International Surgery Journal
Jaykar RD et al. Int Surg J. 2021 Aug;8(8):2399-2404
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20213136

Original Research Article

Study of clinical profile and management of varicose veins in the department of surgery

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Received: 08 June 2021
Revised: 08 July 2021
Accepted: 16 July 2021

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ABSTRACT

Background: Varicose veins are common problem and are present in at least 10% of the general population. So far as the aetiology is concerned varicose veins mostly occur due to incompetence of their valves. Risk factors for varicose veins include obesity, female sex, inactivity, and family history. Varicose veins do not threaten life and are seldom disabling, but it causes a considerable demand on medical care.
Methods: The study was prospective observational single center study. 30 patients were selected for the study which fit in the selection criteria laid down at the beginning of the study. Informed consent was obtained from each patient before any investigations and treatment.
Results: The study revealed that the varicose veins of lower limbs are a disease of younger age group, occurring more commonly during third and fifth decades of life. The involvement of long saphenous system was more common.
Conclusions: Results of our study are comparable with various other studies in literature.

Keywords: Varicose veins, Saphenous vein, Sclerotherapy, Sapheno-femoral incompetence, Sclerotherapy, Endovenous laser ablation, Flush ligation with stripping, SEPS

INTRODUCTION

The term varicose is derived from the Latin varix (pleural varices) which in turn possibly derived from varus meaning bent. The definition of varicose veins varies widely ranging from clearly visible, dilated, tortuous and possibly prominent subcutaneous veins of lower extremities according to Arnoldi to dilated veins secondary to loss of valvular efficiency according to Dodd and Cockett, vein with a saccular dilatation which is often tortuous according to WHO. Varicose veins are generally identified on the lower extremities. They also can be found in the vulva, spermatic cords (varicoceles), rectum (hemorrhoids) and esophagus (esophageal varices). Varicose veins do not threaten life and are seldom disabling, but it causes a considerable demand on medical care.

Varicose veins are common problem and are present in at least 10% of the general population.[1] So far as the aetiology is concerned varicose veins mostly occur due to incompetence of their valves. Risk factors for varicose veins include obesity, female sex, inactivity and family history.[2] Varicose veins are penalty of erect posture which the human beings have adopted. Commonly occurs in those whose works demand standing for long hours like conductors, drivers of the trams.

The objectives of our study was to study the clinical profile of varicose veins, complications of varicose veins, different modalities of treatment of patients of varicose veins and advanced modalities for treatment of varicose veins.

METHODS

The present study had been carried out in the tertiary care hospital settings of surgery department at Dr. VMGMC, Solapur. The study was prospective observational single center study. The period of study was from 1 December 2018 to 31 July 2020 for 20 months.

30 patients were selected for the study. Patients of varicose veins of lower limbs of age 14 years and above irrespective of sex, cases of recurrent varicose veins, patients of chronic varicose veins and its complications like venous ulcer, deep vein thrombosis were included in the study. Patients who did not give valid informed consent, unreported serious adverse events and patients not following instructions of operating surgeon also not coming for follow up were excluded from the study.

All patient's detailed history were taken like age, sex, occupation, complaints, past history of any operation, obstetric history in case of female patients. All clinical tests of varicose veins were applied for every patient. General, systemic and local examination was done. Patients of affected limb was classified as per CEAP classification. All patients were subjected for duplex (Doppler)-USG of affected limb. All patients were offered conservative treatment in the form of compression stockings, advice regarding change of lifestyle, occupation counselling. Medical (drug) treatment as per the need was given. Follow up after 4 weeks was advised. Patients were subjected to surgical interventions as indicated.

Data analysis

The postoperative course was noted, minor complications were attended and treated accordingly. Patients were followed up after 4 weeks. Final outcome was evaluated. All the clinical data of each patient were recorded in the pre coded clinical proforma designed for the study, analysed using IBM SPSS Software and was compared with various other studies.

Approval of the institutional ethics committee was obtained for the study.

RESULTS

Demographic profile

Varicose veins of the lower limb are disease of adult life. The youngest in the study was 23 years and the eldest was 69 years (Table 1).

In our study, 23 patients were male and 7 patients were female (Table 2).

Farmers forms the largest proportion around 33.33%. Manual labourer forms 30%. This disease affects mostly lower socioeconomic classes and those who stand for prolonged periods (Table 3).

Table 1: Age distribution (n=30).

Age (in years)	Patients	Percentage
20-30	5	16.67
31-40	8	26.67
41-50	8	26.67
51-60	7	23.33
61-70	2	6.66
Total	30	100

Table 2: Gender distribution (n=30).

Sex	Patients	Percentage
Male	23	76.67
Female	7	23.33

Table 3: Occupation distribution (n=30).

Occupations	Patients	Percentage
Farmer	10	33.33
Labourer	9	30
Driver	3	10
Housewife	2	6.67
Student	2	6.67
Conducter	2	6.67
Shopkeeper	1	3.33
Teacher	1	3.33
Total	30	100

Table 4: Limb involvement (n=30).

Limbs involved	Patients	Percentage
Right	12	40
Left	14	46.67
Both	4	13.33
Total	30	100

Table 5: Venous system involved.

Veins involved	Limbs	Percentage
Great saphenous	29	96.67
Short saphenous	1	3.33
Both	0	0
Perforator	24	80

The right limb was involved in 40% of cases and the left limb in 46.67% of cases. The bilateral varicose veins were seen in 13.33% of patients (Table 4).

As the long saphenous vein extends along the whole length of the limb, it bears the brunt of the erect posture. The long saphenous vein was involved in 96.67% of cases, the second victim being the perforators which was involved in 80% of cases. There was only a single case of isolated short saphenous vein involvement out of 30 cases (Table 5).

Majority of the patients in the present study had incompetence at multiple sites. Almost 61.33% had combined saphenofemoral and perforator incompetence. Only isolated site incompetence was less commonly observed. Isolated perforator incompetence occurred in (16.67%) patients. Isolated sapheno-femoral incompetence seen in 16.67% and isolated sapheno-popliteal incompetence observed in 3.33% limbs. Perforator incompetence in total occurred in 80% of patients (Table 6).

In our study, almost all patients came with complaint of prominent veins at the time of presentation out of which 76.67% of patients shares isolated prominent veins. Other symptoms like pain, pigmentation, edema and ulceration were also associated with prominent veins (Table 7).

Different pathology of varicose veins

In our study, sapheno-femoral incompetence constitutes the bulk of the disease, 80% of the pathology. Sapheno-popliteal incompetence is rare and occurs in 3.33% of the patients. Below knee perforator incompetence occurs in 76.67%. Above knee perforator incompetence occurs in 60%.

Sapheno-femoral flush ligation along with stripping and perforator ligation constitutes 60% of total surgeries while isolated sapheno-femoral flush ligation and isolated perforator ligation done in 10% each. Bisgards regime with perforator ligation, subfascial endoscopic perforator ligation and saphenopopliteal ligation contributes 3.33% each (Table 8).

In our study, out of 30 patients, 6 patients showed post of complications. Hematoma was the most common postoperative complication observed in 10% of patients, wound infection was observed in 3.33% of patients, saphenous neuritis was observed in 3.33% of patients, 3.33% of patients had wound infection. Residual varicosity observed in only one case. None of our patients had femoral vein injury, femoral artery injury, deep vein thrombosis or pulmonary embolism. All postoperative complications were treated conservatively (Table 9).

Table 6: Site of incompetence.

Site of incompetence	No. of patient limbs	Percentage
Great saphenous vein	5	16.67
Great saphenous vein+perforator	19	63.33
Short saphenous vein	1	3.33
Perforator	5	16.67

Table 7: Clinical features at presentation.

Symptoms	Patients	Percentage
Prominent veins	23	76.67
Prominent veins + pain	3	10
Prominent veins + pigmentation	1	3.33
Prominent veins + healed ulceration	2	6.67
Prominent veins+active ulceration	1	3.33

Table 8: Surgical procedures performed.

Surgical procedures	Limb	Percentage
Saphenofemoral flush ligation (SFFL)	3	10
Bisgards regime (BR)+perforator ligation (PL)	1	3.33
PL	3	10
Subfascial endoscopic perforator ligation (SEPS)	1	3.33
Saphenopopliteal ligation (SPL)	1	3.33
Sapheno-femoral flush ligation+stripping	3	10
Sapheno-femoral flush ligation+stripping+PL	18	60

Table 9: Postoperative complications.

Postoperative complications	Patients	Percentage
Wound infection	1	3.33
Saphenous neuritis	1	3.33
Hematoma	3	10
Residual varicosity	1	3.34
Total	6	20

Table 10: Duration of hospital stay.

Hospital stay (in days)	Patients	Percentage
<5	0	0
5-10	10	33.33
11-15	16	53.34
>15	4	13.33

53.34% of the patients stayed mean duration 11-15 days in hospital. 33.33% patients stayed for the duration about 5-10 days while 13.33 % patients stayed for more than 15 days in the hospital. Minimum 6 days and maximum 19 days was duration of hospital stay for the patient (Table 10).

Recurrence

In our study, out of 30 patients only three patients showed recurrence, one case which was operated for perforator ligation and two cases operated for sapheno-femoral flush ligation with stripping and perforator ligation.

DISCUSSION

Demographic profile

Age distribution

In our study the age range is from 23 years to 69 years and the most common age group for varicose veins was 31-50 years. 16 patients, more than 50% of the patients were in the age group of 31-50 years. Joseph et al found that majority of cases were of the age group 41-50 years.[3] Athar Mohammad et al studied that most of the patients (93.4%) were in the 20-50 years age group.[4] Mirji et al study revealed that the disease was more prevalent during the active adult life in their 3rd and 4th decades.[5] Piazza studied that majority of cases were between the ages of 40 to 80 years.[6]

Sex distribution

In our study, varicose veins showed male dominance, out of thirty patients 23 patients were male, contributing 76.67 percentage. Joseph et al found that 74.7% of patients were male.[3] Latif et al recorded that varicose veins were more in male.[7] Mohammad et al found that male (91.25%) patients were dominant than the female.[4] Mirji et al studied that only 25% of the total patients in this study were females as compared to males who made 75% of total case.[5]

Occupation

The present study showed about 80% of the patients had occupation history of prolonged standing (like farmer, manual labour, bus conductor, teacher) which suggested that occupation had a definite role as a causative or a contributing factor. Joseph et al recorded that majority were unskilled workers.[3] Mohammad et al studied that varicose veins are common in people having occupation which involved prolonged standing.[4] Yun et al studied that lower-limb varicose veins were common and known to have a higher prevalence among people who worked in occupations requiring prolonged standing.[8]

Limb involvement

The right limb was involved in 12 cases and the left limb in 14 cases. Our study showed slightly increased incidence of varicosity on the left limb. The cause of increased incidence of left side was not known. The probable reason followed a more tortuous course through the pelvis, with left common ileac vein traversed by the right common ileac artery. The bilateral varicose veins were seen in 13.33% of patients. Joseph et al studied that varicose veins on the left side were more involved than on the right.[3] Mohammad et al recorded that the right limb was involved in less cases than the left limb.[4] Mirji et al study showed slightly increased incidence of varicosity on the left limb.[5]

Veins involved

Long saphenous vein was involved in 96.67% of patients, the second commonest being perforators which were involved in 80% of patients. Short saphenous vein was involved only in one case out of 30. Majority of the patients has combined saphenofemoral and perforator involvement. Joseph et al studied that perforator followed by great saphenous vein were most frequently involved.[3] Mirji et al recorded that 90.62% of patients involved great saphenous vein and only 3% with short saphenous vein.[5] Prasad et al had found long saphenous vein was involved in 76% of cases, the short saphenous vein in 4% and both long and short in 20%.[9] Al-Mulhim et al found long saphenous vein was involved in 68.4% of cases and short saphenous vein in 7.1% cases.[10]

Site of incompetence

Majority of the patients had combined sapheno-femoral and perforator incompetence (63.33%). Isolated perforator insufficiency was noted in 16.67% of patients and isolated great saphenous veins also shares the same percentage. Short saphenous vein incompetence seen only in 3.33% of patients. Joseph et al studied that most common pattern of vein involvement was great saphenous vein and perforator vein.[3] Samane et al found

incompetency of isolated perforators (43.3%) were more followed by sapheno-femoral (26.7%).[11]

Clinical presentation

Majority of the patients in this study reported to the hospital for prominent veins (76.67%) which occurred alone or in combination with pain, oedema, eczema, pigmentation or ulceration. Joseph et al found that the most common presentation in varicose veins was ulceration followed by pain which differs from our study.[3] Latif et al found that usual complaints prominent veins, pain and cosmetic reasons were the common presentation.[7] Samane et al studied that the commonest symptom was dilated, tortuous veins followed by pain.[11] O'Leary et al recorded that prominent veins and aching were the most frequent reason for presentation.[12]

Different pathology of varicose veins

60% of the patients had multiple perforator incompetence. Patients who had multiple perforator incompetence had one or the other complications of varicose veins. Isolated above knee perforator incompetence was seen in 60% of patients, below knee perforator incompetence was seen in 76.67% of patients.

Surgical procedures performed

Sapheno-femoral junction ligation including the ligation of anatomically constant tributaries at its termination with stripping of long saphenous vein by Myers stripper upto the knee and ligation of incompetent perforator was done in 18 cases. Sapheno-popliteal flush ligation was done in 2 cases and flush ligation of SFJ and stripping of LSV was done in 3 cases. Subfascial endoscopic perforator ligation performed only in one case. In Pavan et al series all patients were managed surgically and patients were managed conservatively till surgery was feasible.[9]

Postoperative complications

Total complication rate observed during the postoperative period and follow up was 20%. Most were managed conservatively. Hematoma was the most common postoperative complication. The incidence of sensory impairment following surgery was 3.33%. Residual varicosity observed in only one case and managed conservatively. Defty et al reported around 20% of post op complications which was similar to our study.[13]

Duration of hospital stay

Out of 30 patients, 16 (53.34%) patients were discharged in between 11-15 days. 4 patients (13.33%) had to stay for more than 15 days and 10 patients were discharged within 10 days of admission. Kumar et al studied that out of 50 patients, 32 patients were discharged at the end of 10 days. 4 patients (8%) had to stay for more than 15 days.[14]

Recurrence

In our study the recurrence rate was 10%. This pattern is very similar when compared to Kumar et al who showed similar results.[14] However, the time period for follow up was not sufficient and also number of cases included could be small to assess the true incidence of recurrence. Mohammad et al studied that the incidence of recurrence was 29% which differ from our study.[4]

Limitations

This was a hospital based study, the time period for follow up was not sufficient and also number of cases included could be small and hence the results cannot be generalized to the population.

CONCLUSION

Thirty cases of varicose veins of the lower limb have been studied in detail. The study revealed that the varicose veins of lower limbs are a disease of younger age group, occurring more commonly during third and fifth decades of life. The majority of the patients were male and unskilled workers probably due to life style factors like prolonged standing during work hours. Added to this could be the lack of awareness and understanding of these patients on issues related to occupational risk involved in this condition. The reasons for the less number of female in the study is not known. Probably our middle class and lower class women are not much worried about the cosmetic appearance or less average height compared to male or less violent muscular activity. Most of the patient seek medical attention due to varicosities and ten percentage of patient complaints discomfort or pain. The study revealed slightly increased incidence of varicosity in the left lower limb as compared to right lower limb (right limb:left limb was 1:1.67). The cause for the same is not known but could be the probable reason for increased incidence on left side is that the venous drainage of the left leg follows a more tortuous course through the pelvis, with left common ileac vein traversed by the right common ileac artery. Both the limbs were involved in four patients. The involvement of long saphenous system is more common than the short saphenous system and left limb is affected more than right limb. A greater portion of the patients had combined valvular incompetence with advanced hemodynamic disturbances at presentation. Sapheno-femoral incompetence is the most commonly observed pathology. Of the perforators below knee perforator is commonly involved. Sapheno-femoral flush ligation with stripping and perforator ligation appeared to be the best method of surgical management for in competence in the long saphenous vein territory. In the presence of short saphenous vein incompetence sepheno-popliteal flush ligation with stripping needs to be added. Complications due to surgery were mainly hematoma formation, wound infection, lymphorrhoea and saphenous neuritis and hematoma formation was the most common

complication in our study. Mean hospital stay were 11 days (minimum-6 days and maximum-19 days).

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Jaykar RD, Jadhav SC, Chaudhari VM. Study of clinical profile and management of varicose veins in the department of surgery. Int Surg J 2021;8:2399-404.