

Follow Up of Surgical Treatment for Varicose Veins in the Last Three Years in our Institution

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Abstract

Objectives: To assess the influence of venous reflux pattern and superficial venous surgery on ulcer healing and long-term recurrence rates and also to prove that surgery for varicose veins will help in resolution of venous ulcer, thereby improving their quality of life and improve their efficiency at work. **Design:** Retrospective observational study **Methods:** Data was collected from the inpatient and outpatient records at a tertiary care setup hospital. All operated cases of varicose veins with venous ulcers (CEAP C class 6) were followed up. A proforma was made highlighting all the salient findings as type of varicose surgery and choice of post operative compression and data were collected. Study duration was from June 2012 to June 2015. **Results:** A total of 91 cases of operated varicose veins (11 GSV stripping, 72 GSV stripping + perforator ligation and 8 cases of perforator ligation alone) with venous ulcers were studied, out of which 27 patients were non compliant to postoperative compression and 11 cases had recurrent venous ulcers with 6 cases having recurrent varicose veins. Pattern of superficial venous reflux and risk factors associated with recurrent ulcers were also studied. **Conclusion:** Superficial venous surgery done in an effective manner, with proper postoperative compression of these patients definitely produces good results with less recurrence of both venous ulcers and varicose veins.

Keywords: Varicose; Venous; Ulcer; Veins; Trendlenbergs; Procedure; Stripping; Ligations; Compliance; Compression; Stockings; Crepebandage; Insufficiency; Duplex Imaging; Saphenous; Veinsurgery.

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Introduction

Varicose veins is a common disease condition we see in our daily practice and most of them present to us with non healing venous ulcers.

Chronic venous ulcers represent a major burden to health care services affecting at least 1-2 percent of our total population, often with a protracted course of delayed healing and multiple recurrences. Ulcer aetiology is often multifactorial and results from prolonged venous hypertension.

It has been suggested that surgery alone is sufficient to heal ulcers with isolated superficial reflux. Other consultants employ compression bandaging in addition to surgery. Patients are advised to wear elastic compression hosiery following ulcer healing, but compliance is often poor and difficult to assess.

The role of surgical correction of saphenous vein reflux as a therapeutic manoeuvre in the treatment of venous ulceration have demonstrated that saphenous vein ligation with stripping to the knee (combined with postoperative compression) results in ulcer healing if the deep veins are normal, with associated improvement in ambulatory venous pressure.

Because of the substantial morbidity, financial and psychosocial cost it is important to identify the most effective means of treatment for venous ulceration. The progressive development and modification of treatments are essential to contest the natural history of prolonged ulceration and recurrence that makes venous ulceration extremely difficult to cure.

Superficial or deep venous incompetence allows high-pressure venous blood to gravitate to the ankle, this venous hypertension is thought to be the principal cause of venous ulceration, secondary to superficial and deep venous insufficiency, obstruction to venous flow, and/or failure of the "venous calf pump". Other associated factors include elevated ambulatory

venous pressures, minor trauma, edema, obesity, arthritis and neuropathies.

Pathophysiological abnormalities contribute to changes at a cellular level that result in venous ulceration, for which a number of hypotheses have been put forward. Despite varying explanations for venous ulceration, it appears that correction of venous hypertension results in ulcer healing and lower recurrence.

Compression therapy and surgical correction of superficial venous incompetence are the main methods currently employed for the treatment for venous ulceration. Graduated external compression to the lower extremity has resulted in accelerated healing of venous ulcers and has become the mainstay of treatment. Compression bandaging therapy is thought to produce a decrease in ankle fluid, softening of the lipodermatosclerosis, decrease in venous volume, increase in deep venous velocity, blood shifts into central compartments, reduction in venous reflux, improvement of venous pumping, improvement in microcirculation and lymph drainage.

As Coimbatore district and surrounding areas is a highly industrialized region with thousands of manual laborers, We, the Department of General surgery, PSG IMS&R, tend to see a lot of patients with varicose veins. Most patients only come for treatment if they are symptomatic or if they have an ulcer. This study looks at the improvement in venous ulcers in patients undergoing varicose vein surgery in our institution.

Aim of Study

1. To assess the influence of venous reflux pattern and superficial venous surgery on ulcer healing and long-term recurrence rates.
2. To prove that surgery for varicose veins will help in resolution of venous ulcer, thereby improving their quality of life and improve their efficiency at work.

Materials and Methods

Study Type

Retrospective observational study

Study Population

91 patients with varicose veins and venous ulcers

Study Duration

3 years (June 2012 to June 2015)

Place of Study

Study was done at a tertiary care multispecialty hospitals (PSG hospitals , coimbatore).

Data Collection

Data was collected from both inpatient and outpatient files from PSG hospitals medical records department.

Inclusion Criteria

1. Patients with active venous ulceration (C-class 6 in the CEAP classification), that we have operated at our institution.

Exclusion Criteria

1. Patient numbers with healed venous ulceration (C-class 5 in the CEAP classification) that recurred after treatment and was operated.
2. All cases of varicose veins operated without a venous ulcer, (C-class 2-4 in the CEAP classification).

Data Analysis

The studies were analyzed and data abstracted with regard to the patient demographics; Number of cases operated; Type of surgery performed; Time of follow up; Size of ulcer; Time taken for ulcer healing; number of cases with recurrence to ulcer; time taken for ulcer recurrence; venous Doppler reports of those patients showing SFJ, SPJ and perforator incompetence; mean hospital stay and methods use postoperatively: comp. stockings/crepe bandage. We also collected data on risk factors associated with non-healing ulcers and ulcer recurrences.

Results

The study included a total of 91 cases of operated varicose veins at our hospital with active venous ulceration (C-class 6 in the CEAP classification).

Of these 11 cases had undergone only trendlenbergs procedure, 72 cases had trendlenberg with perforator ligation and 8 cases had only perforator ligation.

85 of these cases had ulcers lesser than 3 cms size and only 6 cases had ulcers > 3 cms and largest was a 6 cm sized ulcer. Size of ulcer was not associated with recurrence, as we also saw larger ulcers that healed well, post surgery.

All 91 cases had their first review within 10 – 15 days from the date of discharge and all 91 cases had good ulcer healing at their first review. 20 cases did not turn up for second review and all those cases were considered as not compliant to stockings/crepe bandage.

Some of the Risk factors associated with ulcer formation that we identified in our study was (i) Age of the patients usually fall greater than 40 years in more than 80% of cases; (ii) Sex of patient showed a female preponderance in more than 80% of cases; (iii) Occupation of patient is one of long standing professions in greater than 95% of cases.

Venous Doppler imaging studies were invariably done in all cases, which showed 90 % of cases to have SFJ incompetence, 50 % cases to have associated SPJ incompetence and 85% of cases to have associated perforator incompetence. 100% of recurrent venous ulcer cases had multiple perforator incompetence and also had underwent surgeries for the same along with trendlenbergs procedure.

27 cases were not compliant to crepebandage /

stockings application, of which 11 cases had recurrent venous ulcers and time period for recurrence ranged from 3 months to 6 months. 100% of these ulcers were healed well in 10 to 15 days post surgery, only to recur 3 months later.

Time taken for ulcer healing ranged from 10 days to 1 month in most of cases. Only 6 cases took a longer duration of 3 months to 6 months and all of them were positively associated with larger size of venous ulcer.

Post operatively, both compression stockings and crepe bandage were used. 27 cases were not compliant to these measures. Out of 11 recurrent cases, 100% of them were not compliant to stocking / crepe application. But it was not true otherwise, 27 cases were not compliant with these measures and not all of them were associated with recurrence.

It was also noted that 6 cases had recurrent varicose veins and 100% of them were associated with recurrent venous ulcers, non compliance to postoperative compression and also 100% of these had multiple perforator incompetence.

Fig. 1

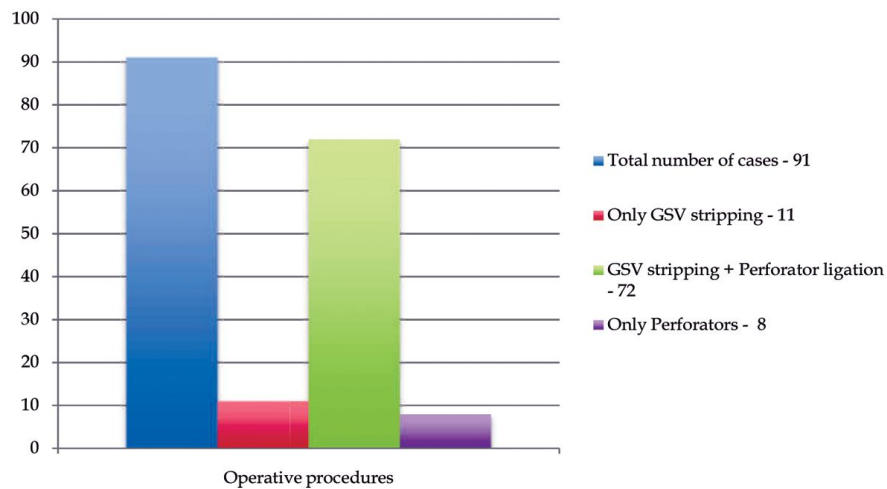
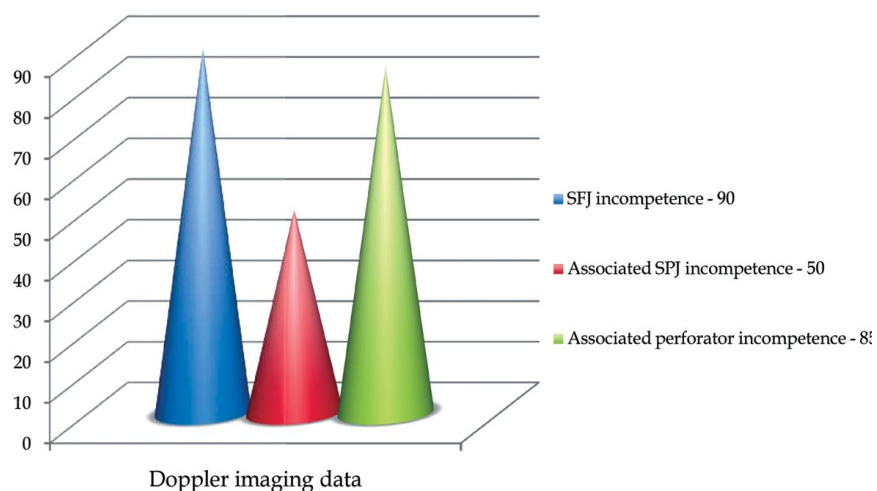
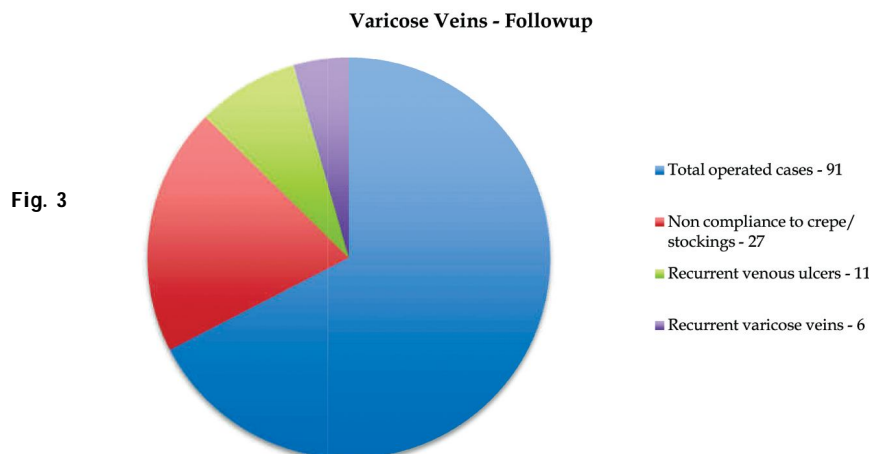


Fig. 2





Discussion

In this study a total of 91 operated cases of varicose veins were followed up and out of them 11 cases had recurrent venous ulcers and 6 had recurrence of varicosities.

Labropoulos *et al.* assessed the progression of 150 operated cases of varicose veins and venous ulcers in the New York region. The factors associated with nonhealing were advanced age, increased body mass index, history of DVT, non-compliance with compression therapy, and large ulcer area.

In our study, duration of active ulcer, pattern of venous incompetence, associated risk factors and poor compliance to postoperative compression, all correlated with a poor prognosis for healing. But size of ulcer was not associated with recurrence, as we also saw larger ulcers that healed well, post surgery.

Margolis *et al.*, in a U.S. study have shown that colonization and infection play a role in delaying the healing of chronic ulcers. In our sample, these factors (slough) were present in a substantial percentage of cases, demonstrating how often these conditions occur in patients with chronic leg ulcers. Infection was a major factor associated with worse prognosis during follow-up.

In our study, compliance with compression therapy had a major favorable effect on healing at 6 months. Other risk factors reported in the literature as having a negative influence on healing of chronic venous leg ulcers, such as, ulcer area at baseline, and post-thrombotic etiology, were not identified as such in our sample.

External compression is regarded as essential to the ulcer healing process. In our study 27 cases were not compliant to post operative compression and all 11 cases that had ulcer recurrence were positively associated with non compliance to postop

compression. It shows Compliance with compression therapy has favorable effects on the healing process.

There is a consensus in the literature that the most effective intervention for treatment and prevention of recurrence in varicose is strong compression, as it minimizes the effects of venous hypertension on the affected leg. Compression acts on the macro circulation by increasing deep venous return, reducing pathological reflux during walking, and increasing the stroke volume during activation of the calf muscles. Limb compression increases tissue pressure, thus facilitating resorption of edema and improving lymphatic drainage. Furthermore, it acts on the microcirculation to decrease fluid and macromolecule outflow from the capillaries and venules to the interstitial space, and can also stimulate fibrinolytic activity.

It was also noted that 100% of recurrent venous ulcer cases had multiple perforator incompetence and also had underwent surgeries for the same along with trendlenbergs procedure, which may suggest left behind perforators may be a cause of recurrence in these patients.

Also the risk factors as increasing age, female preponderance and long standing occupation were all identified as additional factors that may have played a role in recurrence of varicosities and ulcers in those patients as suggested by various metastudies.

Conclusion

Evidence from the current literature, would suggest that superficial venous surgery done in an effective manner, with proper compression of these patients definitely produces good results with less recurrence of both venous ulcers and varicose veins.

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Ethical Approval

Obtained from Ethical committee of PSGIMS&R.

Competing Interests

None

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