



ANTEGRADE AND RETROGRADE APPROACH IN PLANNING VARICOSE VEIN SURGERY USING EVLT : HOW I DO IT ?

General Surgery

Dr. Priyanka Tiwari*

Associate Professor, MBBS, DNB, GENERAL SURGERY, FNB – MAS, FIAGES, FAIS, FALS, FICM, Department of General Surgery, Subharti Medical College, Meerut (U.P). *Corresponding Author

Dr. Dhanesh Saini

Professor, MBBS, MS, Department of General Surgery, Subharti Medical College, Meerut (U.P).

Dr. Shashank Mishra

Professor and Head of Department of General Surgery, MBBS, MS, FMAS, FIAGES, FCLS, FAIS, Department of General Surgery, Subharti Medical College, Meerut (U.P).

ABSTRACT

Minimal Access Surgery for varicose vein can be done with USG guided catheter based endovenous ablation with RFA or Laser. Surgery can be performed either with antegrade approach or retrograde approach. The aim of this study is to know the outcome of antegrade and retrograde approach and also to analyse the anticipation of retrograde approach.

KEYWORDS

INTRODUCTION:

Varicose vein occur because of incompetence of sapheno-femoral valve. This cause reflux and venous hypertension in leg and present with tortuosity of GSV and short saphenous vein and ulceration, dermatosclerosis, and pigmentation in lower leg. Varicose vein surgery can be done via open as well as minimal access surgery. In Minimal Access Surgery for varicose vein we use the catheter based endovenous ablation with RFA or EVLT, but EVLT is significantly superior in anatomical access using USG. Great Saphenous vein in leg can be approached either with antegrade approach with incision in midleg or retrograde approach giving the incision in groin to cannulate the guide wire and then ablation of GSV done to collapse the wall of vein, so that there would be no reflux and symptoms of venous hypertension relieved.(1)

Usually, we used antegrade approach but on occasion this approach is difficult or impossible due to problem such as small vein, scar tissue, vasospasm, difficult anatomy and mean diameter of GSV that varies in proximal, mid, and distal leg, presence of multiple perforators, pigmentation, venous cuff formation and thickened skin or some technical issues (2). In these cases percutaneous ultrasound guided cannulation with antegrade approach is difficult thus the retrograde approach using the groin incision, is useful alternative technique in assessing the GSV as retrograde approach is not time consuming. In both these approaches there is no need for the ligation of great saphenous vein.(3)

AIM:

The aim of this study is to know the outcome of antegrade and retrograde approach and also to analyse the anticipation of retrograde approach.

MATERIAL AND METHOD:

For planning the varicose vein surgery with catheter based endovenous surgery, we studied 10 patients. We did retrograde approach in 3 cases after failure of antegrade approach and results were anticipated in view that retrograde approach has similar results as antegrade and operating surgeon can anticipate the retrograde approach.

All the 10 patients were anesthetized with spinal anaesthesia. Saphenous vein endovenous laser ablation (EVLT) of GSV with Nd:YAG laser was used with frequency of 1064 nm and 15 W- 20 W POWER was applied in all cases.

Patient were placed in supine position, Stab incision was given with 11 no blade above the medial malleolus in antegrade approach and ~ 4 cm below the groin crease in retrograde approach under USG guidance. Guide wire was introduced. If guidewire negotiated completely in the vein upto the SFJ in antegrade approach and below the knee in retrograde approach laser wire was introduced under USG guidance, and, laser energy delivered, 15-20 W at 1 cm interval and laser wire withdrawn gradually.

Tumescent anaesthesia was delivered, through the syringe consistent of 10ml 2% xylocain, 10 ml Sodium bicarbonate and 100ml NS. As, laser energy was given, ice cooling done along the laser energy tract.

After the laser procedure, multiple Stab avulsion done for dilated tortuosity or perforators.



Fig 1 A, B (Preoperative picture varicose vein associated With skin infection and ulceration)

POSTOPERATIVE



Fig 2 A, B (Retrograde approach, antegrade Approach)

RESULT:**ANTEGRADE VERSUS RETROGRADE APPROACH IN EVLT IN VARICOSE VEIN**

		GROUP 1 (Antegrade Approach)	GROUP 2 (Retrograde Approach)
1. PREOPERATIVE			
MEAN AGE		46	42
SEX		6 MALE + 1 FEMALE	3 MALES
CLINICAL SYMPTOMS		Pain and dilated tortuous vein in legs	Pain , dilated tortuous vein , ulceration , pigmentation , multiple perforators
EXAMINATION FINDINGS		Dilated tortuous veins with reflux	Ulceration present , dermatosclerosis present
USG DOPPLER ARTERIAL AND VENOUS		Reflux of GSV and multiple perforators	Reflux of GSV and multiple perforators and No evidence of deep vein thrombosis
VENOUS		GSV dilated	GSV dilated.
PERFORATORS		Perforators in lower leg	Perforator in lower leg
PICTURES		Attached	Attached
2. INTRAOPERATIVE			
VENOUS LASER		Done after giving incision in lower leg and antegrade approach (7 cases)	Done by giving the groin incision , retrograde approach (3 case)
LIGATION OF PERFORATORS		Done	Done
OPEN METHOD BY GIVING GROIN INCISION			
SCLEROTHERAPY		Not used	Not used
3. POSTOPERATIVE			
1 WEEK		No complaint	Minimal swelling (1)
1 MONTH		No complaint	Numbness (1)
3 MONTH		No complaint	No complaint
4. VENOUS ULCER TREATMENT		Not given	Given

To study , we divided the result into two category , antegrade (Group 1) and retrograde approach(Group 2) .In antegrade approach , 7 patient in which 6 males and 1 female with mean age of 46 years , incision given about 4 cm above the medial malleolus under USG guidance after USG doppler of leg .Postoperative outcome were analysed in view of pain in leg , Numbness , DVT , burning after ,swelling , healing of ulcer at 1 week , 1 month and 3 month .All the patients did well with no postoperative complaint .In retrograde approach , incision given in 3 patients , in groin region after failure of antegrade approach and after the venous ablation of vein with EVLT laser , postoperative outcome measured at 1 week and 1 month and 1 patient complaint of mild swelling , in 1 week and one patient complaint of mild Numbness in leg and both the patient did well after 3 months .Thus after 3 month , both the groups had similar results and no recurrence occurred. In 3 cases of retrograde approach , treatment for ulcer healing was given with dressings and SSG and patient did well postoperatively without any complications . In total 10 cases , 8 were unilateral (4 Rt , 4 L) , 2 cases were B/L GSV dilation . In three cases ,

hematoma formation , seroma , recurrence and healing of ulcer and it was observed that retrograde , approach has similar outcome as antegrade approach except in 2 cases of retrograde approach in which minimal swelling occur that subside after 3 months . Thus antegrade access into the saphenous vein under ultrasound guidance is not feasible at all times , If antegrade percutaneous approach fails , patient may be subjected to delay in treatment , multiple treatment attempts .Therefore, retrograde approach can be considered as alternative approach to access the incompetent saphenous veins to reduce the operative time and results of two techniques are comtemporary to each other . Various authors , as Perosi et al , Park et al (4,5,6) did the same study and found that retrograde approach given the 100% results on 3 month follow up .

CONCLUSION :

The present study has some limitation and shortcomings . First SPJ , reflux and its anomalies has not been studied as we did not received such cases in 3 months . Second the number of cases were also less . Third its an observational , intervention for the anticipation of antegrade or retrograde approach intraoperatively , it is not randomized trial and may have bias .

In conclusion , EVLT for incompetent GSV using retrograde approach is safe and effective and should be considered the alternative method if antegrade access fail because of various reasons as short diameter GSV which can occur because of venous cuff formation , hyperpigmentation and liposermatosclerosis in our study .(Fig 1, 2)

REFERENCES:

1. T.Nijsten Vanden Bos et al Technical Review of Endovenous Laser Therapy for Varicose veins Eur J Vascular Surgery 35 , 88-95 (2008)Perosi , Johnson MG Fluoroscopic guided approach to RFA ablation . J Vas. Intervent Radiol 2013 ; 24: 43-46
2. Hossein Ghanaati , Kavous Firouznia et al Long term Clinical and imaging findings in Patients with lower extremity Varicose Veins treated with Endovenous Laser Treatment : A Follow Up Study of UP to 12 Years Hindwai International Journal of Vascular Medicine Volume 2024
3. Hirono Satokawa Takashi Igarahi et al Comparison of Endovenous Laser Treatment for Varicose Vein with High Ligation USING Pulse mode and without High Ligation using Continous Mode and lower energy . Annals of Vascular Surgery Vol 3, No 1 (2021)
4. Park SW , Yun Hwang JJ Fluorocopy guided vein endovenous foam sclerotherapy using a microtherapy in varicose tributaries followed by endovenous laser treatment of incompetent saphenous vein : technical feasibility and early results . Dermatotomy 2009 ; 35: 804-812
5. Jun Seok Kim et al Retrograde endovenous laser ablation through saphenopopliteal Junction Area for Incompetent Small saphenous vein : Comparison with Antegrade Approach Korean J Radiology 2016 ; 17(3): 364-369
6. Andrew Sikovec et al Saphenous Vein Occlusion by Endovenous Laser Ablation with a 1064 nm Nd: YAG Laser Journal of Laser and Helath Academy Vol 2010

DISCUSSION:

The two approach that we used in our patients either with antegrade or retrograde is decided intraoperatively . In retrograde approach , a small incision given in groin region after the failure of antegrade approach. In antegrade approach we used small incision in lower leg .The outcome were analysed by observation and following the patients in OPD after , 1 week , 1 month and 3 months in view of wound infection ,