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Original Research Article

Comparative study on outcome of surgical management of varicose veins with and without great saphenous vein stripping

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ABSTRACT

Background: Varicose veins of lower limb are multiple elongated dilated and tortuous veins. It is a progressive disease that worsens as the day passes. The treatment modalities available are conservative, surgical and endovenous therapies. It is accepted that surgical treatment is required for symptomatic varicose veins, to relieve symptoms and to prevent the long-term sequelae of eczema, lipodermatosclerosis and venous ulceration. Different surgical interventions may be used, but most preferred treatment applied is saphenofemoral flush ligation and ligation of incompetent perforators.
Methods: This prospective comparative study was conducted on 60 patients in the department of general surgery, Mamata general hospital from July 2020 to June 2022. 60 patients were allocated into two groups of 30 patients each, who underwent flush ligation of saphenofemoral junction with stripping of long saphenous varicose vein and Trendelenburg surgery alone (flush ligation of sapheno femoral junction) respectively.
Results: The hematoma formation in the thigh was seen in 23.33% of patients who underwent venous stripping whereas it was seen only in 3.33% who underwent Trendelenburg procedure alone. These wounds were examined in the postoperative period. Delayed wound healing was observed in 26.66% in patients with venous stripping and it was 10% with Trendelenburg procedure alone. There was no significant difference in postoperative ambulation, hospital stay and pain relief after 2 months.
Conclusions: From this study with the observed variables, it is concluded that the Trendelenburg procedure with incompetent perforators ligation without venous stripping appears to be better than Trendelenburg procedure with incompetent perforators ligation with venous stripping.

Keywords: Varicose veins, Trendelenburg procedure, Great saphenous vein

INTRODUCTION

Varicose veins of lower limb are multiple elongated dilated and tortuous and palpable veins that are typically larger than 3mm. It is a progressive disease that worsens as the day passes.[1] There is no universal definition for varicose veins.[2] Varicosities are manifestations of chronic venous disease, which includes various other venous abnormalities, such as dilated intradermal veins, spider veins, reticular veins and telangiectasia.[3] Varicose veins range in severity from telangiectasia to protuberant superficial varicose veins with or without oedema, dermatitis, lipodermatosclerosis and venous ulceration.[4] It is a complex and multifactorial development involving genetic makeup of the individual and predisposing risk factors that include age, female sex, family history, pregnancy, obesity and prolonged standing.[5] It is likely that genetic variation, persistent venous hypertension, and the

consequence of chronic inflammation with in the venous wall may be independent contributory elements.[6] The treatment modalities available are conservative, surgical and endovenous therapies.[7] It is accepted that surgical treatment is required for symptomatic varicose veins, to relieve symptoms and to prevent the long-term sequelae of varicose eczema, lipodermatosclerosis and venous ulceration .[8] Although the surgical treatment of ligation and stripping of the greater saphenous veins has been fairly standard for nearly the last 100 years, more recent studies have questioned this approach.[9] Different surgical interventions may be used, but most preferred treatment method applied is saphenofemoral flush ligation and ligation of incompetent perforators.[8]

Aims and objectives

Aim and objective of current study was to compare the outcomes of surgical management of varicose veins with and without GSV stripping.

METHODS

The present study was a single-center, prospective comparative study conducted on patients admitted with varicose veins in the surgical wards of Mamata General Hospital from July 2020 to June 2022. During this study, a total of 60 varicose veins patients admitted in ward were divided into the 2 groups of 30 patients in each group who underwent flush ligation of saphenofemoral junction with stripping of long saphaneous varicose vein and Trendelenberg surgery alone (flush ligation of SFJ) respectively. Patients were included in the study based on the inclusion and the exclusion criteria as mentioned below:

Inclusion criteria

Inclusion criteria for current study were; varicose veins with saphenofemoral valve incompetence and perforator incompetence and patients in the age group of 18 to 70 years.

Exclusion criteria

Exclusion criteria for current study were; age extremities <18 and >70 years, patients with deep vein thrombosis**, *w***ith associated short saphenous vein varicosity, with venous ulcer or other complications and recurrent varicosity.

Procedure

Patients admitted under general surgery with varicose veins were included in the study after taking their consent. Detailed history & thorough physical examination of the patients to be included under the study was done and recorded in a proforma for each patient separately. All patients were subjected to investigations like Doppler study of lower limbs, CBP and other routine blood investigations. Operative procedure like Trendelenberg procedure with and without venous stripping was decided by the consultant on a case basis.

Data collection

All the data was collected from patients who attended surgical out-patient department and got admitted in the wards with varicose veins with detailed history & thorough physical examination. It included age, sex, nationality, complaints, duration of symptoms, predisposing factors and previous surgeries. Telephone contact numbers and detailed address were collected for follow up.

Statistical analysis

Data entry was done using M. S. Excel and statistically analysed using Statistical package for social sciences (SPSS Version 16) for M. S. Windows.

RESULTS

The most common age group in the study was 40-70 years.

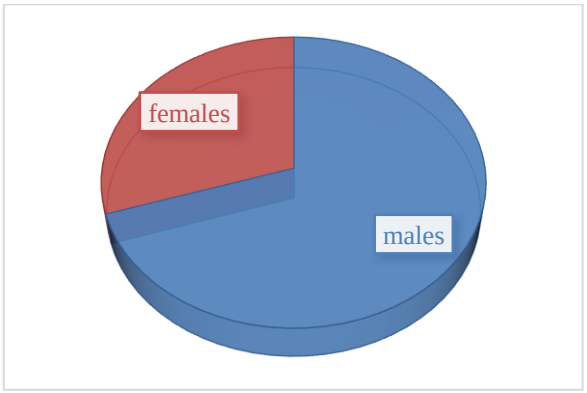

Figure 1: Age distribution.

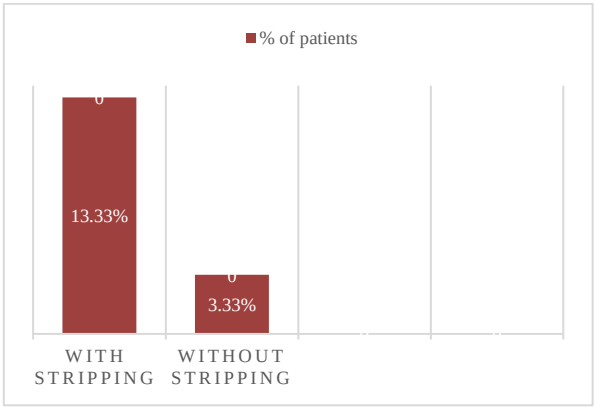

Figure 2: Comparison of hematoma formation in both groups.

Out of 60 patients, 42 (70%) were male and 18 (30%) were female with a male to female ratio of 2.3:1. Left lower limb was more commonly involved than the right side in 47 (78.3%) patients among the study population. The hematoma formation in the thigh was seen in 13.33% of patients who underwent venous stripping whereas it was

seen in 3.33% who underwent Trendelenburg procedure alone without venous stripping.

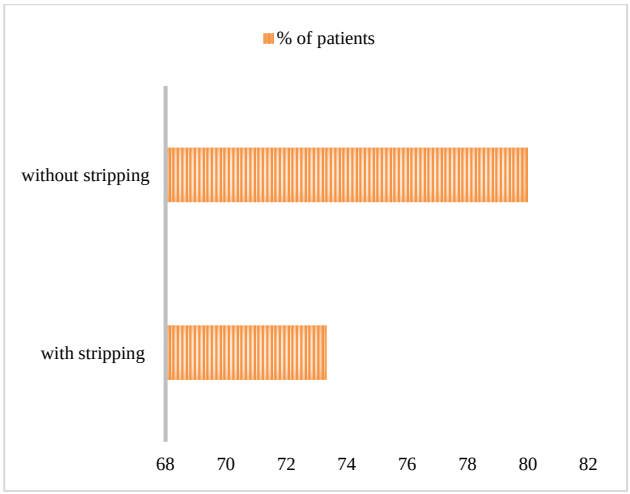

Figure 3: Comfortable ambulation on POD 1 in both groups.

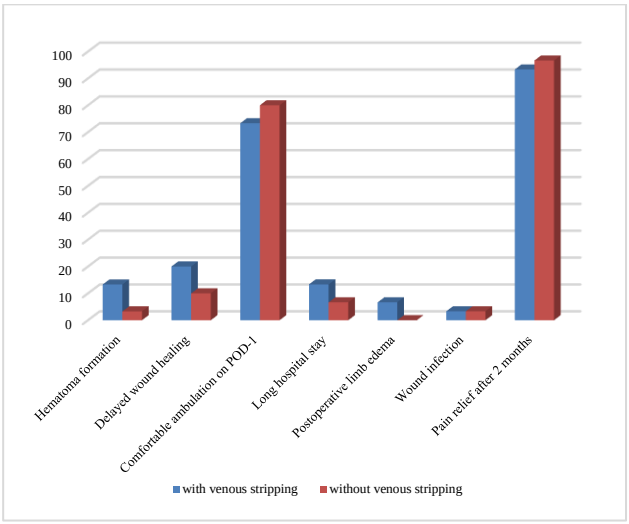

Figure 4: Comparison of various factors in both groups.

The increased incidence of hematoma formation in the thigh in patients who undergo stripping was due to tissue trauma that occurs during venous stripping. In both the groups, the incompetent perforators in the leg were approached by making a transverse incision at the site marked preoperatively under Doppler guidance. These wounds were examined in the postoperative period. 20% of patients in with venous stripping group and h 10% in without venous stripping group had delayed wound healing. Post operative edema of the limb was noted in 2 patients and only in with stripping group. When the patients were encouraged to walk on the first postoperative day, 73.33% of those who underwent stripping and 80% from those who underwent ligation alone had comfortable ambulation. Long hospital stay noted in 4 (13.33%) patients in venous stripping group and in 2 (6.66%) patients in the other group. It was found that in the case of venous stripping, the tissue trauma, hematoma formation, bruising, pain and postoperative edema of the limb was more.

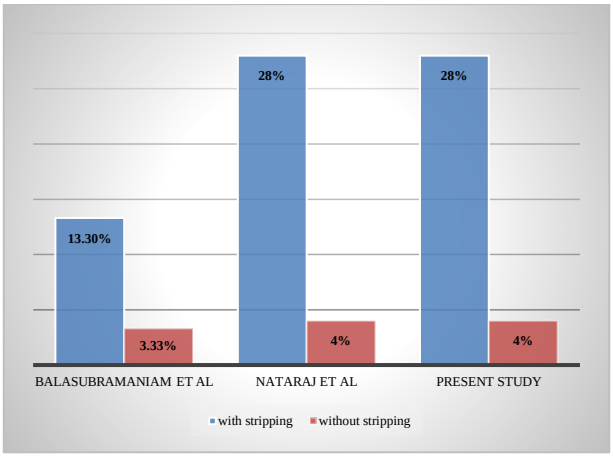

Figure 5: Comparison of hematoma formation with the other studies.

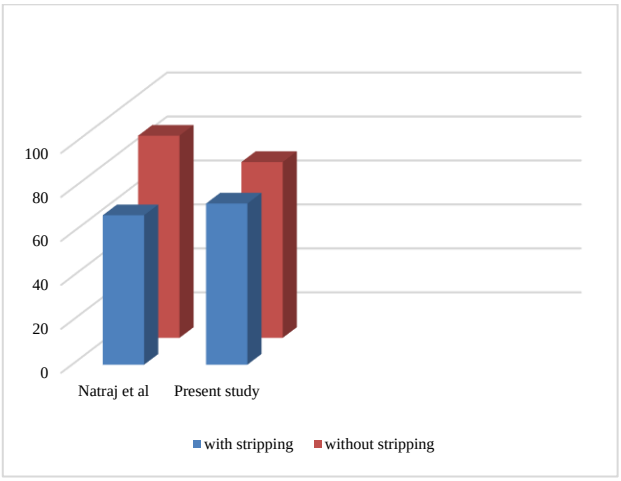

Figure 6: Comparison of postoperative comfortable ambulation with the other studies.

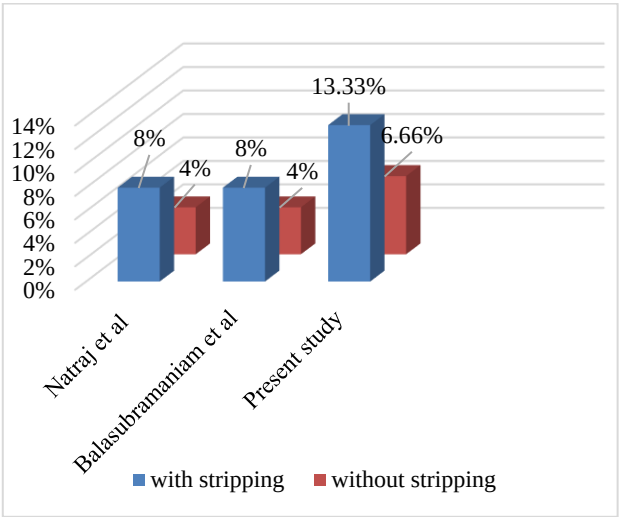

Figure 7: Comparison of prolonged hospital stay with other studies.

Table 1: Results of variable (pain relief after 2 months) in various compared to present study.

Variable	Christenson et al	Natraj et al	Present study
Pain relief after 2 months	98%	96%	96.66%

DISCUSSION

In this study, the outcome of two surgical treatment modalities of varicose surgery with and without venous stripping was compared based upon a follow-up period of two months. In a study by Balasubramaniam et al the hematoma formation in the thigh was seen in 28% of patients who underwent venous stripping whereas it was seen in 4% who underwent Trendelenburg procedure alone without venous stripping, which was compared to the present study, in which it was observed that 13.33% patients had hematoma formation in venous stripping group and only 3.33% in non stripping group. In the study of Natraj et al the hematoma formation after venous stripping was 28% whereas it was only 4% in the other group.[10]

In the present study, on the first post-operative day, 73.33% of those who underwent stripping and 80% from those who underwent ligation alone had comfortable ambulation. In the study of Natraj et al there was no significant difference in healing of leg wounds in both the studies.[10] The first postoperative comfortable ambulation with minimal pain was possible in more patients who did not undergo venous stripping (92%) than who underwent stripping (68%).

In the study of Balasubramanyam et al long stay of more than 6 days was found 8% of those who underwent venous stripping and 4% of those who had trendelenburg procedure without venous stripping.[7] All these findings are similar to the present study. In the study of Natraj et al long postoperative stay of more than 6 days was found in 8% of those who underwent stripping and 4% of the other group where as in present study, 13.3% patients of venous stripping group and 6.66% patients of trendelenberg surgery alone group had prolonged hospital stay.[10]

In this study, pain relief was seen in 93.33% of those who had venous stripping and 96.66% of those who did not undergo venous stripping at the end of second month. All these findings are comparable with the studies of Natraj et al and Christenson et al.[11] In another study by Mandal et al similar findings were noted, showing better results with Trendelenberg surgery alone without GSV stripping.[8]

Limitations

Limitations of this study are small sample size (n=60), single institutional study and short follow up period.

CONCLUSION

In this comparative study which was done in 60 patients, the observations of short term variables have shown that the venous stripping has increased incidence of hematoma formation and the ambulation of patients on the first postoperative day was very painful. Concerning wound healing, hospital stay, and pain relief there is no significant difference between the two procedures. From this study with the observed variables, it is concluded that the Trendelenburg procedure with incompetent perforators ligation without venous stripping appears to be better than Trendelenburg procedure with incompetent perforators ligation with venous stripping.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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