



Original Research Article

MODIFIED TECHNIQUE - GURAV'S MODIFICATION OF EVLA – RENDEZVOUS HYBRID TECHNIQUE BY LASER LIGHT GUIDANCE WITH COMBINATION OF EVLA WITH TRADITIONAL SFJ LIGATION (FOR PRIMARY CENTERS WITH NO INTRAOP USG GUIDANCE)

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ABSTRACT

Background: India is developing day by day with advanced medical science and innovation in the field, however there are still lack of few high end facilities in tier 2, tier 3 cities or rural areas. Patient from these areas may not afford or it may not be feasible for them to go to tertiary care centres for treatment. This population is usually served by local nursing homes and medium sized hospitals. Though this hospital might be trying hard to acquire advanced technologies to help their patients but they are unable to procure all facilities for various reasons. While working in such centres, we noticed for Varicose vein patients ~~that~~ those who need surgery for varicose veins by EVLA, though a gold standard in treatment, this cannot be a treatment option due to lack of intra operative USG Doppler guidance. Doing EVLA (Endovenous laser ablation without USG guidance is not recommended. So only option remains for these patients is traditional open surgery with stripping of vein, which is painful and has its own set of complication. Although one can procure laser system for these patients but USG guidance is not possible at small set ups. Hence, we present Modified technique - Gurav's Modification of EVLA – Rendezvous Hybrid technique by laser light guidance with Combination of EVLA with traditional SFJ Ligation (for primary Centres with no intraop USG guidance). Salient points to highlight - 1. This procedure is strictly for selected group of patient having mainly SFJ incompetence as primary disease, No accessory vein, No SPJ incompetence, No major perforator incompetence as per Doppler report. Case selection is very important. 2. This procedure is only for centres where there is lack of intra op USG guidance facility, Specially for tier 2-3 and rural areas. 3. Given ideal settings, Standard EVLA remains standard of care in treatment of varicose veins and by no means we claim that this procedure is superior to Routine USG guided EVLA. 4 We have very low threshold to deny patient for this procedure based on vein anatomy, disease progression and in that case, I look for alternative options.

Materials and Methods: Description of Technique – We take prior consent of the patient and explain them the procedure. Pre Operative USG marking done by radiologist in his centre, preferably with Heena – Mehandi so it will not be erased while scrubbing. Saphenous Vein is cannulated guided by USG markings. Radial fibre is inserted in GSV and light of laser is switched on. Under visual guidance of laser light, Fibre is advanced towards SFJ, which is already marked by USG guidance. After this two way check, small incision is taken just below SFJ, again guiding with laser light, vein is looped and proximal end is ligated. Here advantage over traditional technique is, due to direct laser

light guidance vein can be found with small incision and with minimal dissection. Proximal end of GSV is ligated in situ and tumescence injected around distal GSV again under Light guidance. After that remanent distal vein is ablated using lasers, hence eliminating need of stripping and giving advantage of laser to patient. Lower leg perforators are ligated if any.

Results: Initial outcomes in carefully selected set of patients is satisfactory, long-term data is not available. There were no major complications during procedures.

Conclusion: Using this technique, we can give advantage of laser therapy to patients of varicose veins in centres where intra op USG guidance is not available.

Keywords: EVLT

INTRODUCTION

Varicose veins as we know is abnormal dilatation of veins in leg, which can be due to major valvular incompetence like SFJ or SPJ incompetence or due to perforator incompetence. Treatment options include Conservative management in initial stages and surgery in indicated cases. In surgical management tradition SFJ ligation with vein stripping has been described and practices since many years. Now a days with advent of laser, Endovenous Laser Ablation is new modality which offers minimally invasive solution for treatment of varicose veins. EVLA includes ablation of vein under USG guidance.

India is developing day by day with advanced medical science and innovation in the field, however there are still lack of few advanced facilities in tier 2, tier 3 cities or rural areas. Patient from these areas may not afford or it may not be feasible for them to go to tertiary care centres for treatment. This population is usually served by local nursing homes and medium sized hospitals. Though this hospital might be trying hard to acquire advanced technologies to help their patients but they are unable to procure all facilities for various reasons.

While working in such centres we noticed while treating Varicose vein patients ~~that~~ those who need surgery for varicose veins EVLA, though a gold standard in treatment, this cannot be a treatment option due to lack of intra operative USG Doppler guidance. Doing EVLA (Endovenous laser ablation) without USG guidance is not recommended. So only option remains for these patients is traditional open surgery with stripping of vein, which is painful and has its own set of complication. Although we can procure laser system for these patients but USG guidance is not possible at small set ups. Hence we present Modified technique - Gurav's Modification of EVLA – Rendezvous Hybrid technique by laser light guidance with Combination of EVLA with traditional SFJ Ligation (for primary Centers with no intraop USG guidance).

MATERIALS AND METHODS

Patient for this procedure are carefully selected with very low threshold for exclusion.

Patient criteria will be

- a. Patient having SFJ incompetence with dilated Great Saphenous Vein.
- b. Patient NOT having associated SPJ incompetence
- c. Patient NOT having accessory veins or communications.
- d. Patient Fit for procedure
- e. Radiologist familiar with our requirement so He will mark as per our needs.
- f. Availability of Laser
- g. Patient should be compliant to follow up.

Patient is carefully explained treatment options including conservative option if indicated, Open surgical option, EVLA at tertiary care wherever possible and explained about this modified procedure. Written consent obtained from patient for this procedure.

Description of Technique

We send patient to radiologist and request him to mark SFJ, course of Saphenous vein, incompetent perforators with Mehendi (Heena), So markings will not be erased on scrubbing.

Step 3 – Cannulating GSV and tracing of GSV with Laser Light Guidance



Inside Operation theatre, after anaesthesia and scrubbing, We identify lower most accessible portion of Great Saphenous Vein, that must be marked by radiologists. We cannulate that vein and pass radial laser fibre. Then we switch off OT lights and trace the glow of laser light upwards towards SFJ as we move fibre up.

Step 4 – Identifying Saphenofemoral junction under Guidance and Ligation –



With double checking with marking done by radiologist and by laser light, we take a small incision to find Saphenous vein near SFJ. Laser Light guidance help us to accurately identify GSV with minimal incision and minimal dissection (especially patients with high BMI) Once we loop GSV and confirm dipping of GSV towards SFJ, we ligate in Situ proximal portion of GSV near SFJ.



Step 5 – Tumescence Injection around GSV- With Cold Saline, again here Laser light can guide for location of vein in absence of USG guidance.



Step 6 – Emptying Distal GSV segment and Laser ablation

Now we empty the distal segment of GSV by pressure. Here now we can use laser. Then we activate radial laser and ablate distal limb of GSV.



Step 7 – Taking care of Perforators and varicosity through various approaches as usual, e.g Ligation, Phlebectomy, Sclerotherapy etc.

Step 8 – post op care remains the same as usual.

RESULTS

We have done 5 such cases till now with satisfactory short-term results. Long term results are not yet available.

There were no major complications during these procedures.

DISCUSSION

EVLT with SFJ ligation though already described in some studies with good results. Most of these procedure were under doppler guidance. Taking this further we use combination of preoperative surface markings and laser light guidance for locating GSV. Also we use this same technique while giving tumescence around distal limb of GSV, overall compensating the need of intra op doppler guidance.

Take home message:

This technique has following advantages over traditional open surgery Technique

- Ease of Finding SFJ with help of Laser Light Guidance
- No Need of stripping so Complication of stripping such as Pain, Hematoma, Neuralgia etc is avoided.
- Minimal Incision
- Advantage of Laser delivered to patient in affordable cost, in primary set up.

How is makes a difference compared to standard EVLT

- Intra op USG Guidance not needed
- Can be done without need of intra op Radiologist help.
- Can be done in basic OT set up.
- Better and safer than Blind Non USG guided EVLA.

Take Home Points -

1. This procedure is good for carefully selected patients as discussed.
2. This modification is preferred for centres with no intra op USG, No high end lasers available.
3. I am not claiming this modification is better than Standard EVLA. In Ideal Scenario with availability of facilities USG guided EVLA is still a Standard of Care.
4. Cost of USG guidance, tertiary centre, High end laser equipment are avoided.

CONCLUSION

Though endovenous laser ablation under ultrasound doppler guidance remains gold standard and is truly minimally invasive, this technique allows us to use laser technology safely in centres where ultrasound doppler is not available intra operatively. Where ever such facilities are available we also prefer ultrasound guided EVLT. This procedure has traditional component of SFJ ligation , minimal incision because

of laser and marking guidance, laser eliminating need for vein stripping and its complications, less chances of hematoma and discomfort.

PS – We Declare no conflict of interest.

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