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Original Research Article

A prospective observational study to analyse clinical profile of varicose vein cases treated in a tertiary care hospital

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ABSTRACT

Background: Varicose veins are common vascular disorder. The study was conducted to analyse the clinical presentation, treatment options and complications of varicose veins.
Methods: This observational study was conducted in Thanjavur Medical College Hospital. Adults with clinically diagnosed unilateral or bilateral varicose veins of lower limbs were studied in surgical wards between August 2013 to July 2014. The demographic data and presenting symptoms, signs and previous treatment were collected using a structured proforma. Thorough clinical examination, duplex scan and abdominal and pelvic examination were done in all cases to find out the secondary causes. Peripheral vascular system was examined. All the patients were followed regularly for the period of one month to one year after treatment.
Results: A total of 60 cases were included. Most participants belonged to 2nd and 3rd decade of life. 55 (91%) participants were male and5 (9%) participants were females. 45 (75%) participants were agriculturists. 10 (17%) participants had bilateral involvement. Most participants 30 (50%) participants had 1 to 5 years duration of disease, most common clinical presentation of the study participants was varicosity with 70.0%, followed by lipodermo sclerosis, leg pain, hyperpigmentation, pruritus as 63.0%, 56.0%, 15% and 11.6% respectively. 17 (28.33%) patients were present with a venous ulcer. 32 (53%) participants were managed surgically, and 28 (47%) participants were managed conservatively. Most participants were treated with multiple ligation 21.8% followed by trendelenburg operation+ stripping18.75%.
Conclusions: Regarding the treatment, surgery is the treatment of choice for primary varicose veins and conservative treatment for secondary varicose veins.

Keywords: Complications, Doppler ultrasound, Surgery, Varicose veins, Varicose ulcer

INTRODUCTION

The term varicose is derived from the Latin word meaning ‘dilated’ and it implies a dilated, tortuous and elongated vein.[1]Varicose veins of the lower limb are the most common vascular disorder affecting human beings. Off all the earth’s mobile creatures, the only man, with his penchant for standing erect, is afflicted by this abnormal condition.[2]

Hippocrates discussed their treatment about 2500 years ago and noted that it was better not to stand in the case of an ulcer on the leg.[1] Over the centuries, numerous modes of therapy including puncture, avulsion, excision, cautery, ligation, resection, injection and stripping were advocated with different degrees of success.[3] Although both surgical and nonsurgical measures have proved generally therapeutic, the search for a more effective

means of prevention and the perfect cure for this common malady continue.[4]

Although mortality is minimal, morbidity due to lower limb varicosities causes much misery and enormous loss of manpower. The reason to choose treatment for varicose veins is cosmetic in developed countries whereas it is the complications in developing countries like India.[5] Thus the study was conducted to analyse the clinical presentation, various modalities of treatment and complications of varicose veins.

METHODS

This observational study was conducted in Thanjavur Medical College Hospital. The study population included those visiting the outpatient Department of the Thanjavur Medical College Hospital with the complaints of varicose veins between. The setting between August 2013 to July 2014. Patients with clinically diagnosed unilateral or bilateral varicose veins of lower limbs aged ≥18 years were included in the study. Patients with varicose veins with coexisting peripheral vascular disease (PVD), thrombophlebitis, and with deep vein thrombosis (DVT) were excluded from the study. Lower limb varicose veins with pregnancy or per abdominal masses were also excluded.

The demographic data and data regarding occupation, presenting symptoms, signs and previous treatment were collected using a structured proforma. Thorough clinical examination and the duplex scan was done in all cases, for both superficial and patency of deep venous system. Abdominal and pelvic examination was done in all cases to find out the secondary causes. Peripheral vascular system was also examined. All the patients were followed regularly for the period of one month to one year after treatment by clinical examination and venous Doppler.

RESULTS

In this study, 60 cases of varicose veins were included in the final analysis.

Among the study population, 7 (11.6%) participants were aged between 10 to 20 years, 20 (33.3%) participants were aged between 21 to 30 years, 13 (21.6%) participants were aged between 31 to 40 years, 12 (20%) participants were aged between 41 to 50 years, 6 (10%) participants were aged between 51 to 60 years and 2 (3%) participants were aged between 61 to 70 years. Among the study population, 55 (91%) participants were male remaining 5 (9%) participants were female. Among the study population, 45 (75%) participants were doing agriculture, 4 (7%) participants were housewives, 3 (5%) participants were salesman and hotel servant each respectively, 2 (3%) participants watched man, and 1 (1.60%) participant was tea master, van cleaner and driver each respectively. Only one patient had a family history (Table1).

Table 1: Socio-demographic characteristic of the study population (N=60).

Character	No. of patients	Percentage
Age group		
10-20	7	11.6%
21-30	20	33.3%
31-40	13	21.6%
41-50	12	20%
51-60	6	10%
61-70	2	3%
Gender		
Male	55	91.0%
Female	5	9.0%
Occupation		
Agriculture	45	75%
Housewife	4	7%
Salesman	3	5%
Hotel servant	3	5%
Watchman	2	3%
Tea master	1	1.60%
Van cleaner	1	1.60%
Driver	1	1.60%
Family history	1	1.60%

Table 2: Descriptive analysis of the nature of the disease.

Parameter	Number	Percentage
Side		
Unilateral	50	83%
Bilateral	10	17%
System involved		
Long saphenous vein	42	70%
Short saphenous vein	20	33%
Perforator	37	61%
Deep vein	5	8%
Duration		
<1 year	18	30%
1-5 years	30	50%
6-10 years	4	7%
>10 years	8	13%
Recurrent varicosity	7	11.6%

Among the study population, 50 (83%) participants had unilateral, and 10 (17%) participants had bilateral varicosities. Among the people 42(70) with the system vein involvement, 42 (70%) participants had a long saphenous vein involvement, 20 (33%) participants had a short saphenous vein involvement, 37 (61%) participants had perforator, and 5 (8%) participants had deep vein.

Among the study population, 18 (30%) participants had <1-year duration of disease, 30 (50%) participants had 1 to 5 years duration of disease, 4 (7%) participants had 6 to 10 years, and 8 (13%) participants had >10 years

duration of disease. Among the study population, only 7 (11.6%) participants had recurrent varicosity (Table 2).

Most common clinical presentation of the study participants was varicosity with 70.0%, followed by lipodermo sclerosis, leg pain, hyperpigmentation, pruritus as 63.0%, 56.0%, 15% and 11.6% respectively (Table 3).

Table 3: Clinical presentation.

Clinical presentation	No. of patients	Percentage
Varicosity	42	70.0%
Lipodermo sclerosis	38	63.0%
leg pain	34	56.0%
Hyper pigmentation	9	15.0%
Pruritus	7	11.6%
Secondary varicose veins	5	8.0%
Eczema	3	5.0%

Table 4: Status of perforator involvement in the study population.

Perforator involvement	No. of patients	Percentage
Perforator involvement (N=60)		
Yes	37	61.66%
No	23	38.33%
The site of perforator involvement (N=37)		
Medial ankle perforator	28	75%
Below knee	9	24%
Mid-thigh	8	22%
Above knee	5	14%
Lateral ankle perforator	1	3%
Type of involvement (N=37)		
Perforator+ great saphenous vein incompetence cases	19	32%
Perforators alone involved	7	12%
Perforator+great+short saphenous vein	5	8%
Perforator+short saphenous vein incompetence	3	5%

Among the study population, 37 (61.66%) participants had perforator involvement. Among the study population, 28 (75%) participants had medial ankle perforator as the site of perforator involvement, 9 (24%) participants had below the knee, 8 (22%) participants had mid-thigh, 5 (14%) participants had above the knee, and only one participant had lateral ankle perforator involvement.

Among the study population, 19 (32%) participants had perforator+ great saphenous vein incompetence, 7 (12%) cases, 7 (12%) participants had perforators incompetence alone, 5 (8%) participants had Perforator+ great + short saphenous vein incompetence, and 3 (5%) participants had Perforator+ short saphenous vein incompetence (Table 4).

Out of 60 cases, 17 patients presented with venous ulcer. Among the 17 cases, majority 6 (100%) were situated over the superomedial aspect of the medial malleolus. The proportion of medial and lateral aspect of the lower leg and dorsum of the foot was 23% and 12% respectively.

Among the study population, 12 (70%) participants were with a unilateral leg ulcer, and 5 (30%) participants were with bilateral. Among the study population, 32 (53%) participants were managed surgically, and 28 (47%) participants were managed conservatively (Table 5).

Table 5: Descriptive analysis of venous ulcer.

Venous ulcer	No. of patients	Percentage
Presence of venous ulcer (N=60)		
Yes	17	28.33%
No	43	71.66%
The site of venous ulcer		
A superomedial aspect of the medial malleolus	11	65%
Medial and lateral aspect of the leg	4	23%
Dorsum of the foot	2	12%
Side		
Unilateral	12	70%
Bilateral	5	30%

Table 6: Management of varicose veins (N=60).

Treatment	No. of patients	Percentage
Conservative	28	47%
Surgery	32	53%
Trendelenburg operation	2	6.25%
Trendelenburg operation+ stripping	5	15.6%
Trendelenburg operation+ sripping+ subfacial ligation	4	12.5%
Shorsaphenousvein stripping+ subfacial ligation	2	6.5%
Tren+sscstripping+ multiple ligation	1	3.1%
Tren+ ssvstripping	1	3.1%
Tren+ssvstripping+ multiple ligation	1	3.1%
Tren+multiple ligation	6	18.75%
Ssvstrippingligation+multiple ligation	1	3.1%

Most participants were treated with multiple ligation 21.8% followed by Trendelenburg operation+ stripping18.75% Trendelenburg operation+ stripping 15.6% and Trendelenburg operation+ sripping+ subfacial ligation 12.5% (Table 6).

Among the 12 cases, majority 6 (50%) participants had wound infection, and 33.33% participants had saphenous nerve paresis (Table 7).

Table 7: Complications of surgery (N=12).

Complications due to surgery	Number	Percentage
Wound infection	6	50%
saphenous nerve paresis	4	33.33%
femoral vein injury	1	8.33%
Deep vein thrombosis	1	8.33%

DISCUSSION

In the current study, the majority of the patients having varicose vein were young adults and middle-aged with 33.3% participants aged 21-30 years, 21.6% between 31-40 and 20% belonging to the age group 41-50.17% participants had bilateral involvement. However, in a cross-sectional population-based tend to, it was determined that the prevalence of symptoms tended to increase with age in both sexes.[6]

Most participants in the current study were males 55 (91.7%) and were agriculturists 45 (75%). The male predominance in this series may be due to the prolonged standing because of the most of the patients belonged to agricultural background involving hard labour and 15 cases are salesman and hotel Servants and others. Our study findings were in accordance with the study by Bashir J et al, where mostly varicose veins were noted in the middle age group of 31 to 45 years.[7] Left limbs were found involved in the majority of the cases 47.22%, and right limb were 41.66% whereas bilateral varicose veins were found only in 11.11% of the cases. Farmers were in the majority 25.0% and 61.11% were males. Jami V et al, in their study found that the majority of patients are in the age group of 21-40 years.[5] 83 (75.45%) of them were males, and 19.09% cases were bilateral. Manual labourers formed the largest proportion about 50.9% who included the hotel workers, vendors, agricultural workers, shop assistants etc. This pattern was the same as our study, and the conclusion can be drawn that disease affects mostly male labourers and daily wagers. The long-standing hours can be the reason for the disease occurrence. According to the study of Barros FS et al, percentage of patients affected with varicose veins involving right side were 37.8%,left side were 41.7% and bilateral were 45.2%.[8]

In the current study, the most common clinical presentation of the study participants was varicosity 42 (70.0%), followed by lipodermosclerosis 38 (63.0%) and leg pain 34 (56.0%). The other findings were hyperpigmentation, pruritus, secondary varicose veins and eczema. It was similar to the findings by Bashir J et al, where majority of the cases had combined symptoms 88.88%, pain was present in the 75.0%, patients with swelling were 33.33%, ulcers were presents only in the 8.0%, eczema was found in 27.77% of the cases and pigmentation was observed in 30.55% of the cases.[7] In the study by Mulla SA et al, pain was seen in 51 (72.85%) patient and was by far the commonest complaint, followed by edema (20%) and disfigurement (12.85%).[9] A total of 35 (50%) patients presented with complications such as pigmentation of the limbs (30%), dermatitis (17.14%), ulcer (5.71%) and superficial thrombophlebitis (2.85%).

In the current study involvement of long saphenous system was 42 (70%) cases, short saphenous system 20 (33%) cases, perforator system 37 (61%) cases and deep venous system 5(8%) cases. Of the cases, seven patients (11.6%) has recurrent varicosities. Of 37 (62%) participants with perforator incompetence, the majority of the perforator incompetence was due to medial ankle perforator in about 28 (75%) patients. In the study by Bashir J et al.[7] As per Duplex ultrasonography findings, perforator was diagnosed in 25.0%, the saphenofemoral junction was seen in 41.7%, saphenopopliteal junctions were noted in 11.12% whereas combined findings were diagnosed in the 63.88% of the cases.

The venous system involved in the study by Jami V et al, was long saphenous vein incompetence along with perforator incompetence accounted for the majority of the cases, i.e. 62.7%.[5] Long saphenous vein alone was involved in 14.5% of the cases. Short saphenous vein with perforator incompetence is observed in 2.7%. Both long and short saphenous veins with perforator incompetence were seen in 4.5% of the cases. Only incompetent perforators alone were present in 10% of the cases. The perforators involved in the study by Jami V et al, was above ankle perforator accounting to about 50.85%.[5] Below knee perforator was involved in 39.42% and in only 14.85% cases mid- thigh perforator was involved.

In the study by Mirji P et al, majority of the patients in the present study had incompetence at multiple sites.[1] Almost 71% had combined saphenofemoral and perforator incompetence, followed by combined saphenopopliteal and perforator incompetence in 5.7%. Only isolated site incompetence was less commonly observed. Isolated perforator incompetence occurred in (8.57%) patients. Isolated saphenofemoral incompetence has seen in 11.4% and isolated saphenous popliteal incompetence observed in 2.8% limbs. Perforator incompetence in total occurred in 30 limbs (87.6%).

In the current study, 17 (28%) patients presented with a venous ulcer. Of 17 cases, 11 (65%) ulcers were situated over the superomedial aspect of the medial malleolus. 4(23%) cases were seen on the medial and lateral aspect of the lower leg. 2 (12%) cases ulcer was seen over the dorsum of the foot. Twelve cases present with unilateral leg ulcer. In 14 patients the ulcers were ovalin shape and the rest of the patients presented with irregular margin. All the ulcers were surrounded by black pigmentation.

And margins were sloping in nature. Most of the ulceration occurs in the gaiter area.

A venous ulcer is due to trapping of the white cell in capillaries affected by venous hypertension. Endothelial cell activated by hypoxia causes leucocytes into surrounding tissue to cause further harm there. The destructive effect is enhanced by obstruction to capillary flow by the adherent layer of leucocytes and by thrombus resulting from activation of platelets. The venous hypertension is the main factor in the genesis of ulcer, and it is aggravated by erect posture. Jami V et al, found the Incidence of venous ulcer was seen in 24 patients accounting to about 21.81% of the total patients.[5] The venous ulcer was the third most common presenting symptom in the present study following pain and dilated veins.

In the current study, among the 60 cases of varicose veins, 32 (53%) cases were managed surgically, and 28(47%) cases were managed conservatively since the patients were not willing for surgery. Of 28 cases, 5 cases of varicose vein were treated conservatively. Multiple ligation was performed in 7 (21.8%) individuals followed by Trendelenburg operation+ multiple ligation in 6 (18.75%) participants, Trendelenburg operation+ stripping in 5 (15.6%), Trendelenburg operation+ stripping+ subfacial ligation in 4 (12.5%) participants. In the study by Mirji P et al, surgery was the mainstay of treatment. When complications like oedema, eczema and ulcer were present, conservative treatment was given with compression dressings, elevation of limb, antibiotics and other general supportive measures. Similar complications were seen in the study by Prasad PB et al.[10]

In the study by Mirji P et al, conservative therapy was continued until surgery was feasible.[1] Various operative procedures either individually or in combination were used. The most common surgical treatment was SFFL (Saphenofemoral flush ligation) + MSFL (Multiple subfascial ligations) in 28.57% participants SFFL+MSFL+STR (Stripping) in 20% participants SFFL+STR in 14.28% participants, SFFL in 11.43% individuals followed by SFFL+MSA (Multiple stab avulsion) and MSFL. The commonest treatment in the study by Mulla SA et al, was Tr (Trendelenburg's procedure) + str(stripping) + perf lig (perforator ligation) + stav (stab avulsion) in 38.57% participants followed by Tr + str + stav in 18.57%, Tr + perflig + stav on 12.85, Tr performed on 8.57% and Tr + str + SPJlig (subfascial ligation) + stav on 7.14% participants.[9]

In the current study, six patients had wound infection, and four patients had saphenous nerve paresis, femoral vein injured in one patient post operatively which was repaired by saphenous vein graft. One patient developed deep vein thrombosis after three months of subfacial ligation. The complications were different in the comparative studies. In the study by Mirji P et al, one total complication rate observed during the post-operative period and follow-up was 34%.[1] Most were managed conservatively. The incidence of sensory impairment following surgery was nil. This could be because of the long segment stripping of saphenous vein whenever possible, was avoided, and our patients mostly villagers and workers may not have been able to notice a slight change in sensation. In the study by Mulla SA et al, complications of surgery were noted in 22 (31.42%) patients, seroma formation (10%) was the commonest, followed by recurrence of the disease (8.57%), hematoma (4.28%), wound infection (2.85%) and neuropathy (5.71%) were also noted during the study.[9]

Among the 60 cases of varicose vein of the lower limb, the male-female ratio is 11:1 where the majority of the patients were between 21-30 years age group. Most of them were agricultural manual workers. It may be explained by prolonged standing in their work. Dilated, tortuous veins and the venous ulceration were the commonest presentations in this series studied. Regarding the treatment, surgery is the treatment of choice for primary varicose veins and conservative treatment for secondary varicose veins. Standard operation is high ligation of the saphenofemoral junction with the stripping of the greater saphenous vein. Regarding surgery of perforator incompetence subfascial ligation of Cockett and dodd perforators performed through the poster medial incision followed by application of compression stockings permanently can give successful results.

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