



## Clinicopathological Features and Outcome of Varicose Veins - A Prospective Study

Authors

Dr Aravindhan.M<sup>1\*</sup>, Dr Kabalimurthy.J<sup>2</sup>, Dr Sundar Prakash.S<sup>3</sup>, Dr Jospin Amala A<sup>1</sup>,  
Dr Kamal Kumar<sup>1</sup>, Dr Mary Prescilla<sup>1</sup>

<sup>1</sup>Junior Resident, <sup>2</sup>Professor and Chief, <sup>3</sup>Associate Professor

Department of General Surgery, Rajah Muthiah Medical college and Hospital, Annamalai University,  
Tamil Nadu, India

\*Corresponding Author

Dr Aravindhan.M

### Abstract

**Background:** The study was conducted to study the various etiological, anatomical and pathological factors for varicose veins. To study the clinical patterns of varicose veins and comparing their occurrence with etiological factors and to study the relevance of various investigative modalities for varicose veins.

**Materials and Methods:** This study was conducted in 52 patients diagnosed with varicose veins who were admitted in the department of General Surgery, Rajah Muthiah Medical College from October 2018 to September 2020.

**Results:** Out of 52 patients, those who presented with C4 classification are highest. Primary etiology was much common than secondary. Pathologically, reflux type was common then obstructive type. Anatomically GSV and perforator combination was more common.

**Conclusion:** In this study, Clinical presentations in varicose veins ranged from mild to severe varicosities, with ulcer and lipodermatosclerosis being the most severe forms. At present, Duplex ultrasound scanning is the most reliable investigative tool in making diagnosis of varicose veins. Treatment includes conservative management, sclerotherapy and surgery. Surgical intervention has been revolutionized by the development of endovenous techniques like radiofrequency ablation, laserablation, foamsclerotherapy and subfacial endoscopic perforator surgery.

**Keywords:** Varicose veins, GSV, perforator, Doppler, trendelenberg.

### Introduction

Varicose veins refers to any dilated, tortuous, elongated vein of any caliber of the limb. The term varicose veins, in the common prevalence, is a term that encompasses a spectrum of venous dilation that ranges from minor telangiectasia to severe dilated veins. Telangiectasias are intra dermal varicosities that are small of about less than 1mm in size and tend to be cosmetically

unappealing but not symptomatic. Reticular veins are subcutaneous dilated veins with size of about 1to 3mm that enter the tributaries of the main axial or trunk veins. Varicose veins of lower limbs are the penalty, man has to pay for his upright posture. These conditions are associated with high morbidity even though mortality may not be significant. Twenty percent of the Indian population suffers from varicose veins. High rate

of recurrence of varicose veins after surgery, difficulty in surgery warranty thorough clinical examination, complete investigation to rule out any underlying cause and optimal treatment.

### Materials and Methods

The study was conducted in the Department of General Surgery, Rajah Muthiah Medical College and Hospital diagnosed with varicose veins. The period of study is from October 2018 to September 2020 (2 years). The sample size is 52. In this study, patients admitted with diagnosis of secondary varicose vein other than deep vein

thrombosis and patients with recurrent varicose veins have been excluded.

### Statistical Method

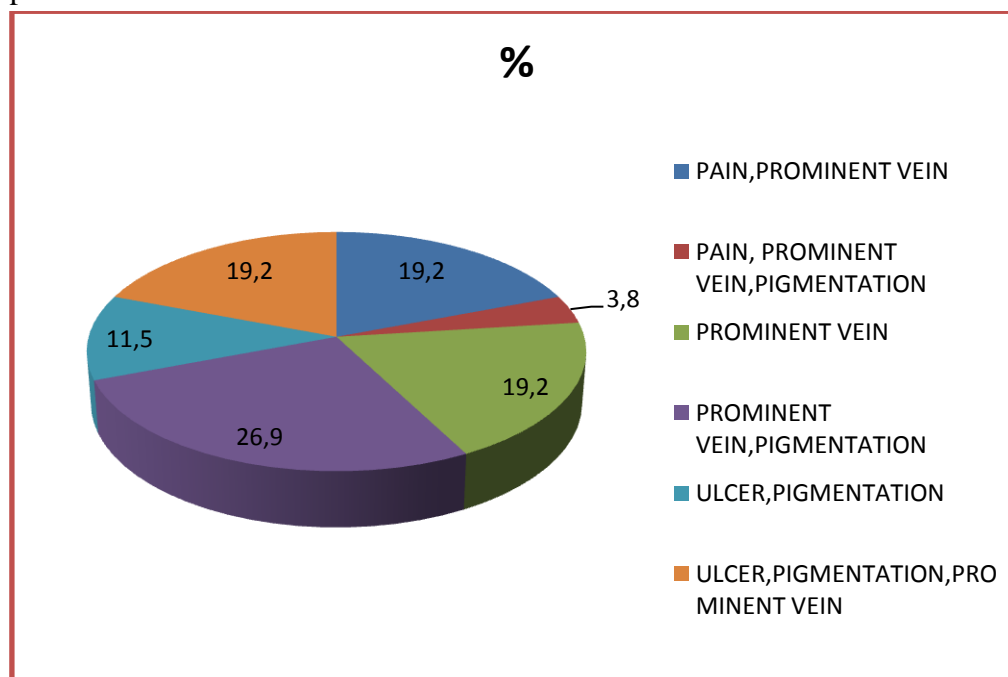
The demographic data collected and analysed. The percentage pattern calculated for profile of "Clinicopathological Features and Outcome of Varicose Veins". The data obtained by the various parameters are statistically calculated by using SPSS 20 version software and the p value calculated is less than 0.05 is considered significant. Wherever necessary, the data will be depicted using tables and figures

## Results

**Table 1:** Symptoms

Symptoms	Frequency	Percent
Pain, prominent vein	10	19.2
Pain, prominent vein, Pigmentation	2	3.8
Prominent vein	10	19.2
Prominent vein, Pigmentation	14	26.9
Ulcer, pigmentation	6	11.5
Ulcer, prominent vein, Pigmentation	10	19.2

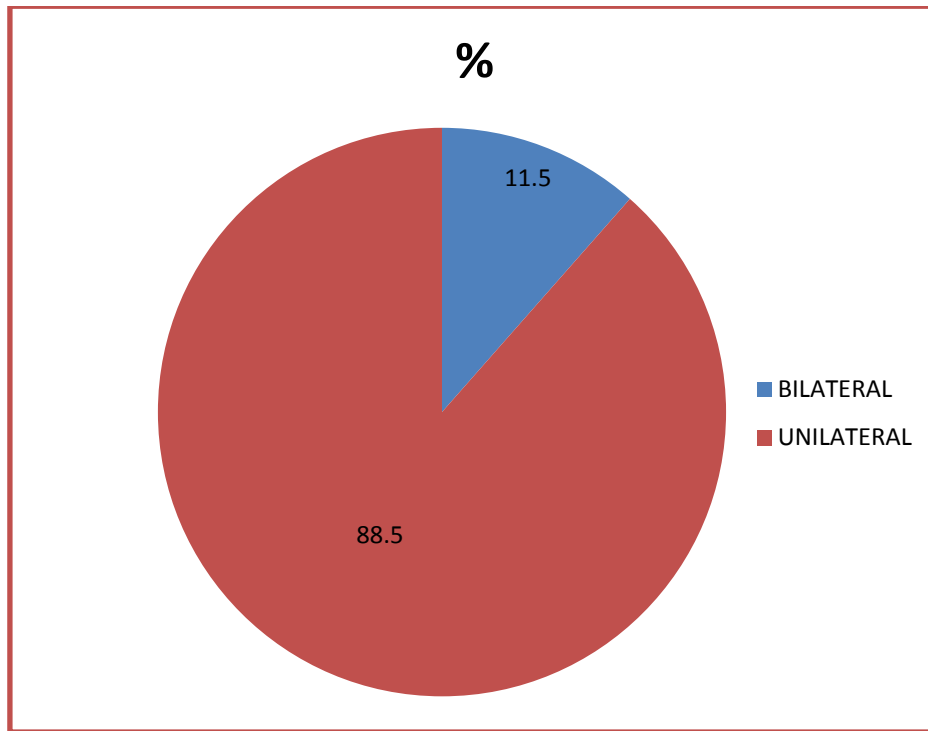
**Graph 1:** Symptoms



**Table 2:** Affected Limbs

Affected limb	Frequency	Percent
Bilateral	6	11.5
Unilateral	46	88.5

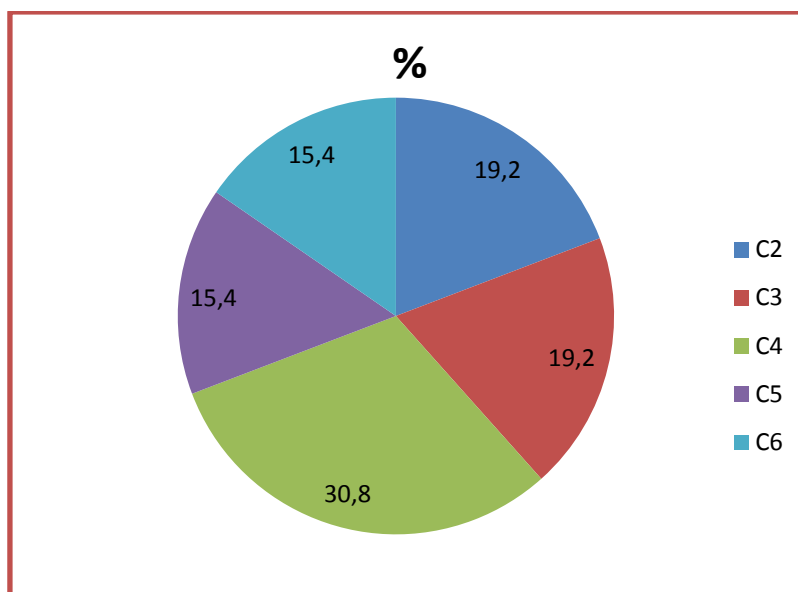
**Graph 2: Affected Limbs**



**Table 3: Clinical Classification**

Clinical	Frequency	Percent
C2	10	19.2
C3	10	19.2
C4	16	30.8
C5	8	15.4
C6	8	15.4

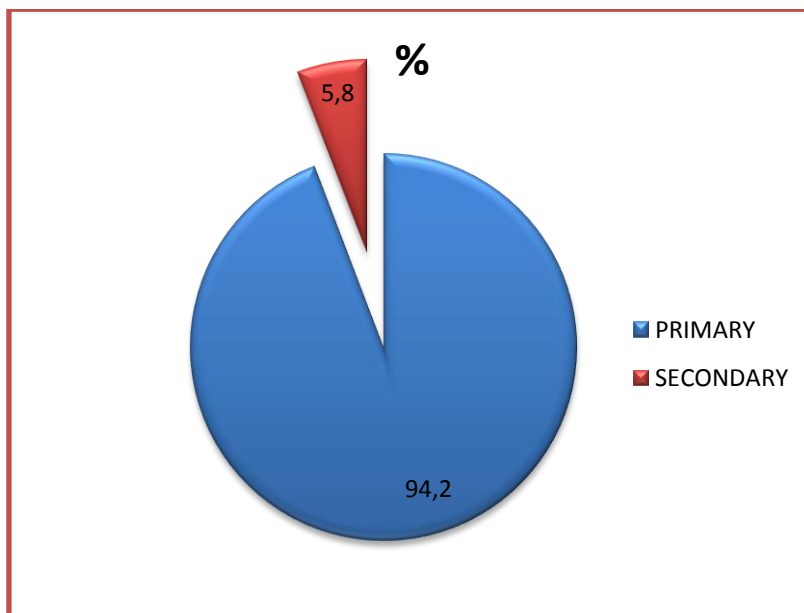
**Graph 3: Clinical Classification**



**Table 4: Etiological Classification**

Etiological	Frequency	Percent
Primary	49	94.2
Secondary	3	5.8

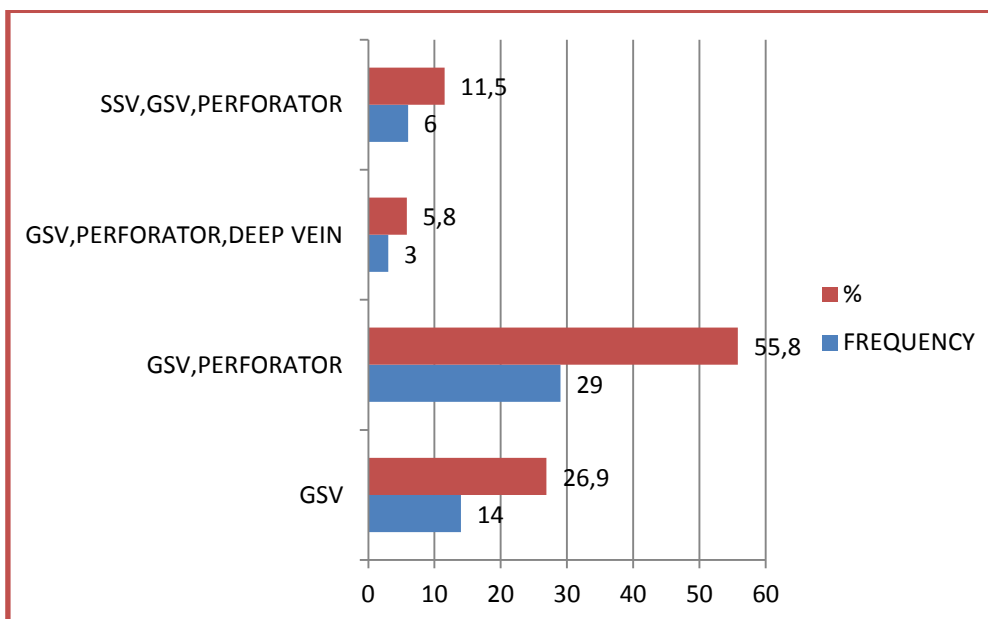
**Graph 4:** Etiological Classification



**Table 5:** Anatomical Classification

Anatomical	Frequency	Percent
GSV	14	26.9
GSV, Perforator	29	55.8
GSV, Perforator, Deep Vein	3	5.8
SSV,GSV, Perforator	6	11.5

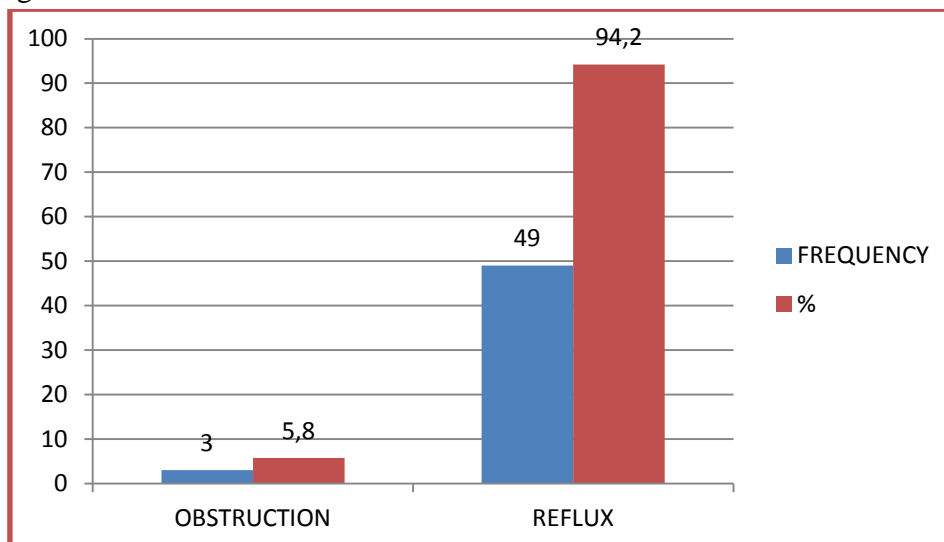
**Graph 5:** Anatomical Classification



**Table 6:** Pathological Classification

Pathological	Frequency	Percent
Obstruction	3	5.8
Reflux	49	94.2

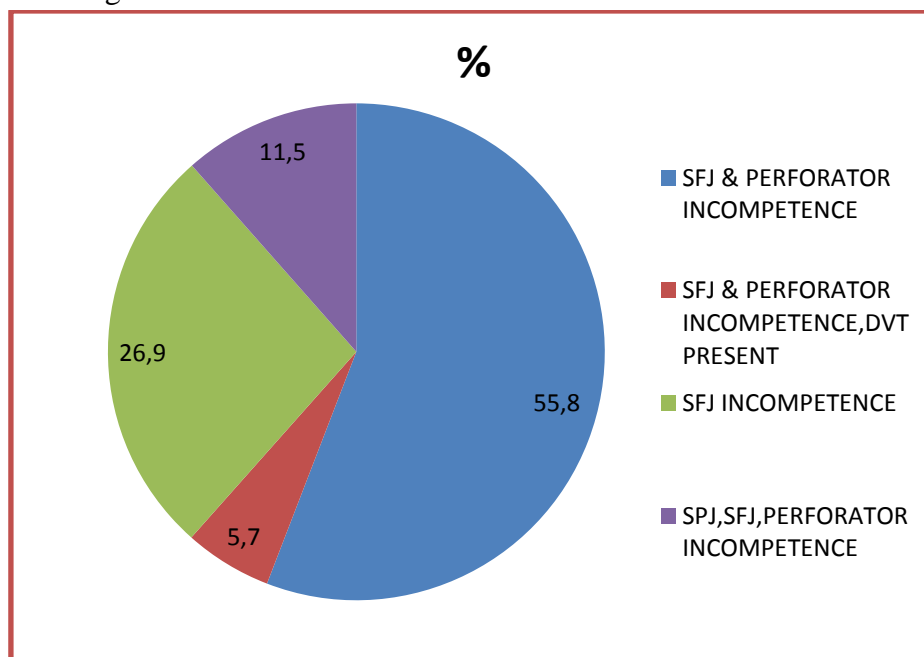
**Graph 6: Pathological Classification**



**Table 7: Doppler Findings**

Doppler finding	Frequency	Percent
SFJ and perforator Incompetence	29	55.8
SFJ and perforator Incompetence, DVT present	3	5.7
SFJ incompetence	14	26.9
SPJ , SFJ and perforator Incompetence	6	11.5

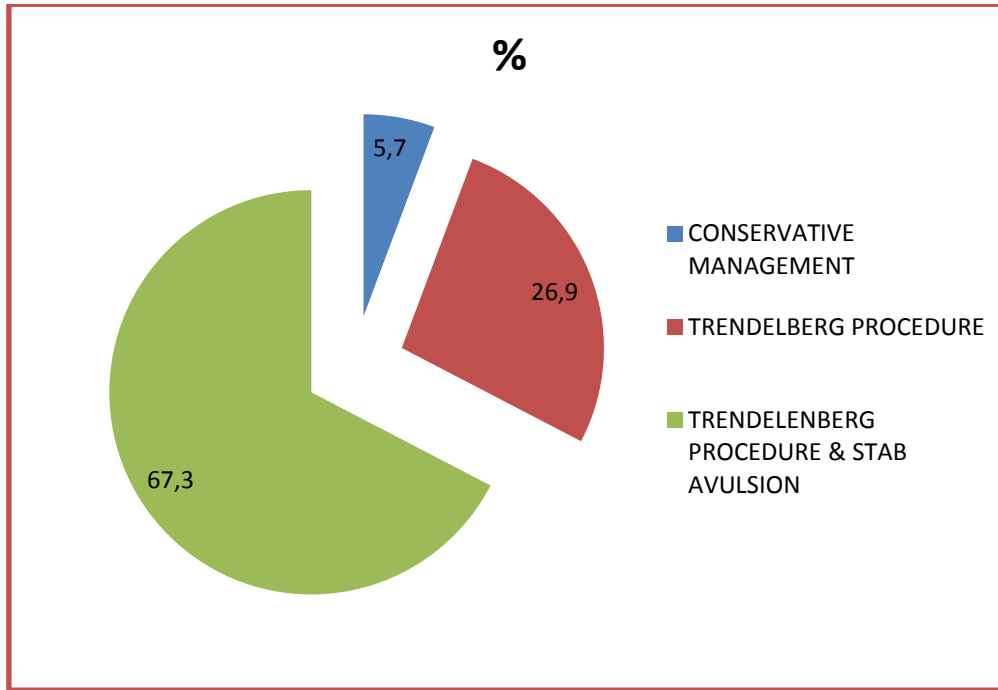
**Graph 7: Doppler Findings**



**Table 8: Surgery**

Surgery	Frequency	Percent
Conservative management	3	5.7
Trendelenberg procedure	14	26.9
Trendelenberg procedure and Stab avulsion	35	67.3

Graph 8: Surgery



## Discussion

### Analysis of Symptoms and Affected Limbs:

Prominent vein and pigmentation combined accounts for about 26.9%. Prominent vein alone/pain and prominent vein/ prominent vein, pigmentation and ulcer/ these combination of symptoms account for about 19.2%. Even though symptoms occur in many combinations patients mainly comes with the complain of Prominent vein and pigmentation. Unilateral varicose vein 88.5% and bilateral disease is 11.5%. Majority of cases included in study are primary varicose vein indicating that unilateral involvement is common in primary varicose veins.

**Analysis of Clinical Classification:** Analysis of this classification reveal that patients presents with C4 classification with a percentage of about 30.8% and next comes C3 and C2 classification which comes about 19.2%. But the problem is that even though C4 appears maximum patient with C4 may even have lower grading C2 and C3 associated with it. This can be overcome by using advanced CEAP classification in which if the patient has dilated veins, edema and pigmentation the clinical classification comes as C2C3C4 instead C4 alone. Hence correct clinical picture of patients can be made out.

**Analysis of Etiological Classification:** In the

etiological classification majority of the patients come under primary varicose veins accounting for 49 patients that is 94.2%. Since in our study we excluded secondary varicose veins except which occurring secondary to DVT primary varicose vein mounts to such high percentage. The remaining cause being 5.8% secondary to DVT.

**Analysis of Anatomical Classification:** In this study analysis of anatomical classification suggest most common veins involved are GSV and Perforator combination accounting for about 29 patients that is 55.8%. Next comes involvement of GSV alone accounts for 14 patients that is 26.9%. SSV and deep vein is also involved in some cases. Hence GSV is the major pathway which contains many perforator channels are leading cause of varicose veins.

**Analysis of Pathological Classification:** In the study we made pathological cause leading to varicosities comes as reflux accounting 49 patients that is 94.2%. Thus primary varicose vein leading cause for pathogenesis of the disease is reflux. The remaining percent is caused by obstruction. So in case of secondary varicose vein the pathogenesis of varicosities being obstruction.

**Analysis of Doppler Findings:** Analysis of this study shows that combination of SFJ and perforator shows the maximum number 29

patients that is 55.8% Next in the list comes SFJ alone accounting for 14 patients that is about 26.9 percent This correlates with that of anatomical classification where the involvement of Great Saphenous Vein and perforators are high. Ultrasound abdomen taken was normal and also secondary causes except DVT has been excluded from the study.

**Analysis of Surgery:** In this study trendelenberg procedure along with stab avulsion is performed in maximum number of patients accounting for 35 patients. Now radio frequency ablation is performed in equal number to open surgeries. In case of secondary varicose vein due to any other cause surgery is contraindicated.

### Conclusion

In my study Varicose veins was relatively common among the youth and middle age groups. Risk factors for the development of varicose veins were prolonged standing and multiparity. Clinical presentations ranged from mild to severe varicosities, with ulcer and lipodermatosclerosis being the most severe forms. At present, Duplex ultrasound scanning is the most reliable investigative tool in making diagnosis of varicose veins in terms of valve incompetence along GSV and SSV, deep vein thrombosis and perforator incompetence. Treatment includes conservative management, sclerotherapy and surgery. Conservative management was advised in patients who are pregnant and patients with contra indications for surgery. These patients were advised to wear compression stockings. Sclerotherapy was advised in patients with reticular veins. Surgical procedure includes Trendlenburg procedure, stripping of the vein and subfacial ligation of the perforators. Surgical intervention has been revolutionized by the development of endovenous techniques like radiofrequency abalation, laserabalation, foamsclerotherapy and subfacial endoscopic perforator surgery.

**Declaration of Conflict of Interest:** There is no conflict of interest.

**Funding:** This research received no specific grant from any funding agency in public, commercial, or not-for-profit sectors.

### References

1. De Takatas G. Varicose veins and their sequelae. *JAMA* 1929; 92(10):775-783. doi:10.1001/jama.1929.02700360013005 Masuda E.M., Kistner R.L., Prospective comparision of Duplex scanning and descending venography in assessment of venous in sufficiency. *Am J Surg.* 1992 Sep; 164(3):254-9.
2. Shami S.K., Sarin S, Cheatle T.R., Scurr J.H., Coleridge Smith P.D., "Venous ulcers and the superficial system". *Journal of Vascular Surgery.*1993;17:487-490.
3. Bergam JJ, Yao JST. Edition Surgery of Veins. New York: Grune and Stratton, 1985.
4. Bergam JJ, Yao JST. Venous Disorder. Philadelphia: W.B. Saunders, 1991.
5. Bradybury AW, Murie JA, Ruckley CV. Role of leucocyte in the pathogenesis of vascular disease. *Br. J Surg*, 1993;8: 1503-12.
6. Browse NZ, Burnand KG, and Lea Thomas M. Diseases of the Veins: Pathology, diagnosis and treatment. London: Arnold, 1988
7. Dodd H, Cockett FB, The pathology and surgery of the veins of the lower limbs. Edinburgh: Churchill Livingstone, 1976.
8. David J. Tibbs Venous disorders, Oxford Textbook of Surgery.
9. Gardener AMN, Fox RH. The return of Blood to Heart : Venous pumps in Health and Disease, London :john Libbey, 1989
10. John H. Scurr, Venous Disorder, Bailey and Love's Short Practice of Surgery.
11. Lea Thomas M. Phelebography of lower limbs. Edinburgh: Churchill Livingstone, 1982.
12. Negus D. Leg Ulcers. Oxford: Butterworth – Heinemann Ltd., 1991.
13. Nicolaides AN, Christopoulors D,

- Vasdekis S. Progress in the investigations of chronic venous insufficiency. *Ann Vasc Surg*, 1989;3:278-92.
14. Tibbs DJ. *Varicose veins and related disorders*. Oxford: Butterworth Heinemann Ltd., 1992.
  15. Hanahan LM, Araki CT, Rodriguez AA. Et al: Distribution of valvular incompetence in patients with venous stasis ulceration. *J Vasc Surg* 13:805-512, 1991.
  16. Shami SK, Sarin S, Cheatle TR, et al: Venous ulcers and the superficial venous system. *J Vasc Surg* 17:487 – 490, 1993.
  17. Walsh JC, Bergen JJ, Beeman S, et al : Femoral venous reflux abolished by greater saphenous vein stripping. *Ann Vasc Surg* 8:566-570, 1994.