



AN EXPERIENCE WITH TOTAL STRIPPING OF GREAT SAPHENOUS VEIN IN THE MANAGEMENT OF VARICOSE VEINS.

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ABSTARCT

OBJECTIVE: *To determine the efficacy of complete GSV stripping in terms of morbidity, nerve injury and recurrence rates.*

METHODS: *42 patients with uncomplicated unilateral and/or bilateral varicosities involving the great saphenous system were included in this study. Patients with primary and/or recurrent varicose veins associated with active or healed ulcers, patients with bleeding diathesis and those who failed to sign the proforma for regular follow-ups were excluded from this study. Complete stripping of great saphenous vein up to the ankle, together with multiple phlebectomies was performed in all patients. Postoperatively, limbs were examined for complications like bruising, edema, wound site infections and sensory abnormalities. All the patients were followed up for the period of one year for recurrence and improvement in sensory abnormalities.*

RESULTS: *All the patients belonged to CEAP class 2 or greater. The mean age of patients in this series was 33 years (range 20-48 years, SD + 8.24). There were 31 (74%) were males and 11(26%) were females. Majority of the patients presented with frank pain in legs. 9 (21.4%) patients presented with bilateral varicosities involving the GSV, whereas 20(47.6) and 13 (31%) patients presented with right and left sided disease respectively. 7 patients presented with some sensory abnormalities at first follow up. These were temporary and spontaneously subsided within 4-6 weeks. None of the patient came back with recurrence within a mean follow-up period of one year.*

CONCLUSION: *We conclude that since permanent complication rates do not significantly differ from those secondary to knee level stripping of GSV and with a low recurrence, and reoperation rates, abandoning complete stripping of the saphenous vein to the ankle is not the right decision currently.*

KEY WORDS: G S V, total stripping, saphenous nerve injury

INTRODUCTION:

Varicose veins are the most common of all the vascular disorders that affect humans. Visible varicose veins involving great saphenous system (GSS) affect 10-15% of men and 20- 25% of women¹. The aim of the treatment for this dreaded disease is to obtain an acceptable result in terms of cosmetics and to relieve patient's complaints. Different modality of treatments for varicose veins include compression stockings, foam sclerotherapy and various endovenous ablation techniques²⁻⁴; however the most acceptable treatment for primary varicose veins remains flush ligation of sephano-femoral junction, partial/ complete stripping of Great Saphenous vein (GSV) and multiple phlebectomies⁵. Though serious complications are quite uncommon, the procedure may cause considerable early morbidity, including bruising, cutaneous nerve injury, haematoma, pain and discomfort in the groin and leg, and risk of wound infection^{6,7}. Limited knee level stripping has been widely accepted as the gold standard operation for varicosities involving the GSS. This approach is associated with significant reduction in injury to saphenous nerve. However, the risk is not completely eliminated as reported in different series^{8,9}. Restricted stripping of GSV to the knee level on the other hand is associated with a high recurrence in the residual segment¹⁰. This completely nullifies the advantage of knee level stripping of GSV and making complete stripping of the vein up to ankle level an attractive alternative. This prospective study was designed to determine the efficacy of complete GSV stripping in terms of morbidity, nerve injury and recurrence rates.

MATERIAL AND METHODS:

From July 2006 to June 2009, this prospective study was carried out at Liaquat university

hospital and different private medical centers of Hyderabad city. In total, 30 patients with uncomplicated unilateral and/or bilateral varicosities involving the great saphenous system were included. Patients with primary and/or recurrent varicose veins associated with active or healed ulcers, patients with bleeding diathesis and those who failed to sign the proforma for regular follow-ups were excluded from this study. The diagnosis and level of incompetence were confirmed by hand held Doppler ultrasound. Informed consent was taken and patients were given liberty to leave the study at any point without stating any reason.

OPERATIVE TECHNIQUE:

All patients were operated under spinal block. Injection Cephadrine 1gm was given as prophylaxis. The incision was placed 2cm above the medial melleolus. The Great saphenous vein (GSV) was identified and separated carefully from the main trunk of Saphenous nerve. Once isolated, the GSV was ligated, and olive-head stripper was introduced through a rent in the distal part and negotiated to the proximal part. The distal remnant was cut and then ligated using vicryl plus 2.0. Another 3-5cm incision was made at the sapheno-femoral junction, 2 cm below and lateral to the pubic tubercle. Tributaries of GSV were identified and ligated. A small incision was then placed at the tip of the stripper; the vein was ligated using vicryl 0 1 and was then stripped from below-upwards. Multiple phlebectomies were done for large clusters of veins as the situation warranted. Wounds were closed using vicryl 0 000 for skin and chromic 00 for subcutaneous tissue. The limb was covered with elastic bandage, applied in caudo-cranial direction. Patients were encouraged for light walk on the first operative day and were discharged from hospital on second post-operative day in case of uneventful recovery.

The follow-up schedule was designed at 1st, 4th, 8th and 12th weeks of surgery. During each visit, limbs were examined for complications like bruising, edema, wound site infections and sensory abnormalities within the distribution of saphenous nerve using cotton-stick. The abnormalities were characterized as paraesthesia and dysthaesia. All the patients were followed up for the period of one year for recurrence and improvement in sensory abnormalities.

RESULTS:

All the patients belonged to CEAP class 2 or greater depending upon the severity of the disease. This is depicted in detail in table I.

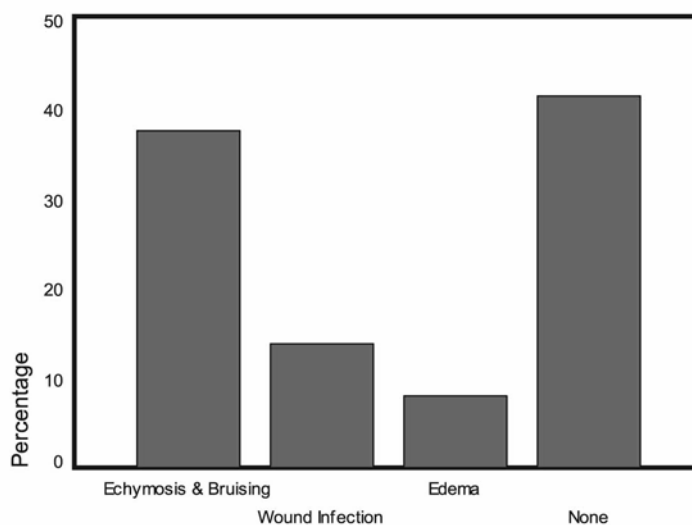
**TABLE I:
CLINICAL STAGE OF THE DISEASE**

CEAP Classification	No of Limbs (n= 51)	Percentage
Class 2	30	58.8
Class 3	14	27.5
Class 4	7	13.7

**TABLE II:
SYMPTOM PROFILE OF THE PATIENTS**

Symptoms	No Of Patients (n= 42)	Percentage
Pain	14	33.33
Night Cramps	09	21.4
Heaviness on Prolonged Standing	11	26.2
Itching	06	14.3
Skin Changes	01	2.4
Cosmetic Concerns	01	2.4

**FIGURE I:
POST-OPERATIVE COMPLICATIONS**



The mean age of patients in this series was 33 years (range 20-48 years, SD + 8.24). Amongst 42 patients in total, 31 (74%) were males whereas 11(26%) were females. Majority of the patients presented with frank pain in legs, followed by night cramps, heaviness on prolonged standing. With relative frequencies, rests of the symptoms are elaborated in table II.

In this series, 9 (21.4%) patients presented with bilateral varicosities involving the GSV, whereas 20(47.6) and 13 (31%) patients presented with right and left sided disease respectively.

In total, 19 limbs out of 51, showed bruising in post operative period, whereas 7 and 4 developed wound infection and edema (fig I). In this series, 7 patients presented with some sensory abnormalities at first follow up. Figure I elaborate these abnormalities in detail. They were temporary and spontaneously subsided within 4-6 weeks. None of the patient came back with recurrence within a mean follow-up period of one year.

DISCUSSION:

Nerve injury is a recognized morbidity after

varicose vein surgery. The most commonly affected nerve is the saphenous nerve, which is at risk of injury during stripping of the GSV, particularly when the vein is stripped to the ankle¹¹. Complete stripping, however, is associated with a low recurrence rate compared to knee level stripping of the vein^{12, 13}. The debate between complete stripping of the great saphenous vein (GSV) up to ankle versus partial stripping up to knee level continues. The reported incidence of nerve injury following GSV stripping varies between 23-58%^{9, 15, 16}.

This was a clinical study with simple methodology and reproducible results. In this series, the sensory abnormalities were noted in 20% patients. This is comparable with other studies reporting more or less the same incidence^{8, 10}. Lofgren et al¹⁴ showed that GSV stripping from the groin to the ankle brought good-to-excellent results in comparison to high ligation of the GSV alone vis-à-vis sensory morbidity, with a success rate of 94% and 40%, respectively. Dwerryhouse et al¹⁷ reported duplex-confirmed reflux in one quarter of limbs that underwent restricted stripping of the GSV, at the 5-year follow-up, implying that this pathology might ultimately express itself as recurrent varicose veins. These findings also suggest that orthodox method of stripping the vein up to the knee may prevent the damage to saphenous nerve but at the cost of a high recurrence rate. GSV stripping at ankle is also being shown to improve quality of life in early post-operative period⁷. We have observed that stripping in upward direction, using small olive can pass towards the groin easily with less nerve damage. Cosmetic results were also satisfactory. None of our patient came up with recurrence during the mean follow up period of one year.

The limitations of study were relatively small size and its descriptive methodology. For

the reflux in the entire GSV (insufficiency in the whole GSV), the treatment of choice is complete stripping of the GSV to the ankle with high ligation and phlebectomies because of low complication and recurrence rates. Nerve injury may occur after both complete and partial stripping and symptoms of nerve injury are transient and mild. We conclude that since permanent complication rates do not significantly differ from those of other treatment methods evaluated along with high success, low recurrence, and low reoperation rates, abandoning complete stripping of the saphenous vein to the ankle is not the right decision currently.

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