

Original Research Article

A comparative study on outcome of surgical management of varicose veins with and without venous stripping

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ABSTRACT

Background: Varicose veins are dilated, elongated and tortuous veins. Though not a very fatal disease the morbidity caused by this disease is more. The treatment modalities available are conservative, surgical and endovenous therapies. In this comparative study, the outcome of surgical management of varicose veins with and without venous stripping is compared and analyzed.

Methods: During the period of September 2017 to November 2018. 92 cases of varicose veins were operated in all surgical units in the headquarters hospital, Ooty. A thorough clinical examination in good light will give the maximum information about the varicosities. To avoid recurrence due to anatomic variations in the leg veins and to mark the exact site of incompetent vessels for easy surgical approach with minimal incisions and to rule out deep vein thrombosis (DVT) imaging studies are now routinely done.

Results: 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. These wounds were examined in the postoperative period. 4% of patients in each group had delayed wound healing.

Conclusions: Concerning wound healing, hospital stay, and pain relief there is no significant difference between the two procedures. So, as far as the variables observed, 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 with and without venous stripping, Outcome, Surgical management, Comparative study

INTRODUCTION

Varicose veins are one of the oldest known diseases of mankind, since the beginning of written history. Varicose veins are dilated elongated and tortuous veins. It is a progressive disease that worsens as the day passes.¹ Though not a very fatal disease the morbidity caused by this disease is more. The treatment modalities available are conservative, surgical and endovenous therapies. The treatment option should be individualized based on their general condition and symptomatology of the patient.² The deep veins in the leg originate from the deep plantar venous arch. The three main deep veins of the leg are anterior tibial, posterior tibial and peroneal veins. The

posterior tibial vein and peroneal vein usually join together to form the tibioperoneal trunk.³ All three veins join to form the popliteal vein in the knee and it passes upwards and anteriorly, through the adductor canal in the distal thigh where it is called a superficial femoral vein. Here it is joined by a deep femoral vein to form a common femoral vein which continues as an external iliac vein. In the erect posture, blood tends to pool in the lower extremity due to gravity. This is to be pushed into the heart against gravity.⁴ This is done by the contraction of muscles of the limb which act as peripheral heart and presence of competent valves that prevent retrograde flow.⁵ Under normal circumstances, about 90% of venous return is through the deep system and the flow in perforators is one way,

superficial to deep. In the supine position, the resting venous pressure in the foot is the sum of residual kinetic energy minus resistance in the arterioles and precapillary sphincters. The pressure gradient to the right atrium is about 10-12 mm Hg. But in erect posture resting pressure of the foot is the hydrostatic pressure from the upright column of the blood extending from the right atrium to the foot.⁶

METHODS

From September 2017 to November 2018. 92 cases of varicose veins were operated in all surgical units in the headquarters hospital, Ooty. For this study 50 cases in the age group of 16 to 70 were taken.

Study design

The design of the study was comparative.

Inclusion criteria

The following criteria was included for the study: varicose vein with saphenofemoral valve incompetence and perforators incompetence, and age between 16 and 70.

Exclusion criteria

Patients with age extremes <16 and >70, patients with deep vein thrombosis, with associated short saphenous vein varicosity, with venous ulcer or other skin changes, and recurrent varicosity were excluded from the study.

For all the patients, detailed history, clinical examination, basic blood investigations, chest x-ray, electrocardiography (ECG), venous Doppler of the affected limb were taken. The selected cases were matched for sex, the age to avoid bias. After explaining the procedure and getting informed consent from the patients, they were subjected to one of the two types of surgical treatment modality. In one group I, 25 patients underwent Trendelenburg procedure by making a transverse incision of length 3 cm just below the groin crease extending from the femoral artery pulsation site towards medially. The incompetent perforators in the thigh and leg are ligated and divided subfascial by making a small transverse incision across the path of the vein at the site of incompetent perforators marked preoperatively. Then the long saphenous vein is stripped from groin to just below the knee bypassing stripper into the vein. In group II, 25 patients underwent Trendelenburg procedure is done by making a transverse incision of length 3 cm just below the groin crease extending from the site femoral artery pulsation medially. The incompetent perforators in the leg are ligated and divided subfascial by making a small transverse incision across the path of the vein at the site of incompetent perforators marked preoperatively. In both groups the wounds closed with good hemostasis, limb elevated and last crepe bandage applied. All the patients were followed in the postoperative period and for a period

of the next two months. The details of all the patients and their investigations, the procedure has undergone, follow up were recorded in separate proforma for individual patients.

Statistical analysis

The two studies were compared statistically to find out whether there is a significant difference between the outcomes of two surgical procedures. The null hypothesis was assumed: That is, to begin with, it was assumed that there is no significant difference between the two procedures. By using the chi-square test all individual variables were checked for significance. Since we use the 2x2 table, the degree of freedom is 1. If the chi-square value is >3.84, the p value is <0.05 the difference is significant.

RESULTS

This study includes ages between 16 and 70. The lowest age in our study is 25 and the highest is 69. The age group of 16 to 40 constitute 42% whereas 40 to 70 age groups contribute 58%. In this study 41-70 years constitute (Figure 1).

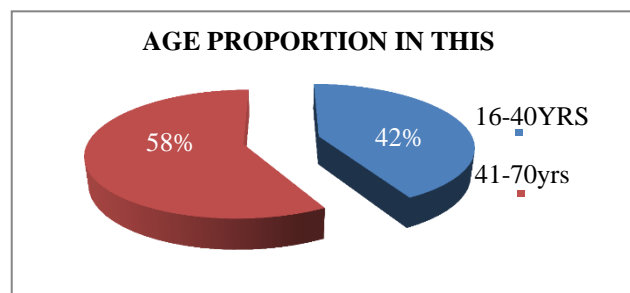


Figure 1: Age proportion.

The left leg was more commonly involved than the right side. The left limb was involved in 66% and the right limb was involved in 33% of patients. The frequency of involvement of the left and the right limbs is shown in the pie chart (Figure 2).

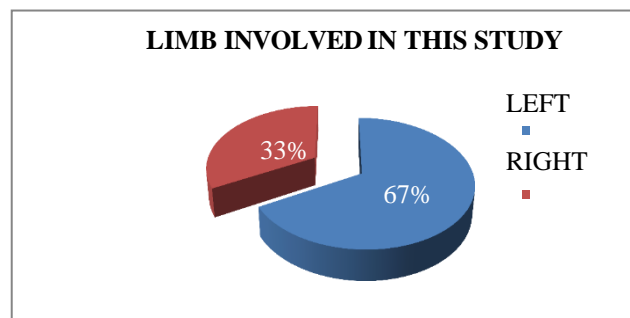


Figure 2: Limb involvement.

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. Hematoma formation was seen in 24% of patients. The increased incidence of hematoma formation in the thigh in patients who undergo stripping was due to tissue trauma that occurs during venous stripping (Figure 3).

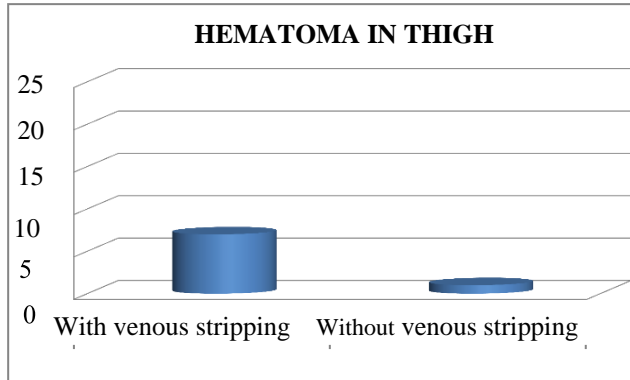


Figure 3: Comparison of hematoma formation.

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. 4% of patients in each group had delayed wound healing. When the patients were encouraged to walk on the first post-operative day, 68% of those who underwent stripping and 92% from those who underwent ligation alone had comfortable ambulation. It was found that in the case of venous stripping, the tissue trauma, hematoma formation bruising and the pain was more (Figure 4).

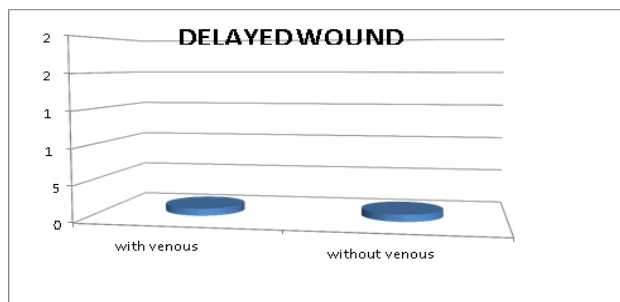


Figure 4: Delayed wound healing.

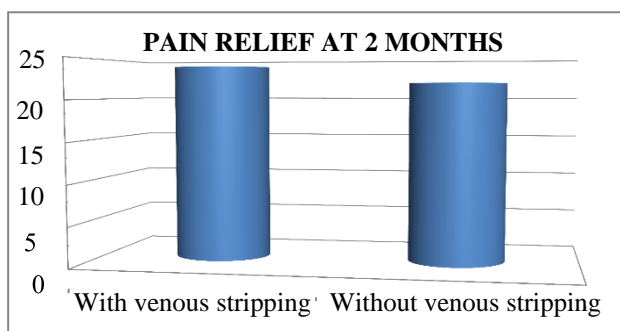


Figure 5: Pain relief at 2 months.

DISCUSSION

Varicose veins, one of the oldest known diseases of mankind were treated by various modalities starting from simple phlebotomy to minimally invasive approaches. 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 this study, males contribute to the maximum bulk of about 82%.⁷ As for as the age is considered, patients aged between 40–70 years was more, which was about 58%. The hematoma formation after venous stripping was 28% whereas it was only 4% in the other group.⁸ There was no significant difference in the healing of leg wounds in both the studies. 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.⁹ These wounds were examined in the postoperative period. 4% of patients in each group had delayed wound healing according to which the wound infection and delayed healing was seen in 5.8% of patients who underwent venous stripping. When the patients were encouraged to walk on the first post-operative day, 68% of those who underwent stripping and 92% from those who underwent ligation alone had comfortable ambulation.¹⁰ It was found that in the case of venous stripping, the tissue trauma, hematoma formation bruising and the pain was more. 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. It was due to pain and delay in wound healing. Subsequently, all patients recovered well without much morbidity.¹¹ At the second month follow up, the symptom relief was there in 96% of patients with venous stripping and 88% of those who didn't undergo venous stripping.¹² This result is comparable to the results Ryan. 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%).¹³ Long postoperative stay of more than 6 days was found in 8% of those who underwent stripping and 4% of the other group. The long stay was mostly due to pain and delayed wound healing.¹⁴ Pain relief was seen in 96% of those who had venous stripping and 88% of those who did not undergo venous stripping at the end of the second month.¹⁵

CONCLUSION

In this comparative study which was done in 50 patients, the observations of short term variables show 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. So, as for as the variables observed, 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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