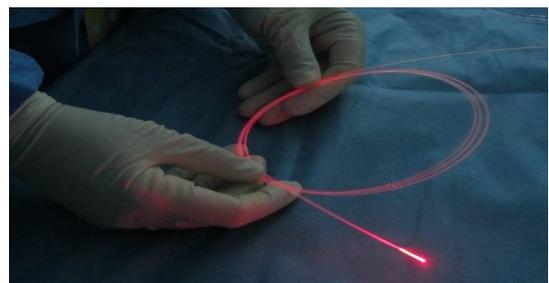


Figure 1



figure 2

RESULTS

We report 100 consecutive cases of saphenous venous insufficiency which were followed up for 90 days and evaluated at 7th day nad 30th day and 90th day. The inclusion criteria for saphenous vein treatment were: symptoms associated with reflux, such as pain, weight sensation or tiredness, edema, trophic disorders, enlarged saphenous diameter, important venous reflux at the saphenous site. The patients were also informed that EVLA is a standard treatment for varicose veins and is currently available.

The mean age of the patients was 41.19 years the youngest being 19 years and the eldest being 75 years and 8 % patients were female .Persistent postoperative pain requiring analgesic medication for more than 7 days was reported for 7(7%) patients. In 4(4%) patients ulcer was formed, and in 6 (6%) patients venous reflux occurred In none of the patients paresthesia was found. Hyperchromia was seen in 7(7%) patients, which was due to exudation of the intravascular fluids leading to the hemochromatin deposition as shown in



figure 3

There were no cases of bruising, deep vein thrombosis (DVT) or pulmonary thromboembolism (PTE).

DISCUSSION

A systematic review published by Darwood and Gough¹ found that the ablation rate was a mean 90% higher for the great saphenous vein. Our initial data revealed that rates were greater than 98% for great and small saphenous veins. This slightly superior result may be justified by the short ultrasound follow-up. We have observed that using 1470 nm laser was very effective and minimal number of complications were present.. However, some authors, such as Pannier *et al.*,⁷ reported a substantially less pain when the 1470-nm diode laser was used, as in the prospective randomized study conducted by Doganci⁸.

A multicenter study⁷ comparing the use of 1500-nm and 980-nm wavelengths found lower morbidity when the shorter wavelength was used.

Schwarz *et al.*,⁵ in a cohort study, found a lower rate of complications, such as phlebitis, pain and paresthesia, for the endovascular application of 1570-nm diode laser and radial fibers when compared with axial fibers, which may be justified by the need of a lower energy density for the treatment

Although several studies in the literature^{3,4,6} have discussed what level of energy is necessary for treatments using a 1470-nm diode laser, no consensus has been reached. Some authors used a level of power that is similar to those adopted for the 980-nm laser treatments and a linear energy density of about 100 J/cm. Our study found good results when using lower amounts of linear endovenous energy density (LEED) than those used with the 980-nm diode laser which was an average of 12 watts, in studies as the one conducted by Soracco *et al.*,⁸ who reported that they also used lower power and LEED and achieved good results in their studies using 1470-nm laser and it also lead to no development of paresthesia. In our trial 7 patients developed the persistent pain on day 30 and day 90 but when the data was analysed by phi square independence it was found to be statistically significant (p <0.001). It shows that with passage of time there was reduction of severity of pain in patients.

When the mean VAS score was carried out at different time interval like 7, 30 ,90th day it was found to be 0.5 respectively which was not quite statistically significant after applying ANOVA test (p value 0.06) In our trial surgery was indicated for cases of saphenous veins that had clinical symptoms and varices due to reflux, and not according to ultrasound results alone, which is in agreement with the recommendations found in the literature⁹, as many patients presented late and surgery was the most appropriate treatment Our practice suggests that the association of phlebectomy and endovenous laser ablation may shorten treatment time. Some authors question this approach,¹ whereas others, such as Jung *et al.*² and Pannier *et al.*,⁴ also found good results using a similar technique. Endovenous ablation using radiofrequency with Closure Fast technique showed improved short and long term results in patients with venous insufficiency with 100% closure seen on doppler studies along with lesser complications and no thrombus formation due shortened procedure time and improved catheter design, Kapoor *et al*¹⁰ Endovenous laser ablation can also causes neural injury as seen in 2 patients and was also reported in case study by sahid *et al*¹¹ And also in rathod *et al*¹²

In our trial the patient basically came from rural areas and hence were operated on a priority basis as the more conservative management requires regular follow up and timely intervention.

CONCLUSION

Our initial experience shows that laser ablation of saphenous veins is effective and leads to few postoperative complications. The technique using 1470-nm diode laser for ablation of varicose veins is an effective method and Further studies should be conducted to evaluate the long-term ultrasound follow-up of these patients

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