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Original Research Article

Varicose veins of lower limb: clinical presentation and management

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ABSTRACT

Background: Varicose veins is 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.
Methods: The present study was carried out in a tertiary care academic hospital from October 2016 to October 2018 and 54 cases were enrolled. The clinical presentation of varicose veins were studied. Mean age and gender preponderance were calculated. All patients underwent clinical tests and venous doppler and accordingly appropriate treatment in the form of conservative, surgical or endovenous laser ablation was given. Complications following the procedures were studied.
Results: A total of 39 (72%) patients out of 54 were below the age of 50 years. Prominent veins over lower limb was most common presentation. Sapheno-femoral junction was most commonly involved vein. Male preponderance was observed with a male to female ratio of 12.5:1. Venous Doppler had accuracy of 92.59% in detecting sapheno-femoral and perforator incompetence. Results of endovenous laser ablation are similar to surgery but with less morbidity.
Conclusions: This study revealed the disease is prevalence in active phase of life with male preponderance. Majority of the patients had great saphenous vein incompetency and the complications are more when both great saphenous and perforator systems are involved. Venous Doppler is the investigation of choice as it has high accuracy.

Keywords: Incompetence, Varicose veins, Venous Doppler

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. Varicose veins 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.

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. 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 Doppler ultrasound and duplex imaging has become the mainstay of investigations in the diagnosis of chronic venous insufficiency.[2] The treatment options for varicose veins includes Trendelenburg operation, stripping, subfascial ligation of perforators, laser, sclerotherapy, subfascial endoscopic perforator surgery and radio-frequency ablation. 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, patholgy, clinical features, various modes of investigations and overall management of varicose veins of lower limbs.[3] 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.

METHODS

The present study was carried out in NKP Salve Institute of Medical Sciences and Lata Mangeshkar Hospital, Nagpur from October 2016 to October 2018. A total of 54 cases were enrolled based on inclusion exclusion criteria. Patients with dilated tortuous and elongated veins of lower limb diagnosed and confirmed on lower limb venous doppler, patients with or without complications of venous hypertension are included. Patients of age <18 years, presenting as reticular veins or telangiectasias, reversible secondary varicose veins are excluded. Clinical evaluation was done with history of previous treatment and clinical examination. Duration of symptoms was noted. Previous history of deep of vein thrombosis, treatment of varicose veins in the form of conservative treatment using compression stockings, sclerotherapy or surgery was noted. Local examination is done in standing position and supine position. Presence and position of dilated veins, pigmentations and ulcer noted. The following tests are performed:

Brodie-Trendelenberg test: The comparison of saphenofemoral junction and perforators of venous Doppler and clinical tests was compared calculating accuracy between them.

Test: Part I & Part II is performed to determine the incompetency of the saphenofemoral valve and other communicating systems.

Modified Perthes test was done to rule out deep vein thrombosis. Multiple tourniquet test is done to identify incompetence at various levels. Abdominal examination to rule out causes of secondary varicose veins.

CEAP classification: Clinico etiologic anatomic pathological classification is used to classify patients according to the signs. Investigations done were Doppler of venous system using a 10 MHz probe, the patient was examined in standing position along the whole length of the long saphenous and short saphenous systems. The patients were given following treatments. Conservative treatment was given in patients who had no saphenofemoral or perforator incompetence with elastic compression stockings. In patients with venous ulcers, Bisgaard's method of treatment was given initially and then the patient was subjected to further definitive treatment.

Endovenous laser ablation, a minimally invasive ultrasound guided technique used for treating varicose veins using laser energy for the treatment of varicosities done using laser ablation machine of 1020 nm frequency. Trendelenburg operation in which incompetent saphenofemoral junction is tackled by flush ligation of saphenofemoral junction and stripping of long saphenous vein. Ligation of sapheno-femoral junction with stripping of long saphenous vein up to the knee level. Subfascial facial ligation of perforators with ligation of the radiologically identified incompetent perforators. The patients are followed up after a period 1 month to check for SSI, after 3 months for the healing of ulcer and symptomatic relief and after 6 months to detect the recurrence of varicosities. The statistical method used for comparison is accuracy.

RESULTS

The mean age of the patients was 43.40 years with standard deviation of 10.93. Of the 54 patients, varicose veins were predominantly seen in males accounting for 50 (92.6%) and remaining 04 (7.4%) cases were female. Male to female ratio is 12.5:1. Majority of the patients in the present study presented with multiple symptoms. Most common symptom present was visible dilated veins seen in 50 (92.6%).Great saphenous venous system was involved in 44 (81.5%) patients, both great saphenous venous with short saphenous venous system was involved in 6 (12.2%), and perforator involvement with great saphenous venous system combined was seen in 33 (61.1%) and perforators alone were involved in 4 (7.5%). Each patient was classified in to CEAP class based on the signs. Venous Doppler was the cornerstone investigations in the present study and was done in all the patients and its findings were recorded as gold standard. Of 54 patients enrolled, 26 (48%) patients were managed conservatively with compression stockings, ankle pump exercises and limb elevation. Of 54 patients enrolled 10 (18.5%) underwent endovenous laser ablation of the great saphenous vein Trendelenburg operation with flush ligation of saphenofemoral junction and above knee stripping of great saphenous vein was performed in 14 (26%) patients. Perforator ligation was done in 4 (7.5%) patients with isolated perforator incompetence.

Ecchymoses were seen in 2 (20%) patients who underwent EVLA. Other complications like pain, hematoma, skin burns, DVT, SSI were not noted following EVLA. Ecchymoses were seen in 4 (28.2%) patients who underwent Trendelenburg operation.

Surgical site infection (SSI) was found in 2 (14.28%) patients, saphenous nerve injury was seen in 1 (7.14%) patient and Deep vein thrombosis occurred in 1 (7.14%) patient.

Patients with Dukes A stage did not receive postoperative chemotherapy and were advised regular follow up. 38 patients received post-operative chemotherapy. 18 patients were given radiotherapy. New evidence suggests a role for anti-inflammatory drugs in the treatment and prevention of colon and rectal cancers.

Table 1: Distribution of patients according CEAP classification.

CEAP	No of patients (%)
C2	26 (48)
C3	4 (7.4)
C4	5 (9.3)
C5	0
C6	19 (35.3)
Total	54

Table 2: Comparison between competent and incompetent saphenofemoral junction on Brodie-Trendlenberg test and venous Doppler.

Saphenofemoral junction	Brodie-Trendelenburg test (%)	Venous Doppler (%)
Competent	41 (76)	37 (61.3)
Incompetent	13 (24)	17 (38.7)
Total	54 (100)	54 (100)

Table 3: Comparison of tourniquet test with venous Doppler.

Site of incompetence	No of patients (Tourniquet test) (%)	No of patients (on venous Doppler) (%)
Above knee	4 (19)	7 (33)
Below knee	10 (47.6)	14 (66.7)

DISCUSSION

Mean age of the patients was 43.40 years and is comparable with the studies of Shankar, Reddy et al, Sharma et al, Srinivas et al, Vanakshijami et al, and Algarsamy et al.[4-9] Male to female ratio was 12.5:1. The male to female ratio was comparable to studies of Shankar and Algarsamy et al in which it was 14:1.[4,5] Visible dilated veins as the most common symptom in present study present can be compared with the studies of, Shankar, Rudofsky et al, O'Shaughnessey et al, in which it is 90%, 92% and 84 %.[4,10,11] In the present study 35% cases came with leg ulcer as main symptoms which was consistent with the findings of Sharma et al, in which it was 42%. Patients presenting with skin changes such as lipodermatosclerosis, eczema and pigmentation in present study was 14% which was consistent with findings of Sharma et al, Nagaraj et al, Reddy et al, and Shankar.[4,6,12,15] Right limb involvement was 35% and the left limb involvement was 52%, favorably compares with the various studies conducted by authors. The long saphenous vein was involved in 81.5% of cases, the second victim being the perforators which was involved in 61.1% of cases. Other studies also confirm this fact, Delbe and Mocquet study, Sharma et al, Kiran Shankar et al, Srinivas et al.[4,6,7] On comparing the accuracy of clinical examination to detect incompetent sapheno-femoral junction by Brodie-Trendelenburg test, it was 92.5%,which is quite consistent with the accuracies of Sharma et al, Mishra et al, and Prabhu et al, 80%, 85% and 100% respectively.[6,14,15] Clinical evaluation in detection of perforators by multiple tourniquet test had accuracy of 63.36% which is quiet consistent with Sharma and Mishra et al, and Prabhu et al, reported better accuracy of 85%. The patients who underwent Trendelenburg operation had eccymoses in 28.5% which was quite high as compared to literature where the incidence ranged from 3 to 10%.[6,14,15]

CONCLUSION

In the present study, varicose veins are commonly seen in males, maximum in the age group of 30-50 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 relived. Leg ulcers were completely healed in those patients undergoing EVLA within 3 months, but those leg ulcers who underwent Trendelenburg operation had regression in size and required longer duration for healing.

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REFERENCES

1. Everett Y, Lam Mary E, Giswold, Gregory L Moneta. Venous and lymphatic disease. Schwartz's Principles of Surgery. 8th ed. McGraw-Hill; 2005; 808-833.
2. Salaman RA, Salman JH. Improving the preoperative assessment of varicose veins. Br J Surg. 1997;84(12):1748.

3. Callum M.J. Epidemiology of varicose veins. Br J Surg. 1994;81(2):167-73.
4. Shankar KH. Clinical study of varicose veins of lower limbs. Internat Surg J. 2017;4(2):633-6.
5. Reddy JB, Dushyanth M, Reddy PC. Prospective clinical study of surgical management of varicose veins of lower limb in a Rural Hospital. Internat J Scient Res. 2018;24;6.
6. Sharma S, Pandey S, Bhatnagar A. Clinical study of 50 patients of varicose veins in NSCB Subharti Hospital, Meerut,(UP) with special reference to Clinical examination vs Color Doppler for evaluation and diagnosis of varicose veins. Internat J Scient Res. 2018;20;6(4).
7. Srinivas T, Suryanarayana K, Sharadha B, Sindhu N. Clinical study and comparison of various modalities of treatment of varicose veins of lower limbs. J Evol Med Dent Scie. 2016;5(85):6304-10.
8. Jami V, Kumar TP. A clinical study on varicose veins of lower limbs. Global J Res Analy. 2018;7(6).
9. Alagar Samy R, Murugesan N, Nagar KK. The Study on Correlation between Venous Clinical Severity Score (VCSS), Venous Disability Score (VDS) and Venous Reflux Grading by Venous Doppler in Varicose Veins of Lower Limbs. Ind J Med Case Reports. 2015;4(1):61-5.
10. Rudofsky G. Epidemiology and pathophysiology of primary varicose veins. Langenbecks Arc Chir. 1988;2:139-44.
11. O‘ Shaughnessy M, Rahall E, Walsh TN, Given HF. Surgery in the treatment of varicose veins. Ir Med J. 1989;82(2):54-5.
12. Nagaraj H, Hebbar AK, Rajaput AS, BV SK. Prospective clinical study of surgical management of varicose veins of lower limb and its complications. Internat J Res Med Sci. 2017;2(1):306-90.
13. Delbe, Mocquet. varicose veins and deep vein thrombosis: Epidemiology and suggested aetiology. Br Med J. 2005;2:556.
14. Mishra S, Ali I, Singh G. A study of epidemiological factors and clinical profile of primary varicose veins. Med J Dr. DY Patil University. 2016;9(5):617.
15. Prabhu MA, Natarajan KG, Smile SR. Comparison of clinical tests and doppler ultrasound in the preoperative assessment of lower extremity varicose veins. Ind J Vasc Endovasc Surg. 2017;4(2):51.

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