

Clinical presentation and outcome of stripping in varicose veins

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Abstract

Background: Varicose vein is a chronic morbid condition. Varicose veins can cause a variety of symptoms of discomfort in the legs. Most people seek medical advice only after complications like pigmentation, eczema, lipodermatosclerosis and ulcer development. Stripping is supported by evidence from randomised controlled trials and produce high percentage of good results if meticulously performed. This prospective study was conducted to study the clinical presentations of lower limb varicose veins and outcome of stripping in varicose veins. **Material and Methods:** Patients above 18 years of age with symptoms of varicose vein such as ulcerations, phlebitis, bleeding, aching, skin changes or eczema, heaviness and cosmetic disfigurement were managed with stripping and other surgical procedures. The patients were followed up and final outcome evaluated. **Results:** Majority of the patients presented with dilated veins (88%) followed by hyperpigmentation (68%) and pain (58%). Duplex ultrasound examination showed both saphenofemoral junction and perforator incompetence in 44% patients. 42% of cases underwent Trendelenberg flush ligation with stripping of long saphenous vein and perforator ligation. 24% of cases underwent Trendelenberg flush ligation with stripping of long saphenous vein and 20% of patients underwent perforator ligation alone. Only 3 patients developed early complication like superficial wound infection in the form of a wound dehiscence. **Discussion:** Though newer techniques are available, Trendelenberg flush ligation with stripping of long saphenous vein has given good results in our set up. If cases are selected properly with good operative technique the complications are negligible.

Keywords: Varicose vein, hyperpigmentation, stripping, outcome.

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INTRODUCTION

Varicose veins are easily visible, dilated, tortuous and widened veins in the subcutaneous tissues of the legs¹. Risk factors of varicose veins include family history, age, and pregnancy; a possible risk factor is standing for a long period of time²⁻⁴. For the great majority of people varicose veins cause no symptoms and never cause harm. Dislike of their appearance is a common complaint,

particularly for women. Varicose veins can cause a variety of symptoms of discomfort in the legs. Their valves are usually incompetent so that reflux of blood occurs, and the resulting blood stasis, venous hypertension can cause symptoms. The affected veins enlarge and appear as green, dark blue or purple protrusions just below the skin's surface⁵. The severity of symptoms associated with varicose veins varies and may include pain, heaviness, pruritis, ulceration, skin discolouration and oedema⁶. Severe symptoms include thrombophlebitis, bleeding and venous dermatitis, which often require intervention⁷. Sites of venous incompetence are best diagnosed by duplex ultrasound scanning⁸. For patients with symptomatic veins and substantial venous incompetence, surgery has been the optimal treatment for many years. Though, variety of alternative options have been used in recent decades, such as, sclerotherapy, foam therapy, laser endoluminal ablation and radiofrequency endoluminal ablation⁹. In developing countries, conventional surgeries remain the major approach. The

most common surgeries performed are Trendelenberg flush ligation with stripping of long saphenous vein and perforator ligation. These surgical procedures produce high percentage of good results if meticulously performed. Stripping is supported by evidence from randomised controlled trials. Stripping showed to reduce the risk of reoperation by two thirds after 5 years and recommended for routine management of primary long saphenous varicose veins¹⁰. This prospective study was conducted to study the clinical presentations of lower limb varicose veins and outcome of stripping in varicose veins.

MATERIAL AND METHODS

This prospective clinical study was conducted on 50 patients presented with varicose vein during the period December 2014 to September 2016 in the Department of General Surgery, Meenakshi Medical College, Hospital and Research Institute, Kanchipuram, Tamil Nadu. Patients above 18 years of age with following symptoms of varicose vein: ulcerations, phlebitis, bleeding, aching, skin changes or eczema, heaviness and cosmetic disfigurement were included and patients below 18 years with deep vein thrombosis (DVT) of calf or thigh veins or ssecondary varicose vein were excluded from the study. Informed written consent for inclusion in the study was taken and the history, clinical examination, imaging and laboratory parameters were recorded. A detailed history including symptoms, duration of symptoms, occupation and previous surgery were taken. The patients were examined in both standing and recumbent postures. The location, extent of varicose veins and secondary changes in the leg including swelling, pigmentation and ulceration were noted. Legs were examined individually off varicosities. Saphenofemoral/saphenopopliteal and perforator incompetence were made out by Trendelenberg test, multiple tourniquet test and Schwartz test. Deep vein assessed by modified Perthes test. Perforator incompetence was localized by palpating the deep fascia for defects. Arterial pulses of both feet examined to rule out arterial disease. Abdominal and pelvic examination was done to look for any mass, dilated suprapubic veins and ascites. Colour Doppler was used to rule out DVT and localize saphenofemoral, saphenopopliteal and perforator incompetence in all cases. Routine investigations were done. Depending upon the segment involved, different types of surgeries were performed such as Trendelenberg flush ligation with stripping of long saphenous vein and perforator ligation or Trendelenberg flush ligation with stripping of long saphenous vein or perforator ligation alone. The post-operative course was noted. Further the patients were followed up and final outcome evaluated.

RESULTS

Among the 50 patients included, most of the patients were between the age group 41-60 years. There were 36 male and 14 female patients. Majority of the patients suffered from unilateral varicosities, with 84% and only 16% suffered from bilateral varicose vein. Among the wide variety of symptoms, majority of the patients presented with dilated veins (88%) followed by hyperpigmentation (68%) and pain (58%). Most of the patients presented with dilated veins, hyperpigmentation and pain (26%). 14% of patients presented with dilatation of veins and pain. The next common presentation was dilatation of veins with hyperpigmentation and ulcer which accounted to 12%.

Table 1: Presenting Major Symptoms

Symptom	No of patients	%
Dilated vein	44	88 %
Hyperpigmentation	34	68 %
Ulcer healed	20	40 %
Ulcer active	3	6 %
Pain	29	58 %
Itching	2	4 %

Table 2: Combination of Symptoms

Symptom	No of patients	%
<ul style="list-style-type: none"> • Dilated vein • hyperpigmentation • ulcer healed 	6	12
<ul style="list-style-type: none"> • Dilated vein • Hyperpigmentation • Ulcer active 	2	4
<ul style="list-style-type: none"> • Dilated vein • Hyperpigmentation • Pain 	13	26
<ul style="list-style-type: none"> • Ulcer healed • Hyperpigmentation 	4	8
<ul style="list-style-type: none"> • Dilated vein • Pain 	7	14
<ul style="list-style-type: none"> • Hyperpigmentation • Ulcer healed • Pain 	2	4
<ul style="list-style-type: none"> • Dilated vein • Hyperpigmentation • Ulcer healed • Pain 	4	8
<ul style="list-style-type: none"> • Dilated vein 	2	4
<ul style="list-style-type: none"> • Dilated vein • Hyperpigmentation 	3	6
<ul style="list-style-type: none"> • Dilated vein • Ulcer healed • Pain 	1	2
<ul style="list-style-type: none"> • Dilated vein • Pain • Itching 	2	4

• Dilated vein	3	6
• Ulcer healed		
• Dilated vein	1	2
• Ulcer active		

Duration of symptom varied from 2 months to 240 months. There was a very wide variation in the duration among the patients. The average mean was 50.62 months. All patients were classified under CAEP classification. 44% of patients fall under grade 4 of clinical signs. Duplex ultrasound examination was invariably used in all the 50 cases. 22 of them presented with both saphenofemoral junction and perforator incompetence accounting to 44% and 17 patients with only perforator incompetence accounting to 34%. Depending upon the segment involved, different types of surgeries were performed. 42% of cases underwent Trendelenberg flush ligation with stripping of long saphenous vein and perforator ligation. 24% of cases underwent Trendelenberg flush ligation with stripping of long saphenous vein and 20% of patients underwent perforator ligation alone.

Table 3: Type of surgery performed

Type of surgery	No of patients	%
• Trendelenberg flush ligation	21	42
• Stripping of long saphenous vein		
• Perforator ligation		
• Trendelenberg flush ligation	11	22
• Stripping of long saphenous vein		
• Perforator ligation	10	20
• Short saphenous vein ligation	3	6
• Short saphenous vein stripping		
• Perforator ligation		
• Trendelenberg flush ligation	1	2
• Stripping of long saphenous vein		
• Split skin grafting		
• Trendelenberg flush ligation	2	4
• Stripping of long saphenous vein		
• Short saphenous vein ligation		
• Short saphenous vein stripping		
• Perforator ligation		
• Trendelenberg flush ligation	1	2
• Stripping of long saphenous vein		
• Short saphenous vein ligation		
• Perforator ligation		
• Endo Venous Laser Ablation	1	2



Figure 1



Figure 2(a)



Figure 2(b)

Legend

Figure 1: Varicose veins with hyperpigmentation over foot.

Figure 2(a): Stripping of Long Saphenous Vein; **Figure 2(b):** Long Saphenous Vein after Stripping.

Only 3 patients developed early complication like superficial wound infection in the form of a wound dehiscence. All the three patients were treated with appropriate intravenous antibiotics based on the culture sensitivity. Everyday dressing was done. The infection resolved without any further recurrence. Out of 50 patients 3 patients developed numbness over the medial

aspect of thigh, probably due to intra operative injury to saphenous nerve.

DISCUSSION

Symptoms of varicose veins varies greatly. Patients may present with complications like venous ulcer, bleeding or thrombophlebitis. In most cases it

remains asymptomatic. It affects 10 to 20% of the population in the western world, the statistical data is not available from India but it is on rise¹. Patients with large varicose veins or patients with skin changes should be offered treatment to avoid future ulceration. The most commonly employed methods of surgical treatment and injection sclerotherapy have changed little in many years, and are an established part of clinical practice. However, the cost-effectiveness of these treatments has not been fully assessed in the past, and the pressures on waiting lists and healthcare resources have led to moves in some areas to restrict their availability. In the present study a total of 50 patients with varicose vein were examined and managed surgically. The prevalence of varicose vein increases with age. The mean age in the present study was 50.8 years. This correlates with the study done by Bumand KG *et al*¹¹ and Lins *et al*¹². The current study shows 84% with unilateral and 16% bilateral varicose vein. There were 22 patients (44%) with right side and 20 patients (40%) with left sided varicosity. There are similar studies which showed right sided varicosity like Samy *et al*¹³ and Prasad *et al*¹⁴ showed 56% with right side varicose veins. The presence of symptoms such as heaviness, aching or swelling and clinical or ultrasound evidence of saphenous vein reflux is generally accepted as indications for surgery. Hyperpigmentation of skin due to varicose veins, superficial thrombophlebitis and bleeding are obvious indications for surgery. According to British Vascular Surgical Society, the commonest indications are symptomatic and complicated varicose veins, although few surgeons also perform surgery for cosmetic reasons¹⁵. The patients in this study presented with dilated veins (88%), hyperpigmentation (68%), pain (58%) and healed ulcer (40%). These results are similar with Vashisth *et al*¹⁶ and Campbell *et al*¹⁷ showed prevalence of 90% of patients with complaints of dilated veins. The most common indication of surgery was dilated veins, hyperpigmentation and pain. Totally 13 patients (26%) were present with this combination. The next common indication was dilated vein and pain with 7 patients (14%). Mirji *et al*¹⁸ showed 37.5% of patients with dilated veins and pain. The third combination was dilated veins, hyperpigmentation and ulcer with 6 patients (12%). The average mean duration of symptoms was 50.62 months in present study. It is evident that people seek treatment for varicose veins only after some complications occur. The most common surgery performed on the patients was Trendelenberg flush ligation with stripping of long saphenous vein and perforator ligation. Totally 21 patients (42%) underwent this surgery. Trendelenberg flush ligation with stripping of long saphenous vein was alone performed on 11 patients (22%). Short saphenous vein ligation; short

saphenous vein stripping and perforator ligation was performed on 3 patients. Only 1 patient underwent Trendelenberg flush ligation, stripping of long saphenous vein with split skin grafting as a final stage procedure. Trendelenberg flush ligation, stripping of long saphenous vein, short saphenous vein ligation, short saphenous vein stripping and perforator ligation was done in 2 patients. Trendelenberg flush ligation, stripping of long saphenous vein, short saphenous vein ligation and perforator ligation was done in 1 patient. Endo Venous Laser Ablation technique was performed on 1 patient. The duration of surgery was short and there was no post-operative complication. Due to rural area setup the patients were not affordable for this procedure. Recurrence is common after primary long saphenous varicose vein surgery. Stripping showed to reduce the risk of reoperation by two thirds after 5 years and recommended for routine management of primary long saphenous varicose veins¹⁰. Stripping doesn't treat varicosities of tributaries. New varicosities develop at new sites which were not involved at the time of first treatment. Recurrence of reflux in a previously operated (high tie and stripping) great saphenous vein is due to revascularization of the strip track leading to further venous disease. Successful treatment of varicose veins requires a balance between their complete removal with treatment of underlying etiology and an optimal cosmetic outcome. So, complete treatment of symptomatic varicose veins must therefore involve treatment of the saphenous vein reflux as well as the varicosities¹⁹. The complications of varicose vein surgery are as such very rare. In present study, only 3 patients developed early complication like superficial wound infection in the form of a wound dehiscence. All the three patients were treated with appropriate intravenous antibiotics based on the culture sensitivity. Everyday dressing was done. The infection resolved without any further recurrence. Out of 50 patients, 3 patients developed numbness over the medial aspect of thigh, probably due to intra operative injury to saphenous nerve. The hospital stay varied from 5 days to 42 days. The mean average was 12.5 days. To conclude, complete treatment of symptomatic varicose veins must therefore involve treatment of the saphenous vein reflux as well as the varicosities. There have been important changes to venous practice in the past few years, and we need to choose our interventions carefully and monitor outcomes in order to ensure that patients get the most appropriate and cost effective care.

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