

Clinical Features and Surgical Management of Varicose veins of Lower limbs

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Abstract: **Introduction:** Varicose veins are a common clinical condition affecting the lower limbs. Usually patient comes for a cosmetic problem, it can cause complications giving rise to significant morbidity if not treated in time. Different options are available for surgical management. The present study has been carried out to study demographic factors, evaluate clinical presentation and outcome of various modalities of management of varicose veins of lower limb. **Material and Methods:** This is a prospective, descriptive and observational study conducted at Department of General Surgery, Pt. Jawahar Lal Nehru Government Medical College and Hospital Chamba Himachal Pradesh. Seventy cases admitted and operated from all the surgical units during the period of 2018 April to September 2019 were studied. All the patients presenting with varicose veins of lower limb, which met the inclusion and exclusion criteria were selected for this study. **Results:** In our study, maximum number of patients were in 18-30 years and predominant were male. In this series, 37 patients had varicosity in the left lower limb and 29 had varicosity in the right lower limb and the remaining 4 had bilateral limb involvement. Among them prominent veins and pain were the main complain in 56 (80%) patients. Itching and pigmentation were present in 6 (8.5%) patients. Ankle edema was present in 5 (7.1%) patients. Pain and ulceration of lower leg were present in 3 (4.2%) patients. Out of 70 cases studied, 32 (45.7%) had only long saphenous vein, 10 (14.3%) had short saphenous vein and in 9 (12.8%) cases both short and long saphenous were involved. In addition to long saphenous vein, incompetent perforators were present in 19 (27.2%) cases. **Conclusion:** Varicose veins are commonly seen in males, maximum in the age group of 18-30 years. Most common presenting symptom is visible dilated veins over lower limb but more than half of the patients present with one or more complications. Most commonly venous system involved is great saphenous vein system and most commonly involved perforators are below knee perforators. If cases are selected properly with good operative technique the complications are negligible. This surgical procedure followed enable the patients to lead almost a normal life.

Keywords: Incompetence, Varicose veins, Venous Doppler. Long saphenous vein, Stripping of varicose vein, Varicose ulcer.

INTRODUCTION

Varicose veins and their associated symptoms and complications constitute the most common chronic vascular disorder of the lower limb. The term varicose is derived from the Latin word meaning dilated. A varicose vein is defined as dilated, tortuous and elongated veins. Varicose veins are a common medical condition present in at least 10% of the general population. [1] The symptoms of varicose veins range from asymptomatic varicose veins to more severe complications such as ulceration and bleeding. Varicose veins may cause significant morbidity

including dermatitis, ankle, spontaneous bleeding, superficial thrombophlebitis, lipodermatosclerosis and ulceration. [2]

Varicose veins were recognized prehistorically and many inventions were made regarding the diagnosis and treatment of varicose veins by many phlebologists including many bandaging techniques, ligation and stripping of veins. [3] The attention was mainly towards the mechanical effects of the varicosity rather than the basic cause. It is only in the recent past that considerable knowledge has been gained concerning the anatomy of the venous system of the leg, the physiological mechanism of venous return to the heart against gravity and pathology of the disorder, which has lead to many newer modalities of investigations and treatment. The color Doppler ultrasound and duplex imaging has become the mainstay of investigations in the diagnosis of chronic venous insufficiency. [4]

The treatment options for varicose veins includes Trendelenburg operation, stripping, subfascial ligation of perforators, laser, sclerotherapy, subfascial endoscopic perforator surgery and radio- frequency ablation. [5] In the recent past, minimally invasive procedures are replacing the more invasive procedures. The search for more effective means of diagnosing and treating the varicose veins and prevention and management of its complications continues and this dissertation aims at studying the distribution, pathology, clinical features, various modes of investigations and overall management of varicose veins of lower limbs. [6] The objectives of this study are to study the demographic factors, clinical presentation and outcome of different modalities of treatment of varicose veins of lower limb.

MATERIALS AND METHODS:

This is a prospective, descriptive and observational study conducted at Department of General Surgery, Pt. Jawahar Lal Nehru Government Medical College and Hospital Chamba Himachal Pradesh. Seventy cases admitted and operated from all the surgical units during the period of 2018 April to September 2019 were studied. All the patients presenting with varicose veins of lower limb, which met the inclusion and exclusion criteria were selected for this study.

Inclusion Criteria

Patients of age >18 years of either gender. The inclusion criteria, being, patients presenting with symptomatic varicose veins, those patients presenting with complications of the disease such as pigmentation, eczema, ulceration, superficial thrombophlebitis, etc. and patients with cosmetic concern. The most specific criteria were patients with primary varicose veins of lower limb.

Exclusion Criteria

Patients with secondary varicose veins due to deep vein thrombosis and other causes of venous obstruction like a mass per abdomen and pregnancy were also excluded.

So, this study consisted of seventy patients who met with these criteria. Informed consent was obtained from each patient before any investigation or intervention.

A thorough history was taken in all the patients. A detailed clinical examination was done. All the clinical tests were applied to arrive at a probable diagnosis. Then the patients were subjected to color doppler to confirm the diagnosis. The routine investigations were also done. The patients underwent suitable treatment based on their clinical and investigational profile. The post-operative course was noted. Further the patients were followed up and final outcome evaluated. Ethical clearance was obtained from the ethical committee prior to conducting the study.

RESULTS:

In our study, maximum number of patients were in 18-30 years and predominant were male in table 1 and 2.

Table 1: Distribution of age group of patients

Age in years	Number of Patients	Percentage
18-30	39	55.7
31-50	28	40.0
51-70	2	2.8
>71	1	1.4
Total	70	100

Table 2: Distribution of Sex

Gender	Number of Patients	Percentage
Male	51	72.8
Female	19	27.1
Total	70	100

Table 3: Limb involvement

Gender	Number of Patients	Percentage
Left leg	37	52.8
Right leg	29	41.4
Bilateral	4	5.7
Total	70	100

In this series, 37 patients had varicosity in the left lower limb and 29 had varicosity in the right lower limb and the remaining 4 had bilateral limb involvement in table 3.

Table 4: Presentation of symptoms

Presentation of symptoms	Number of Patients	Percentage
Prominent vein and pain	56	80.0
Itching and pigmentation	6	8.5
Ankle edema	5	7.1
Pain and ulceration	3	4.2
Total	70	100

In table 4, among them prominent veins and pain were the main complain in 56 (80%) patients. Itching and pigmentation were present in 6 (8.5%) patients. Ankle edema was present in 5 (7.1%) patients. Pain and ulceration of lower leg were present in 3 (4.2%) patients.

Table 5: Type of venous system involved.

Type	Number of Patients	Percentage
Long saphenous	32	45.7
Long saphenous + incompetent perforators	19	27.2
Short saphenous	10	14.3

Both long and short saphenous veins	09	12.8
Total	70	100

In table 5, out of 70 cases studied, 32 (45.7%) had only long saphenous vein, 10 (14.3%) had short saphenous vein and in 9 (12.8%) cases both short and long

saphenous were involved. In addition to long saphenous vein, incompetent perforators were present in 19 (27.2%) cases.

Table 6: Surgical procedure performed.

Surgical procedure	Number of Patients	Percentage
Saphenofemoral flush ligation and ligation of anatomical constant tributaries at their termination along with stripping of long saphenous vein by using intraluminal stripper.	32	45.7
Perforators were identified sub-fascially and ligated in addition to the above procedure.	23	32.8
Saphenofemoral and saphenopoplital flush ligation with stripping of both long and short saphenous vein	7	10.0
The saphenofemoral, saphenopoplital flush ligation with stripping of long and short saphenous vein and sub-fascial ligation and excision of incompetent perforators were performed	4	5.7
Saphenopoplital flush ligation with stripping of short saphenous was done after ligating the tributaries.	2	2.8
Saphenopoplital flush ligation with sub-fascial ligation of perforators	2	2.8
Total	70	100

DISCUSSION:

The term varicose is derived from Latin word varicose, which means dilated. Varicose veins are not only dilated veins but also tortuous and elongated, but physiologically speaking a varicose vein is one which permits reverse flow through its faulty valves. Varicose veins, though a common condition, many time remains asymptomatic. In the developed countries patients turn up to treatment, for cosmetic reasons, however in our Indian scenario it is the complications and not the cosmetic reasons that brings the patient to the doctor. In Indian scenario, the disease is one of the common surgical problems in low socio-economic class people, which at times compel the patient to change his occupation which is very disturbing. [7]

In our study, the age distributions of varicose vein show majority of patients are between the age of 18 to 30 years which correlates well with study conducted by Shankar KH *et al.* [8] Among 70 patients studied, 56 patients exhibit a definite history of standing for long duration. In that 46 were agricultural and related workers and 9 were businessmen who required standing for long duration during their work. This suggests occupation has a definite role as a causative or a contributing factor. The occurrence of varicose vein in members of the same family suggests that the hereditary factors may play a role. In our series among 70 patients. So, the incidence of family history of varicose vein in this study were very low. The most common symptom was dilated veins with dull aching pain which occurred alone or in combination of limb edema, pigmentation or ulceration. It is evident from this series that the

cosmetic factor is not the thing that prompts the Indian patient to seek treatment as do those in the west. [9]

In this series, left side involvement was present in 37 (52.8%) cases. Higher incidence of varicosity is in conformity with some authors who think that the varicose veins are more common in the left limb probably due to the venous drainage of the left leg follows a more tortuous course through the pelvis, with left common iliac vein traversed by the right common iliac artery and also due to presence of loaded sigmoid colon which exerts constant pressure on the vein in the pelvic cavity. [10] In 29 (41.4%) patients right leg was involved and 4 (5.7%) cases bilateral involvement was present. The present study revealed long saphenous vein involvement that was 32 patients (45.7%) with or without short saphenous system and perforators incompetence was most common. This was somewhat equivalent to other studies. [11] All patients in our study underwent Doppler ultrasound of both the legs for confirmation of the diagnosis and to rule out presence of deep vein thrombosis which we felt must before proceeding with surgical management. [12]

In our series, no cases gave definite history of deep vein thrombosis and also no case had superficial thrombophlebitis. This finding was in conformity with some authors that the superficial thrombophlebitis as a cause of varicose veins is very rare and most probably phlebitic changes occur in the veins which are already varicosed. [13] The complications of varicose vein surgery are as such very

rare. There was no incidence of deep vein thrombosis postoperatively. Out of 70 cases, 6 patients complained of sensory impairment in cutaneous nerve distribution of long saphenous nerve and 2 patients complained of sensory impairment of distribution of sural nerve. The low incidence of sensory impairment in the present series may be because of better surgical technique and avoiding stripping of vein below midcalf where the nerve and vein travel very closely. [14]

In addition to surgery, sclerotherapy, foam therapy, laser endoluminal ablation and radiofrequency endoluminal ablation are the other available treatments for varicose vein. In one meta-analysis of treatment of varicose vein mentioned these treatments appear to be safe with rare side effects. Surgery is the only treatment with long term effectiveness data. The other less invasive treatments are associated with shorter disability and less pain, but only short term effectiveness data. [15]

CONCLUSION:

In the present study, varicose veins are commonly seen in males, maximum in the age group of 18-30 years. Most common presenting symptom is visible dilated veins over lower limb but more than half of the patients present with one or more complications. Most commonly venous system involved is great saphenous vein system and most commonly involved perforators are below knee perforators. Conservatively managed patients were symptomatically relieved. If cases are selected properly with good operative technique the complications are negligible. This surgical procedure followed enable the patients to lead almost a normal life.

Data Availability: The data used to support the findings of this study are included within the article.

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Conflicts of Interest: The authors declare no conflict of interest.

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