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Surgical Management and Functional Outcome of Varicose Veins of Lower Limb: A Clinical Study

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Abstract
Dilated, convoluted, subcutaneous veins measuring =3 mm in diameter when measured upright and exhibiting observable reflux are referred to as varicose veins. Although varicose veins have a long history, current advancements in detection and treatment options have drawn attention to them. Studying the clinical profile, risk factors and their relationships, various surgical methods used consequences related to varicose veins was the goal of the current investigation. The research included all patients with varicose vein symptoms who visited the outpatient department (OPD) or were referred to it. The research was authorised by the ethics committee once it was presented. The research was carried out in accordance with the committee's recommendations. Every research participant gave written informed permission after receiving a thorough explanation of the study's procedures. Ninety patients who met the inclusion criteria and gave their permission were included in this prospective investigation. A male to female ratio of 1.96:1 indicated a preponderance of men with 58 cases (64.4%) and females with 32 cases (35.5%). In terms of age distribution, there were 37.7% (34 out of 90) of instances between the ages of 41 and 50, 25.5% (23 out of 90) between the ages of 51 and 60, 12.2% (11 out of 90) above the age of 60, 15.5% (14 out of 90) between the ages of 31 and 40 8.8% (8 out of 90) between the ages of 21 and 30. There were no patients under 20 years old that were seen. Even while conservative therapy reduces symptoms, it always necessitates definitive intervention. Therefore, the operational line of management should be the initial line of treatment.

INTRODUCTION

This is an illness that results in significant morbidity and lost working hours rather than a sickness that kills. Only 5% of people in India are affected by this illness, although it was more common in western nations, where it affects 15-20% of the population[1]. Varicose veins and the symptoms and consequences they cause are among the most prevalent chronic vascular diseases affecting the lower leg. Although varicose veins have a long history, current advancements in detection and treatment options have drawn attention to them. Numerous risk factors have been linked to the development of varicose veins, including inheritance, extended standing, obesity, age, pregnancy intra-abdominal pressure. These variables have also been linked to the formation of varicose veins in numerous published studies[2]. Skin trophic alterations in chronic instances of varicose veins have been linked to the pathophysiology of the venous system from a hemodynamic point of view and the implications of valvular dysfunction in superficial, deep perforating veins. In the past, varicose veins were treated by bandaging, vein stripping ligation. These days, Doppler ultrasonography and duplex imaging are the gold standard for examinations used to diagnose illnesses related to chronic venous insufficiency. Trendelenburg procedure, stripping, subfascial closure of perforators, laser, sclerotherapy radio frequency ablation are some of the surgical therapeutic methods for varices. The quest for efficient methods of diagnosis, treatment, care prevention that minimise the emergence of postoperative problems never ends[3].

As this group has previously shown, the latter may be brought on by the intricate interaction among symptoms related to the lower leg, the presence and severity of VV on clinical examination findings the pattern of deep and superficial reflux on duplex ultrasound scanning[4,5]. Perhaps the most frequent reason for a less than ideal clinical and cosmetic result is recurrent illness. There is growing evidence that removing the LSV will lower the long-term risk of recurrence[3]. However, because of the discomfort, hematoma saphenous neuritis, stripping may be linked to an increased risk of morbidity[7]. LSV stripping may also lengthen the patient's stay in the hospital, restrict their options for day surgery and local anaesthetic prevent them from receiving an artery bypass in the future. These factors prevent many surgeons in the United Kingdom from regularly stripping the LSV[8].

MATERIALS AND METHODS

The General Surgery Department carried out the research. The research included all patients with varicose vein symptoms who visited the outpatient department (OPD) or were referred to it. The research was authorised by the ethics committee once it was presented. The research was carried out in accordance with the committee's recommendations. Every research participant gave written informed permission after receiving a thorough explanation of the study's procedures. After questioning the patients, the sociodemographic information, including age, sex, profession family history, was recorded and placed onto a different, pre-made questionnaire sheet.

Inclusion Criteria: Large varicosities vulnerable to damage and cosmetic concern were included, as were varicose veins with symptoms of pain, heaviness cramping as well as consequences such pigmentation, dermatitis, ulceration superficial thrombophlebitis.

Exclusion Criteria: The research excluded patients who were pregnant, had deep vein thrombosis, were treated as outpatients, had secondary varicose veins, or had peripheral vascular disease.

Every patient was given a clinical examination, during which the indications and symptoms were recorded, the duplex ultrasound colour Doppler was used to confirm the diagnosis the incompetence location was documented. All of the study's patients underwent Perthe's clinical tests, the Brodie Trendelenburg test repeated tourniquet testing.

Surgical Management: The following operations were carried out: Trendelenberg's surgery, long saphenous vein stripping, subfascial or extra facial ligation of perforators, multiple stab avulsion of long saphenous vein saphenopopliteal junction ligation.

Following surgery, all patients were monitored for problems every month for the development of surgical site infections, every three months for ulcer healing and symptom alleviation every six months for any indications of recurrence.

Statistical Analysis: After being gathered, the data was recorded and examined in a Microsoft Excel spreadsheet.

RESULTS AND DISCUSSIONS

Ninety patients who met the inclusion criteria and gave their permission were included in this prospective investigation. A male to female ratio of 1.96:1 indicated a preponderance of men with 58 cases (64.4%) and females with 32 cases (35.5%). In terms of age distribution, there were 37.7% (34 out of 90) of instances between the ages of 41 and 50, 25.5% (23 out of 90) between the ages of 51 and 60, 12.2% (11 out of 90) above the age of 60, 15.5% (14 out of 90) between the ages of 31 and 40 8.8% (8 out of 90) between the ages of 21 and 30. Not a single example that was seen was younger than 20 years old (Table 1).

Table 1: Age distribution of cases in the study.

Age distribution (in years)	No	Percent
10-20	0	0
21-30	8	8.8
31-40	14	15.5
41-50	34	37.7
51-60	23	25.5
>60	11	12.2

Table 2: Risk factors and associated factors of the cases in the study.

Factor	No	percernt
Side affected		
Right	52	57.7
Left	23	25.5
Bilateral	15	16.6
Venous system		
Long saphenous	46	51.1
Short saphenous	25	27.7
Both	19	21.1
Risk factors		
Family history	26	28.8
Agricultural workers	12	13.3
Sedentary activity	43	47.7
Smoking	46	51.1
Alcoholism	40	44.4

Table 3: Signs and symptoms of cases.

Signs and symptoms	No	percent
Pain	44	48.8
Dilated veins	70	77.7
Edema of limb	24	26.6
Ulcerations	22	24.4
Skin changes (pigmentation etc)	40	44.4

Table 4: Distribution of venous system and site of perforator incompetence among the cases.

Variable	No	percent
Venous system involved		
Long saphenous system	41	45.5
Long saphenous + incompetent perforators	22	24.4
Short saphenous system	13	14.4
Both	14	15.5
Perforator incompetence		
Thigh	19	21.1
Below knee	27	30
Above ankle	24	26.6
Unnamed	9	10

Table 5: Surgical procedures performed among the cases in the study.

Surgical procedures performed	No	percent
SFFL+stripping	41	45.5
SFFL+ligation+multiple avulsion	8	8.8
SFFL+stripping+subfascial ligation	24	26.6
SPL	8	8.8
SPL+stripping	4	4.4
Multiple stab avulsion	5	5.5

SSFL: saphenofemoral flush ligation; SPL: sapheno popliteal ligation.

The study's case population ranged in age from 24 to 74 years old. Varicosities were seen in the right limb in 57.7% of patients, the left in 25.5% the bilateral in 16.6% of cases in our research. In our sample, 47.7% of patients had a long-standing employment 28.8% of cases had a clear family history of varicose veins. Of the patients, 44.4% were drinkers and 51.1% were smokers. Because it runs the whole length of the lower leg, the lengthy saphenous vein bears the burden of the entire posture. 51.1% of instances included the long saphenous vein, 27.7% involved the short saphenous vein 21.1% involved both (Table 2).

In 48.8% of instances, pain was the most common symptom, followed by heaviness in 48.8% of cases. Of the instances, dilated veins were seen in 77.7%, skin abnormalities such as dermatitis and pigmentation in 44.4%, edoema of the afflicted limb in 26.6% ulcerations in 24.4% (Table 3).

In the current research, the long saphenous system was implicated in 45.5% of cases, the short saphenous system in 14.4% of cases, the long saphenous system combined with incompetent perforators in 24.4% of cases both in 15.5% of instances. The location of perforator incompetence was identified in the thigh in 26.6% of the patients, below the knee in 21.1%, above the ankle in 30% nameless in 10% of the cases. (Table 4).

All of the cases in this study were treated surgically; 45.5% of cases involved saphenofemoral flush ligation (SSFL) combined with long saphenous vein stripping., 26.6% involved SSFL plus stripping and subfascial ligation., 8.8% involved saphenopopliteal

ligation alone and 4.4% involved sapheno popliteal ligation combined with stripping. In 5.5% of instances, multiple stab avulsion was carried out (Table 5).

This is a silent illness that appears early in life and progresses silently over time. The development of venous hypertension is the cause of this condition's significant morbidity and related consequences rather than its mortality.

Our study's results, which show a male predominance of 66.25%, are consistent with those of numerous Indian studies. However, studies carried out in Western nations report a female predominance, which can be attributed to the fact that women in India are not as likely to be employed in jobs that require prolonged standing or physical stress because of socioeconomic and cultural factors[9]. With a mean age of 43.40 years, the majority of cases (40%) in the current research fell within the 41-50 year age range, which is comparable to the results of studies by Mishra *et al.* from India and McGuckin[10,11] Similar to what other studies showed, dilated veins accounted for 85% of cases in our study as well. In contrast, research by Rudofsky *et al.* and Shankar *et al.* identified 94% and 90% of cases, respectively, of individuals with this symptom[12,13] Multiple family members with varicose veins point to a clear hereditary component as the cause of the condition. In our study, 30% of the cases had a known family history, which is consistent with findings from Staniszewska *et al.,* who studied a population in Europe and found a significant correlation between varicose veins and family history[14].

It was not the case that stripping would worsen quality of life in the first postoperative phase, while it's likely that some negative effects would have been identified by a previous questionnaire. At four weeks, patients with recurrent illness did, however, have considerably lower ratings, which may be a consequence of their short-term postoperative morbidity. The AVSS was considerably improved after surgery than at baseline even though individuals with prior deep venous incompetence did not have the same amount of improvement after stripping as did those with competent deep veins. Disconnecting thigh perforators and lowering the possibility of groyne recurrence via neovascularization or crossgroin collateral routes are the primary goals of LSV removal[15-17]. A new randomised controlled experiment has verified the clinical perception that recurring LSV varicosities are often linked to failure to strip the LSV in the thigh and that stripping lowers the incidence rate of recurrence[18]. Still, a lot of surgeons do not regularly do stripping as part of their usual operating procedure. This might be due to one or more of the following: worry that the process will take longer, that stripping will lengthen hospital stays, or that pain and hematoma will raise the short-term morbidity of the operation. The number of patients who may be successfully treated as day cases or under local anaesthesia may decrease as a result of this.

The most frequent postoperative complication seen in all surgically treated patients was wound infection. In 41.25% of the instances, SSFL with lengthy saphenous vein stripping was carried out.

CONCLUSION

According to the current research, men are more likely to have varicose veins between the ages of 30 and 50. Visible dilated veins throughout the lower leg are the most frequent presenting sign, however over half of the patients also have one or more problems. The great saphenous vein system is the most often engaged venous system, while below-knee perforators are the most frequently involved perforators. The most often used technique was SSFL with lengthy saphenous stripping. After a year of follow-up, there were no recurrences in any of the instances. Even while conservative therapy reduces symptoms, it always necessitates definitive intervention. Therefore, the operational line of management should be the initial line of treatment.

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