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Research Article

A study of clinical profile of varicose veins in our tertiary care center: a randomized prospective observational study

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ABSTRACT

Background: Varicose vein are abnormally dilated, tortuous, elongated veins of lower limbs which have permanently lost their valvular efficiency. objectives of our study was to study clinical profile, complications and different modalities utilized in our institute and to assess and study final outcome in patients included in our study.
Methods: This study was a prospective observational and analytical study of 100 patients. Patients within age group of 10 to 70 years and patients with varicose vein complications were included in our study whereas patients with age less than 10 years and more than 70 years, patients with deep vein thrombosis, chronic debilitated and immune-compromised patients were excluded.
Results: 100 patients were treated for varicose veins of lower limb in our institute. Average age of the patients was 36 years. The youngest patient was of 15 years and oldest patient was 65 years old. Commonest presentation was dilated veins with itching and pigmentation in 65% of patients. Long saphenous vein was involved in 96% of limbs. Most common valve involved was SFJ. 25 patients were treated by sclerotherapy, residual varicosity seen in 4 patients. only 5 patients (20%) developed residual varicosity after operative procedure.
Conclusions: The database of our retrospective study regarding age & sex incidence, clinicopathological features and therapeutic outcome was comparable to other studies in various literatures.

Keywords: Varicose veins, Long and short saphenous venous system, Sclerotherapy, Stripping and flush ligation, Subfascial ligation, EVLA

INTRODUCTION

The term varicose vein refers to abnormally dilated, tortuous, elongated, friable superficial veins, usually of lower limbs. These varicose veins have permanently lost their valvular efficiency.[1]

Varicose veins are a major health problem in the western countries, being more common in females. In India, incidence is comparatively low, more common in males and presents late with associated complications.

AIMS of the study was to study clinical profile, complications and different modalities utilized in our institute and to assess and study final outcome in patients included in our study.

METHODS

The study was a prospective observational and analytical study of 100 patients which was conducted in our institute. Patients within age group of 10 to 70 years and patients with varicose vein complications were included in our study whereas patients with age less than 10 years or more than 70 years, patients with deep vein thrombosis, chronic debilitated and immune-compromised patients were excluded.

RESULTS

Table 1: Age incidence.

Age (in years)	No. of patients	%
10-20	12	12%
21-30	19	19%
31-40	37	37%
41-50	21	21%
51-60	5	5%
61 -70	5	5%
Total	**100**	**100%**

In our study maximum no. of patients belongs to 31-40 year age group.

Every patient was studied as per the following strategy:

- Detailed history and clinical examination (tests like Brodie: Trendelenburg test, Multiple Tourniquet test, Fegan's test, Schwartz test, Perthe's and Modified Perthe's test etc).
- Routine investigations like CBC, Serum creatinin, blood urea nitrogen, electrolytes, Liver function tests, blood sugar level also specialized investigations like venous colour Doppler of lower limbs, ultrasonography (abdomen+pelvis).

Management (conservative, sclerotherapy, surgical) and follow up.

Table 2: Sex incidence.

Sex	No. of patients	%
Males	60	60%
Females	40	40%
Total	**100**	**100%**

Males are more commonly involved than females with ratio of 3:2.

Table 3: Relation of varicose veins with occupation.

Occupation	No. of patients	%
Occupations involving prolonged standing	57	57%
Occupation not involving prolonged standing	43	43%
Total	**100**	**100%**

Table 4: Family history.

Family history	No. of patients	%
Present	20	20%
Absent	80	80%
Total	100	100%

In our study 20% patients have positive family history.

Table 5: Mode of clinical presentation.

Clinical presentation	No. of patient	%
Dilated veins only	15	15%
Dilated veins + pain	62	62%
Dilated veins + edema	48	48%
Dilated veins + itching and pigmentation	65	65%
Dilated veins + ulceration	34	34%
Dilated veins + bleeding	4	4%

In our study the most common presentation was dilated veins with itching and pigmentation followed by pain.

Table 6: Side of lower extremity affected.

Affected lower limbs	Right lower limb	Left lower limb	Total no. of lower limbs
Only one lower limb affected	32	42	74
Both lower limbs affected	26	26	52
Total	**58 (46.03%)**	**68 (53.97%)**	**126 (100%)**

Varicose vein more common in left lower limb than right lower limb.

Table 7: Sensitivity of clinical tests and probe Doppler study.

Method of study	No. of cases considered	No. of cases in which findings tallied with intra-operative findings	Sensitivity
Clinical tests	25	18	72%
Doppler probe study	25	23	92%

Sensitivity with clinical test was 72% whereas with Doppler study was 92%.

Table 8: Average pre-operative stay.

Patients	No. of patients	Average no. of days pre-operative stay
Patients with ulcer	10	7.9 days
Patients without ulcer	15	3.4 days
Average	25	5.2 days

Table 9: Average post-operative hospital stay.

Operated patients	No. of patients	Average no. of days post - operative stay
With immediate post-operative complications	1	14 days
Without immediate post-operative complications	24	7.75 days
Average	25	8 days

Table 10: Complications seen and their incidence.

Complications	No. of the patients	%
Early: Hematoma	1	4%
Late:		
Residual varicosity	5	20%
Stitch abscess	2	8%
Saphenous neuritis	1	4%

DISCUSSION

Table 11: Comparison of age incidence.

Study	Youngest patient	Oldest patient	Average age
Meyer T.T[2]	19	67	49.4
Burnand K.G.et[3]	30	70	50
Hoare M.C.et al[4]	45	77	58
Nelzen et al[5]	39	97	77
Bradbury et al[6]	39	73	56
Vaidyanathan s.[7]	22	56	39
Present study	15	65	36.17

In the present study the average age 36.17 year was noted which was comparable with the other studies, while the youngest patient in this study being of 15 year, is comparatively much earlier.

Occupation

In the 100 patients who were evaluated, 57 patients were engaged in occupations involving prolonged of standing. The maximum numbers of patients, i.e. 34 were found to be involved in agriculture.

Duration: The average duration the patients suffered from the symptoms prior to consultation was 6 years.

Type of superficial venous system involvement:

Of the 126 affected limbs of 100 patients examined, the system more commonly affected was the long saphenous.

Most common complication seen in our study after surgery was recurrence followed by infection (stitch abscess).

Table 12: Comparison of sex ratio.

Study	Male : female ratio
Jakobsen B.H.	1 : 4
Hobbs J.T.	1 : 5
A.H.M. Dur et al	1 : 3
Scurr J.H. et al	1 : 3
Bradbury et al	1 : 2
Sethia and darke	1 : 1
Vaidyanathan s.	2 : 1
Present study	3 : 2

In our study varicose vein was more common in males with ratio of 3:2 which is comparable to other Indian study but in western studies females were more commonly affected.

Table 13: Comparison of association of occupation involving prolonged hours of standing.

Study	% of patients with occupation involving prolonged hours of standing
Neuchataloise et al	77.18%
Jakobsen B. H.	63.8%
Present study	57%

Table 14: Comparison of association with positive family history.

Study	% with positive history family
T.B. Hurst's 'the heart'	66.67%
Study by Anning	89.24%
Study by Reagan B. et al	27.78%
T.B. the pathology and surgery of the veins of the limb Dodd and Cockett	70%
Study by Keith L.M. et al	80%
Present study	20%

Considering, the low incidence of this disease in India, and comparing the positive history of 20% in this study, with the western studies, this association is on lower side.

Table 15: Comparison of predilection for side of extremity involvement.

Study	Right lower limb involvement	Left lower limb involvement
A.H.M. Dur et al[8]	101 (48.5%)	107 (51.55)
Hoare M.C. et al[9]	11 (47.8%)	12 (52.2%)
Present study	58 (46%)	68 (53.97%)

Varicose vein more common in left lower limb which is comparable to other studies.

The average duration from the onset of illness to the presentation is in the present study is quite short when compared with that in the western studies. This is surprising considering the fact that majority of the patient in this study come from a rural set up and have poor health knowledge and low socio-economic status.

Table 16: Comparison of average duration of illness.

Study	Average duration of illness
Myers et al	17.2 years
Jacobson B.H.	9.3 years
Hoare M.C. et al	24 years
Present study	6 years

Table 17: Comparison of modes of presentation.

Study	Mode of presentation				
	Pain	Swelling	Itching	Ulceration	Bleeding
Jacobson et al	50%	42%	60.3%	2.5%	-
Fegan W.G.	34%	07%	-	12%	-
Verma B.K. et al	85%	95%	20%	30%	-
Vaidyanathan	-	-	-	46.67%	6.67%
Present study	62%	48%	65%	34%	4%

Nevertheless, this can be explained by the fact that these patients happen to neglect the initial symptoms and hence, develop complications earlier in the course of the disease, for which they were compelled to seek medical aid.

The above table shows that the late complications like ulceration and bleeding are present at the time of seeking medical help, are more common in the Indian studies. The findings of the present study also co-relate the same. This could be due to the decrease awareness in the Indian population and hence the initial negligence of this disease.

Table 18: Comparison of skin changes observed.

Study	Skin changes observed			
	Pigmentation	Eczema	Lipo-dermosclerosis	Ulceration
Vermab.K. et al	8 (40%)	4 (20%)	4 (20%)	6 (30%)
Vaidyaanathan S.	-	-	16 (53.3%)	14 (46.67%)
Munn S.R. et al	13 (22%)	15(26%)	-	5 (8%)
Present study	96 (76.19%)	87 (69%)	43 (34.1%)	65 (51.6%)

Pigmentation and eczema are the most frequent skin changes observed in the western studies conducted. The Indian studies done by Verma B.K. et al also show a similar picture, though Vaidyananth S. does not mention this specifically. The incidence of ulcerations in the Indian studies is higher than that in the western studies.

The increased affection of the long saphenous vein is as a result of direct effect of central venous pressure on the sapheno-femoral valve in the case of defect in more proximal valves. The present study corroborates with the findings of the other studies compared with.

The present study shows that the valvular defect is more common in the SFJ which is similar to other standard studies.

Table 19: Comparison of involvement of superficial venous system.

Study	Superficial venous system involved		
	LSV	SSV	Both
Jacobsen B.H.	414 (85.7%)	21 (4.5%)	48 (9.8%)
Hobbs J.T.	51 (83.6%)	5 (8.2%)	5 (8.2%)

A.H.M. Dur et al	85 (78%)	24 (22%)	-
Myers T.T.	1080 (91%)	109 (9%)	-
Present study	96 (76.2%)	9 (7.1%)	21 (16.7%)

Table 20: Comparison of valvular involvement.

Study	Site of valvular incompetency		
	SFV	SPV	Perforators
Jacobson B. H.	459 (95%)	68 (14%)	149 (31%)
Hoare et al	22 (95.65%)	8 (34.78%)	14 (60.87%)
Present study	90 (71.4%)	19 (15.07%)	198 (52.38%)

Table 21: Comparison of sensitivity of clinical tests and DOPPLER probe study.

Study	Sensitivity of clinical examination	Sensitivity of Doppler examination
Bradbury A.W. et al	65%	88%
Present study	72%	92%

The above table shows the higher sensitivity of Doppler study when compared to clinical examination in both studies. The sensitivity of the Doppler examination in present study was (92%) which was similar to other study.

Management

Conservative treatment

In our study, all patient who were not willing and unfit for surgery and patients with complications like ulcerations and edema, treated by conservatively like limb elevation, compression bandage, daily dressing with "Bisgard's regimen".

Conservative line of management has a definitive role to play in management of varicose veins, especially in those cases with associated edema, ulceration, etc. in reducing post-operative morbidity and stay.

Sclerotherapy

Sclerotherapy was done in 25 patients in our study in which 11 patients showed response completely, 4 patients came with recurrence and rest 10 patients did not came back for follow up.

Surgical treatment

The surgical treatment includes the following procedures:

- Flush ligation of the sapheno-femoral / sapheno-popliteal junction-Trendelenberg operation.
- Stripping of the varicose veins segments.
- Subfascial ligation of incompetent perforators-Dodd's and Cockett's operation.
- Endo Vascular Laser Ablation.

Surgical treatment in the present study includes the different operations in various combinations. The results as seen at the time of discharge were no residual varicosities with 20 patients (80%) during their post-operative stay.

In this study there was a major affection of the sapheno-femoral junction in 90 (71.4%) limbs which was the commonest involvement (Table 10). These combinations of pathology were in the same limb in majority of limbs affected. This is the reason why in the present study all the three procedures were carried out at the same time in most of the limbs.

Table 22: Comparison of post-operative complications.

Study	Wound infection	Saphenous neuritis	Recurrence
Negus and Friedgood	-	-	15.7%
Hyde and Hull	-	-	24%
Munn S.R. et al	11.8%	33%	-
Burnand et al	-	-	55%
Corrigan and Kakkar	-	-	35%
Field and vanboxel	-	-	1.7%
Cox S.J. et al	-	36.5%	-
Hobbs J.T.	5%	7%	-
Vaidyananthan S.	-	-	23.3%
Present study	4%	4%	20%

Endo-vascular laser ablation

4 patients were referred to higher centre for EVLA as this facility was not present in our institute.

Complications

(A) *Early complications:* in our study 1 patient develop small hematoma for which re-exploration was done, hematoma drained and perforator ligated. No any further complication occur in this patient.

(B) *Late complications:* out of 25 operated patients total 5 patients developed recurrence, 1 patient developed

saphenous neuritis and 1 patient develop stitch abscess. The incidences were comparable to other studies.

Mortality: Varicose vein as such is not a life threatening condition. It is more a cause of morbidity. Hence, a proper note should be made before taking up a patient for surgery. In the present study there was no intra-operative or post-operative mortality.

Figure 1: Varicose veins.

Figure 2: Short saphenous venous ulcer.

Figure 3: Varicose veins with bleeding ulcer.

Figure 4: Perforators.

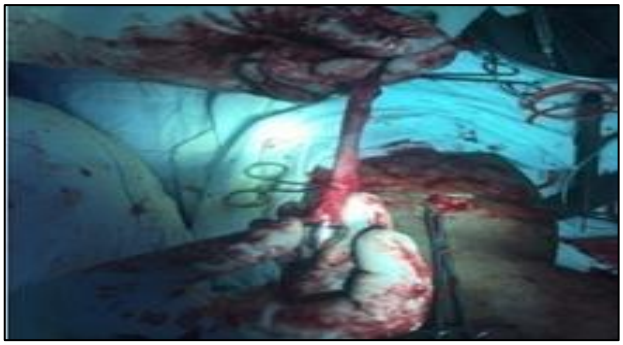

Figure 5: Stripping of saphenous vein.

Figure 6: Post -op wound.

CONCLUSION

Varicose veins is a common disease affecting the middle aged group, males, rather than females and people engaged in to occupations involving prolonged hours of standing. Commonest presentation is dilated veins affecting unilateral limb, with associated symptoms of itching, pigmentation and ulceration. These compel the patient to seek treatment earlier. Common factors responsible are occupations involving prolonged hours of standing, post deep vein thrombosis, through familial, its incidence is low comparable to the western studies. Clinical tests are important to denote the site of pathology. Commonest affection is long saphenous system with incompetency of valves. Combination of inference of clinical tests in association of Doppler study gives higher accuracy in diagnosing the site of pathology. Conservative line of treatment before surgery is beneficial through it increases the pre-operative stay, reduce associated complications and thus, reducing the post-operative stay, morbidity and cost. A good clinical assessment with investigations, treatment with associated complications and a combinations of surgical procedure have beneficial effects in minimizing cost and morbidity of varicose vein surgery.

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