

A Comparative Study on Management of Varicose Veins with Stripping and Without Stripping of the Vein

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Abstract:

Background: Traditional surgical treatment of superficial venous reflux involves high ligation at saphenofemoral junction as well as stripping of GSV from below knee to groin which is a commonly done procedure in general surgical department as it was considered the gold standard of therapy for several decades. The complications in the post-operative period like bruising, hematoma formation is mainly due to stripping and numbness is due to damage to the Saphenous nerve during stripping. In the present study we are comparing the surgical cases with stripping and without stripping of veins in terms of hospital stay and complications.

Aim of The Study: is to compare and analyze the outcome of both the modalities of treatment for varicose veins i.e., Trendelenberg procedure with stripping and without stripping in terms of the objectives mentioned below.

Patients And Methods: A Prospective Case Control study done in 50 cases undergoing Trendelenberg procedure admitted in the general hospital over a period of 2 years.

Results: Males contribute the maximum of about 74%. As far as the age is considered, patients aged between 31–60 years were more, which was about 84%. Left lower limb is involved in 72% and right lower limb in 28%. The hematoma formation after venous stripping was 24% whereas it was only 4% in the other group. Comfortable ambulation on first postoperative day is 96% in without stripping group compared to 84% in with stripping group. There is no significant difference in the duration of postoperative hospital stay. Patients were followed up for a period of 2 months and Pain relief was 100% in those who underwent ligation with stripping and 88% in those who underwent ligation alone.

Conclusion: Trendelenberg procedure with ligation of incompetent perforators without venous stripping appears to be better than Trendelenberg procedure with ligation of incompetent perforators with venous stripping.

Keyword: Varicose Veins, Trendelenberg Operation, Stripping of vein, Complications.

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Introduction

Varicose veins of lower limbs are superficial veins which has lost its valvular function, become dilated, thickened and tortuous [1,2] resulting in venous hypertension. The condition is widespread, because of man's upright posture and by gravitational forces, involving every one individual out of five individuals in the world, hence making this a very common condition. 20% of the world's population suffers from varicose veins and 2% of them have skin changes that may precede venous ulceration [3].

Though not a very fatal disease the morbidity caused by varicose veins is more. Traditional surgical treatment of superficial venous reflux involves high ligation at saphenofemoral junction as well as stripping of GSV from below knee to

groin which is a commonly done procedure in general surgical department as it was considered the gold standard of therapy for several decades.

The complications in the post-operative period like bruising, hematoma formation is mainly due to stripping and numbness is due to damage to the Saphenous nerve during stripping. In the present study we are comparing the surgical cases with stripping and without stripping of veins in terms of hospital stay and complications.

Aim of the Study:

To compare and analyze the outcome of both the modalities of treatment for varicose veins i.e., Trendelenberg procedure with stripping and

without stripping in terms of the objectives mentioned below

Objectives: Primary objective of the study is to analyze in which modality of treatment the severity of below mentioned complications are more. The two modalities are compared in terms of

- Hematoma formation in the thigh
- Comfortable ambulation without much pain on first post-operative day
- Postoperative hospital stay
- Pain relief of the patient after 1 month and 2 months

Patients and Methods

Study design: Prospective Case Control Study

Sample size: 81 patients were encountered during the period of my study, out of which 50 were taken into consideration for the study over a period of 2 years

Source of the data: The study consists of patients coming with varicose veins to general surgery outpatient who are satisfying my inclusion and exclusion criteria

Inclusion Criteria:

1. Varicose veins with saphenofemoral valve incompetence
2. Age group between 18 years and 70 years
3. Patients giving consent

Exclusion criteria:

1. Age <18 and >70 years
2. Patients with Deep Vein Thrombosis
3. Patients with associated Short Saphenous Vein varicosity
4. Recurrent varicosity
5. Patients not giving consent

Methodology

Institute Ethics committee clearance was obtained before the start point of the study. Patients admitted with clinical or radiological evidence of varicose veins to the Department of General surgery were selected for the study using simple random technique.

After taking informed consent thorough history was elicited, clinical examination and investigations including basic blood investigations, chest X-Ray, ECG, Venous Doppler of the affected limb were taken and recorded in the proforma. Patient's fitness for surgical procedure was obtained and cases were randomly grouped into two groups.

Group I: In one group 25 patients underwent Trendelenberg procedure by making a transverse incision of length 3cm just below the groin crease extending from femoral artery pulsation site towards medially. The incompetent perforators in the thigh and leg are ligated and divided

suprafascially by making small transverse incisions across the path of the vein at the point of incompetent perforators which were marked preoperatively. Then the great Saphenous vein is stripped from the divided end in groin to just below the knee by passing stripper into the vein.

Group II: In group II 25 patients underwent Trendelenberg procedure alone by making a transverse incision of length 3cm just below the groin crease extending from the site femoral artery pulsation medially. The incompetent perforators in the limb are ligated and divided suprafascially by making small transverse incisions across the path of the vein at the point of incompetent perforators marked preoperatively.

In both the groups wounds were closed with good hemostasis and elastic crepe bandage applied. Limb elevation kept postoperatively. All of them were followed in the postoperative period and for a period of next two months.

Observations: The following observations were recorded by follow up of the patients for a period of two months. The factors that were taken into account for comparison are

- Hematoma formation in the thigh: All patients irrespective of the group were examined daily in the postoperative period for hematoma formation in the thigh region.
- Comfortable ambulation without much pain on first post-operative day [POD]: On the first POD, all the patients were encouraged to walk for some distance with elastic stockings. The patients who were able to walk comfortably on first POD with minimal pain were recorded.
- Postoperative hospital stay: Usually the patients were discharged on third postoperative day. Those who were in the ward for more than 5 days because of pain were noted.
- Pain relief after two months: Pain in the affected limb was enquired and recorded as per visual analog scale preoperatively and also after two months of the procedure and recorded as per visual analog scale. An improvement of more than five score was considered as good pain relief.

Statistics: The collected data was analyzed with IBM SPSS Statistics for Windows, Version 23.0. (Armonk, NY: IBM Corp).

To describe about the data descriptive statistics frequency analysis, percentage analysis was used for categorical variables and the mean & S.D were used for continuous variables. To find the significant difference between the bivariate samples in independent groups the unpaired sample t-test was used.

To find the significance in categorical data Chi-Square test was used similarly if the expected cell frequency is less than 5 in 2x2 tables then the

Fisher's Exact was used. In all the above statistical significant level.
tools the probability value 0.05 is considered as

Results

Table 1: Distribution According To Age

Age	Group 1	Group 2	Total
<30 years	2	2	4 (8%)
31- 40 years	7	6	13 (26%)
41- 50 years	6	9	15 (30%)
51- 60 years	8	6	14 (28%)
>60 years	2	2	4 (8%)
Total	25	25	50 (100%)
Mean age	46.12± 10.9	45.56± 10.09	45.84± 10.49

Table 2: Distribution According To Gender

Gender	Group 1	Group 2	Total
Males	18	19	37 (74%)
Females	7	6	13 (26%)
Total	25	25	50 (100%)
Sex ratio [M: F]	2.5: 1	3.1: 1	2.8: 1

Table 3: Distribution According To Side Effected

Side	Group 1	Group 2	Total
Left	19 (76%)	17 (68%)	36 (72%)
Right	6 (24%)	8 (32%)	14 (28%)
Total	25 (100%)	25 (100%)	50 (100%)

Table 4: Distribution According To Hematoma In The Thigh

Hematoma	Group 1	Group 2	Total
Yes	6	1	7 (14%)
No	19	24	43 (86%)
Total	25	25	50 (100%)

Table 5: Distribution According To Comfortable Ambulation OnPost Operative Day 1

Ambulation	Group 1	Group 2	Total
Comfortable	21	24	45 (90%)
Painful	4	1	5 (10%)
Total	25	25	50 (100%)

Table 6: Hospital Stay Distribution

Hospital Stay	Group 1	Group 2	Total
<5 days	24	24	48 (96%)
>5 days	1	1	2 (4%)
Total	25	25	50 (100%)

Table 7: Pain after 1st And 2nd Month

Pain	Group 1	Group 2	Total
Relieved	25	22	47 (94%)
Not relieved	0	3	3 (6%)
Total	25	25	50 (100%)

Table 8: Comparison between Both the Groups

Variables	Mean	SD	95% CI		p-value
			Lower	Upper	
Hematoma stripping* without stripping	0.2	0.5	0.40	0.006	0.05*
Comfortable stripping* without stripping	0.12	0.43	0.06	0.30	0.18
Hospital stay stripping* without stripping	0.00	2.88	0.11	0.11	1
Pain relieved stripping* without stripping	0.12	0.33	0.01	1.8	0.05*

*Level of significance: p<0.05

Discussion

Varicose veins are a common surgical problem encountered mainly as a result of erect posture. As the chronic venous hypertension progresses, complications of varicose veins like venous edema, lipodermatosclerosis, venous ulcer, ankle deformity and all increases. Surgery before the appearance of the complications will decrease the morbidity and have a good post-operative result. Surgical complications are mainly due to stripping of the varicose vein and thus not stripping the vein avoids all such complications.

The principles of traditional ligation and stripping

are to fully dissect the point of junctional incompetence and to remove the refluxing axial vein and dilated tributaries. The operation is usually performed under general anesthesia, but loco-regional anesthesia can be used and infiltration of tumescent local anesthesia around the axial vein prior to stripping can also be done. [4] Comparison of incidence of variables with other study groups

Age: Majority of the patients in our study were between 31- and 60-years age, which was comparable to the studies conducted by Yamanur P Lamani et al [5], Dr Haripriya et al [6], Dr V. Balasubramaniam [7]

Table 9: Comparison of Age Distribution in the Study Groups

My study	Yamanur P Lamani et al	Haripriya et al	Balasubramaniam et al
31-60 yrs	31-60 yrs	40-50 yrs	40-70 yrs
84%	78%	93.40%	58%

Sex: Male patients constitute 74% in our study. Among the 50 patients in this study 18 males underwent venous stripping and 19 males underwent procedure without venous stripping. This is comparable to the study by Dr Haripriya et al [6], Dr V. Balasubramaniam [7] and M. G. Vashist et al [8] in which also the sex was predominantly males.

Table 10: Comparison of Sex Distribution in the Study Groups

Sex	My study	Haripriya et al	Balasubramaniam et al
Male	74%	86%	82%
Female	26%	14%	18%

Limb Affected: The left leg was more commonly involved than the right side in the study. The left limb was involved in 72% and the right limb was involved in 28% of patients which is comparable to the study done by Dr Haripriya et al [6] and Balasubramaniam. [7]

Table 11: Comparison of Side Involved in the Study Groups

Limb involved	My study	Haripriya et al	Balasubramaniam et al
Left	72%	61%	67%
Right	28%	39%	33%

Hematoma formation: The hematoma formation in the thigh was seen in 24% of patients who underwent venous stripping and in 4% who underwent ligation alone without venous stripping in the study. The result regarding hematoma formation is comparable to results of Yamanur P Lamani et al [5], Ajith jadhav et al [9] and Dr. V. Balasubramaniam [7]. The increased incidence of hematoma formation in the thigh in patients who undergo stripping was due to tissue trauma that occurs during venous stripping.

Table 12: Comparison of Hematoma in the Study Groups

Hematoma	With stripping	Without stripping
My study	24%	4%
Yanamur p lamani et al	28%	4%
Ajith jadhav et al	22.5%	12.5%
Balasubramaniam et al	28%	4%

Comfortable ambulation on first post-operative day: When the patients were encouraged to walk on first post-operative day, 84% of those who underwent stripping and 96% from those who underwent ligation alone had comfortable ambulation comparable to study done by Dr. V.

Balasubramaniam [7] in which 68% in the stripping group and 92% in the no stripping group had comfortable ambulation on first post op day. It was found that in case of venous stripping, the tissue trauma, hematoma formation bruising, and the pain was more.

Table 13: Comparison of Comfortable Ambulation on 1st POD in the Study Groups

Comfortable ambulation on 1 st POD	My study	V. Balasubramaniam et al
With stripping	84%	68%
Without stripping	96%	92%

Postop hospital stay: There is no difference in the

duration of hospital stay post operatively. In my

study, postoperative duration of hospital stay for >5 days was seen in 4% in either of the groups.

In Dr. Balasubramaniam [7] study, duration of stay was > 6 days in 8% of cases with stripping and in 4% of cases without stripping. In the study by Dr. Haripriya [6] et al the mean duration of hospital stay was 10 days in ligation with stripping group

and was 7 days in ligation alone group.

Pain relief after 1 and 2 months: At the second month follow up, the symptom relief was there in 100% of patients with venous stripping and 88% of those who didn't undergo venous stripping. This result is comparable to the results of Dr. V. Balasubramaniam [7] and Dr. SM. Anand [10]

Table 14: Comparison of Pain Relief after 1st & 2nd Months in the Study Groups

Pain relief after 1 & 2 months	My study	V. Balasubramaniam	S.M. Anand
With stripping	100%	96%	96%
Without stripping	88%	88%	88%

Conclusion

In the comparative study on surgical management of varicose veins with and without stripping of veins which was done in 50 patients showed that stripping has increased incidence of hematoma formation and ambulation of patients on first postoperative day was very painful. Regarding hospital stay duration and pain relief after 1st and 2nd month there was no significant difference noted between the two procedures. So, as far as the observed variables, Trendelenberg procedure with ligation of incompetent perforators without venous stripping appears to be better than Trendelenberg procedure with ligation of incompetent perforators with venous stripping.

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