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A Clinical Study of Diagnosis and Management of Varicose Veins of Lower Limb

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Original Research Article

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Abstract: Varicose veins are a common vascular disorder occurring mostly in male often requiring surgical management. It leads to economic burden and loss of productivity due to morbidity. This study was conducted in order to investigate this common vascular disorder in this group of the population and to find the best modality of management. This is a prospective descriptive study of all the patients admitted to the Department of General Surgery with lower limb varicose veins of Prathima Institute of Medical Sciences Hospital, Karimnagar. A thorough history was taken in all the patients. A detailed clinical examination was done. All the clinical tests were applied. Then all the patients were subjected to duplex USG to confirm the diagnosis. The routine investigations were done. Appropriate surgical procedures were used for the treatment of varicose veins. The postoperative course was noted. Further, the patients were followed up. A total number of 42 patients (46 numbers of limbs) with primary varicose veins admitted, investigated, operated and followed up. Only 22% of the patients had the complaint of prominent veins. The study showed a slightly increased incidence in the left lower limb. The majority of the patients have involvement of long saphenous system. A greater portion of the patients had combined valvular incompetence (69.56%). Isolated perforator incompetence was seen only in 4.35% of the patients. Except for two patients who did not have Sapheno femoral incompetence, all other patients underwent Sapheno femoral flush ligation. Four patients had wound infection and Two patients developed seroma and were treated with needle aspiration and pressure dressing. Two patients had residual varicosity and patients underwent a repeat surgery. The study also revealed a slightly increased incidence of varicosity in the left lower limb as compared to the right lower limb. A greater portion of the patients had combined valvular incompetence with advanced hemodynamic disturbances at presentation. Saphenofemoral flush ligation with stripping appeared to be the best method of surgical management for incompetence in the long saphenous vein territory.
Keywords: Varicose Veins, Clinical Study, Lower Limb.

INTRODUCTION

'Varicose veins can be better defined as a superficial vein of the lower limb, which has permanently lost its valvular efficiency, and as a product of the resultant venous hypertension in the standing position becomes dilated, tortuous and thickened' [1]. Dilated, tortuous and elongated veins are called varicose veins most commonly found over lower extremities. The term "Varicose" is derived from the Latin "Varix" (pleural "Varices") which intern possibly derived from 'varus' meaning bent. Physiologically speaking a varicose vein is one which permits reverse flow through its faulty valves [2]. Varicose veins have been recognized as the chronic disorder since ancient times. Hippocrates discussed those 2500 years ago. It involves at least 1 out of 5 in the world and with increasing population, increased lifespan and change in lifestyle the problem is ever growing. It is in the developed countries where attire reveals more than it conceals; patients turn up for treatment of cosmetic reasons. In the Indian scenario, it is the complications, not the cosmetic reasons that bring the patient to the doctor. It was accepted for many years that venous hypertension results in extravasations of proteins like fibrin, collagen IV, and fibronectin which formed a perivascular cuff. It was originally thought that the fibrin cuff acted as a barrier to diffusion preventing nutrient exchange between the capillaries and tissues resulting in ulcer formation. Research and theoretical calculations have shown that there is no physical barrier to the diffusion of nutrients to the tissues in this condition [3]. We in the present study tried to study various clinical presentations of varicose veins, their management, and their complications.

MATERIALS AND METHODS

This is a prospective descriptive study of all the patients admitted to the Department of General Surgery with lower limb varicose veins of Prathima Institute of Medical Sciences Hospital, Karimnagar. Institutional Ethical committee permission was obtained for the study. A written consent was also obtained from all the participants of the study. Inclusion Criteria: All patients with primary varicose veins of the lower limb due to superficial and perforator venous incompetence. Exclusion Criteria: Secondary varicose veins recurrent varicose veins, deep venous incompetence, varicose veins other than lower limbs. A thorough history was taken in all the patients. A detailed clinical examination was done. All the clinical tests were applied. Then all the patients were subjected to duplex USG to confirm the diagnosis. The routine investigations were done. Appropriate surgical procedures were used for the treatment of varicose veins. The postoperative course was noted. Further, the patients were followed up. If required repeat investigations (Duplex USG) was done the final outcome evaluated. All the information was taken down in the proforma, designed for the study.

RESULTS

A total number of 42 patients (46 numbers of limbs) with primary varicose veins admitted, investigated, operated and followed up. The observations are as: Varicose veins of the lower limb are a disease of adult life. The youngest in the study was 18 years and the eldest was 71 years (table 1). The majority of the patients sought medical help for one or the other complications. Only 22% of the patients had the complaint of prominent veins. The study showed a slightly increased incidence in the left lower limb (Figure 2). This study revealed that the majority of the patients have involvement of long saphenous system. There was no case of isolated short saphenous system involvement (table 3). A greater portion of the patients had combined valvular incompetence (69.56%). Isolated perforator incompetence was seen only in 4.35% of the patients. In this study except for two patients who did not have Sapheno femoral incompetence, all other patients underwent Sapheno femoral flush ligation (table 4). Four patients had wound infection and were treated with antibiotics and proper wound care. Two patients developed seroma and were treated with needle aspiration and pressure dressing. Two patients had residual varicosity and patients underwent the repeat surgery. Six patients had saphenous neuritis and were treated conservatively. All these patients had undergone long stripping. Long segment stripping – LSV stripped from Groin to ankle. Short segment stripping – LSV stripped from Groin to Just below the knee. Six out of 12 patients who underwent long segment stripping of long saphenous vein had saphenous neuritis accounting for 50% In 12 cases only saphenofemoral flush ligation was done and recurrence was noted in 4 patients in 6 months follow up (table 6). In 4 patients saphenofemoral flush ligation with multiple subfascial ligations was done and recurrence was noted in 1 patient. In 4 patients multiple stab avulsions were carried with saphenofemoral flush ligation and recurrence was noted in 1 patient. The cause of recurrence was saphenofemoral reconnection in 3 cases and incompetent perforator in 3 cases.

Table-1: Age and sex wise distribution of patients in the study

Age Groups (Yrs)	Male	Female	Total (%)
10 – 20	8	2	10 (23.80)
21 – 30	6	1	7 (16.66)
31 – 40	7	0	7 (16.66)
41 – 50	4	0	4 (9.52)
51 – 60	8	2	10 (23.8)
61 – 70	2	0	2 (4.76)
>71	1	1	2 (4.76)
Total	36	6	42 (100)

Table-2: Comprehensive Classification System for Chronic Venous Disorders

CEAP Class	LIMBS	Percentage
0	0	0
1	0	0
2	10	23.82
3	12	28.57
4	8	19.04
5	0	0
6	12	28.57
Total	42	100

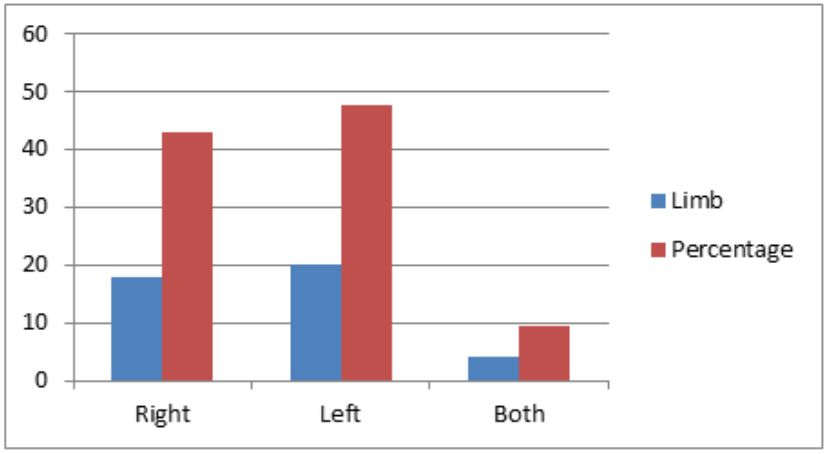

Fig-1: Showing the limb involvement and percentage

Table-3: showing the site of incompetence of veins in patients

Site of incompetence	No of Patients Limbs (N=46)	Percentage
Saphenofemoral	12	26.08
Saphenofemoral + Perforator	28	60.86
Saphenofemoral + Saphenopopliteal + Perforator	4	8.69
Perforator	2	4.35

Table-4: Showing the surgical procedures undertaken for treatment

Surgical Procedure	Limbs (n=46)	Percentage
SFFL	12	26
SFFL + STR	16	36
SFFL + MSFL	4	8
SFFL + MSFL +STR	2	4
SFFL + SPL + MSFL + STR	4	9
SFFL + MSA	4	9
SFFL + MSFL + STR + SG	2	4
MSFL	2	4

SFFL - Sapheno femoral flush ligation
STR - Stripping
MSFL - Multiple Subfascial Ligation
MSA - Multiple Stab Avulsions
SPL - Sapheno Popliteal Flush Ligation
SG - Skin Grafting

Table-5: showing the complications in patients

Complications	No. of patients	percentage
Wound Infection	4	9.5
Residual Varicosity	2	4.76
Saphenous Neuritis	6	14.28
Seroma	2	4.76
Total	14	33.3

Table-6: Recurrences after Surgical Management

Type of Surgery	No of patients	Recurrences
SFFL	12	4
SFFL + MSFL	4	1
SFFL + MSA	4	1

DISCUSSION

In the present study, the age range is from 18yrs to 71 yrs. Malhotra *et al*. [4] in their study comprising 677 patients from both North and South India had an age range of 18-65 years. In the West Wright *et al*. [5] in their study of 1338 patients in England had an age range of 20-75 years. In the present study, the male to female ratio was found to be 6:1. Malhotra *et al*. [4] did not record a single case of female patients. Burkitt *et al*. [6] showed a ratio of 1.5:1

compared to these observations Mekky *et al*. [7] did not record even a single case of Male having varicose veins. Leipnitzet *et al*. [8] in Germany recorded a ratio of 1:2. Widmer [9] in Switzerland recorded a ration of 1:1. The decreased occurrence of disease in females at our set up may be due to the fact that our middle class and lower class women are not much worried about the cosmetic appearance. Women may also have favorable effects due to hormonal influence apart from less average height. As noted in the observation an increased incidence of varicosity was noted on the left side. The cause for the increased incidence on the left side could be attributed to the longer course traversed by the left iliac veins. In present study overall, 74% of patients had perforator incompetence which shows that majority of the cases presenting to the hospital for treatment are advanced cases of hemodynamic disturbances of the limb and it is comparable with the study conducted by Labropoulos N *et al*. [10] where 68% had perforator incompetence. In the present series, 38 patients had skin changes 24 (63.15%) had combined superficial and perforator incompetence 12 (31.57%) had isolated superficial incompetence and 2 (5.26%) had isolated perforator incompetence. In a similar study by T.A. Lees and D. Lambert [11] (60 patients with skin changes) 39 (65%) had combined superficial and perforator incompetence. 17(28.33%) had isolated superficial incompetence and 2 (3.33%) had isolated perforator incompetence. In the present study, 20 cases of SF incompetence were not stripped and recurrences were noted in 6 cases whereas 24 cases with stripping showed no recurrence. In a similar study by Sarin et al; 43 the group in which no stripping of LSV was done there was the recurrence of 45% and in-group with stripping done 18% recurrence was seen. The difference in the outcome of patients with stripping in the present study (0%) and Sarin *et al*. [12] (18%) may be due to very short follow up period of 6 months compared to 36 months in that of Sarin *et al*. [12] study. The ESCHAR trail [13] is the largest trial that evaluated the addition of superficial venous surgery to compression therapy for the treatment of venous ulceration. Patients with severe sequelae of CVI and superficial or mixed deep and superficial venous insufficiency were randomized to medical therapy either with or without surgical treatment of superficial venous reflux. Although no difference was found in rates of healing, there was a dramatic reduction in ulcer recurrence. This study has been criticized for using class II rather than class III stockings. In addition, it is notable that 20% of the surgical arm refused surgery but remained in the surgical arm according to an intention-to-treat analysis plan. A study of management of varicose veins among United Kingdom vascular surgeons in 2006 reported that elasticized bandages remained the most prevalent form of compression after treatment, with 77 percent of respondents changing these for compression stocking subsequently, but with highly diverse regimens and durations. There is currently insufficient information to make any recommendations about compression therapy after intervention for varicose veins. National Institute for health and care excellence in the UK has recommended a sequential approach to choose the treatment for any patient with varicose veins. [14]. It ranks endothermal ablation as the method of the first choice, followed by foam sclerotherapy (if endothermal ablation is unsuitable) and surgery as the third option (if foam sclerotherapy is unsuitable). Carroll *et al*. [15] found that endothermal ablation costs more than surgery, for a minimal difference in quality-adjusted life years. They suggested that foam sclerotherapy may well offer the most cost-effective alternative to surgery because its higher recurrence rate is offset by substantially lower treatment costs. These contrasts with the conclusions of the NICE guidelines, which prioritized endothermal ablation as the first treatment option, based largely on a different calculation of cost-effectiveness. Despite all these publications, there is no firm evidence that one method for treating varicose veins is universally the best. To an extent, the trails are blunt instruments in choosing the right treatment for each patient. Vascular specialties will continue to make the judgment based on clinical factors that have not been the subject of rigorous assessment.

CONCLUSIONS

The study revealed that the disease is prevalent in the young adult and middle-aged individuals. The majority of the patients were male. The study also revealed a slightly increased incidence of varicosity in the left lower limb as compared to the right lower limb. The cause for the same is not known but could be attributed to the longer course traversed by the left iliac veins. The long saphenous vein was involved in the majority of the case compared to the short saphenous vein and there was no case of isolated short saphenous vein involvement. A greater portion of the patients had combined valvular incompetence with advanced hemodynamic disturbances at presentation. Saphenofemoral flush ligation with stripping appeared to be the best method of surgical management for incompetence in the long saphenous vein territory.

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