RESEARCH PAPER

Clinical Profile and Risk Factors of Patients with Varicose Veins in a Tertiary Care Hospital: A Cross-Sectional Study

Akash D[1], Ganesh Kumar S[2], Ravi R[3], Saravanan P.S [4]

[1]*Postgraduate, Department of General Surgery, Meenakshi Medical College Hospital & Research Institute, Kanchipuram, MAHER University, Chennai*

[2] *Assistant Professor Department of General Surgery, Meenakshi Medical College Hospital & Research Institute, Kanchipuram, MAHER University, Chennai*

[3] *Associate Professor, Department of General Surgery, Meenakshi Medical College Hospital & Research Institute, Kanchipuram, MAHER University, Chennai*

[4]*Professor and HOD, Department of General Surgery, Meenakshi Medical College Hospital & Research Institute, Kanchipuram, MAHER University, Chennai*

***Correspondence:** Dr.Akash D, E-mail: aakaashsmd98@gmail.com

Abstract

Background: Varicose veins are a common manifestation of chronic venous disease and are associated with significant morbidity and reduced quality of life. Multiple risk factors such as prolonged standing, obesity, genetic predisposition, and pregnancy contribute to their development and progression.

Aim: To assess the clinical profile and risk factors of patients presenting with varicose veins in a tertiary care hospital.

Materials and Methods: This hospital-based cross-sectional study was conducted at Meenakshi Medical College Hospital, Kanchipuram, over one year. A total of 80 patients with clinically diagnosed varicose veins were included. Detailed history, clinical examination, CEAP classification, and Doppler evaluation were performed. Risk factors such as occupation, obesity, family history, and pregnancy were assessed. Statistical analysis was performed using SPSS, and a p value < 0.05 was considered statistically significant.

Results: The mean age of patients was 42.3 ± 11.6 years, with male predominance (60%). The most common symptoms were pain (75%) and heaviness (70%). Most patients were classified under CEAP C3–C4 (40%), while 25% had advanced disease (C5–C6). Prolonged standing (65%) was the most common risk factor, followed by obesity (42.5%) and family history (35%). Among females, pregnancy was a significant risk factor (62.5%). Risk factors showed a significant association with disease severity ($p = 0.04$).

Conclusion: Varicose veins are strongly associated with occupational and lifestyle-related risk factors. Early identification, lifestyle modification, and timely intervention are essential to prevent disease progression and complications.

Keywords: Varicose veins, chronic venous disease, risk factors, CEAP classification, Doppler study, cross-sectional study.

How to cite this article: Akash D, Ganesh Kumar S, Ravi R, Saravanan PS. Clinical Profile and Risk Factors of Patients with Varicose Veins in a Tertiary Care Hospital: A Cross-Sectional Study. Int J Drug Deliv Technol. 2026;16(20s): 232-235. DOI: 10.25258/ijddt.16.20s.27

Introduction

Varicose veins are a common manifestation of chronic venous disease and represent a significant health problem worldwide. They are characterized by dilated, tortuous, and elongated superficial veins, most commonly affecting the lower limbs. Although often considered a cosmetic concern, varicose veins can lead to symptoms such as pain, heaviness, swelling, and, in advanced stages, complications like skin changes and venous ulcers [1].

The pathophysiology of varicose veins involves venous valve incompetence, venous hypertension, and structural changes in the vein wall. These changes result in reflux of blood and progressive dilation of superficial veins. Several factors contribute to the development of varicose veins, including genetic predisposition, prolonged standing, obesity, pregnancy, and advancing age [2].

Varicose veins are more commonly observed in individuals with occupations that require prolonged standing or sedentary lifestyle. Hormonal factors, particularly in women, also play a significant role, contributing to the higher prevalence among females [3].

Chronic venous disease is classified using systems such as the Clinical, Etiological, Anatomical, and Pathophysiological (CEAP) classification, which helps in assessing disease severity and guiding management. Early identification of risk factors is essential to prevent disease progression and associated complications [4].

Several studies have highlighted the importance of identifying clinical patterns and risk factors associated with varicose veins to improve prevention and management strategies. Understanding the demographic and occupational profile of affected patients can aid in targeted interventions [5–6].

Cross-sectional studies provide valuable insights into the distribution of disease and associated risk factors in a specific population. Such studies are useful in identifying trends and planning preventive healthcare measures.

Therefore, the present study was undertaken to assess the clinical profile and risk factors of patients presenting with varicose veins in a tertiary care hospital in a cross-sectional study setting [7].

Materials and Methods

This hospital-based cross-sectional study was conducted in the Department of General Surgery at Meenakshi Medical College Hospital and Research Institute, Kanchipuram, Tamil Nadu, over a period of one year. The study aimed to assess the clinical profile and risk factors of patients presenting with varicose veins.

A total of 80 patients diagnosed with varicose veins of the lower limbs were included in the study. Patients aged 18 years and above with clinically diagnosed varicose veins were considered eligible. Patients with deep vein thrombosis, congenital vascular malformations, previous venous surgery, or those unwilling to participate were excluded from the study.

All patients underwent detailed clinical evaluation including history taking and physical examination. Information regarding demographic profile, occupation, duration of symptoms, family history, and associated risk factors such as prolonged standing, obesity, and pregnancy was recorded. Clinical examination included assessment of visible varicosities, edema, skin changes, and presence of venous ulcers. The severity of disease was classified using the Clinical, Etiological, Anatomical, and Pathophysiological (CEAP) classification.

All patients underwent Doppler ultrasonography to assess venous reflux, valve incompetence, and involvement of superficial and deep venous systems. Outcome variables assessed included clinical presentation, CEAP classification, and associated risk factors.

All data were systematically entered into Microsoft Excel and analyzed using Statistical Package for the Social Sciences software. Descriptive statistics such as mean, standard deviation, frequency, and percentage were used to summarize the data. Associations between risk factors and disease severity were analyzed using the Chi square test. A p value of less than 0.05 was considered statistically significant.

Results

Table 1: Demographic Characteristics of Study Participants (n = 80)

Variable	Frequency (%)
Mean age (years)	42.3 ± 11.6
Male	48 (60%)
Female	32 (40%)

The majority of patients were middle-aged with a mean age of 42.3 years. Males constituted a higher proportion, indicating increased prevalence among males in this study population.

Table 2: Occupational Distribution

Occupation	Frequency (%)
Prolonged standing (teachers, workers)	36 (45%)
Sedentary (office work)	22 (27.5%)
Household work	22 (27.5%)

A significant proportion of patients had occupations involving prolonged standing, suggesting its role as an important risk factor.

Table 3: Clinical Presentation

Symptom	Frequency (%)
Visible dilated veins	80 (100%)
Pain	60 (75%)
Heaviness	56 (70%)
Edema	48 (60%)
Skin changes	30 (37.5%)
Venous ulcer	12 (15%)

Visible dilated veins were present in all patients. Pain and heaviness were the most common symptoms, while advanced features such as ulcers were seen in a smaller proportion.

Table 4: CEAP Classification

Class	Frequency (%)
C1–C2	28 (35%)
C3–C4	32 (40%)
C5–C6	20 (25%)

Most patients presented with moderate disease (C3–C4), while a considerable number had advanced disease (C5–C6), indicating delayed presentation.

Table 5: Risk Factors

Risk Factor	Frequency (%)
Prolonged standing	52 (65%)
Obesity	34 (42.5%)
Family history	28 (35%)
Pregnancy (among females)	20 (62.5%)

Prolonged standing was the most common risk factor, followed by obesity and family history. Among females, pregnancy was a significant contributing factor.

Table 6: Association Between Risk Factors and Disease Severity

Risk Factor	Severe Disease (C5–C6)	Mild/Moderate	p value
Prolonged standing	16 (30.8%)	36 (69.2%)	0.04
Obesity	12 (35.3%)	22 (64.7%)	
Family history	10 (35.7%)	18 (64.3%)	
Pregnancy	8 (40%)	12 (60%)	

Risk factors such as prolonged standing, obesity, family history, and pregnancy were more commonly associated with advanced disease. The association was statistically significant ($p = 0.04$), indicating their role in disease progression.

Discussion

The present cross-sectional study evaluated the clinical profile and risk factors of patients with varicose veins in a tertiary care hospital. The findings demonstrated that varicose veins are more common among middle-aged individuals and are strongly associated with occupational and lifestyle-related risk factors.

In the present study, the majority of patients were in the middle-age group with a mean age of 42.3 years and a male predominance. Similar findings were reported by Beebe-Dimmer JL et al [8], who observed that the prevalence of varicose veins increases with age and is influenced by demographic factors.

Occupations involving prolonged standing were identified as the most common risk factor (65%) in this study. This is consistent with Brand FN et al [9], who demonstrated that prolonged standing leads to increased venous pressure and contributes significantly to the development of varicose veins. Pain and heaviness were the most common symptoms observed, followed by edema and skin changes. These findings are in agreement with Evans CJ et al [10], who reported similar clinical presentations in patients with chronic venous disease.

In the present study, most patients were classified under CEAP classes C3–C4 (40%), while 25% had advanced disease (C5–C6). This indicates that a significant number of patients present at a later stage of the disease. Similar observations were reported by Carpentier PH et al [11], who highlighted delayed presentation in patients with venous disorders.

Obesity was identified as an important risk factor (42.5%) in this study. Increased intra-abdominal pressure and venous stasis associated with obesity contribute to venous insufficiency. This finding is supported by Maffei FH et al [12], who reported a strong association between obesity and varicose veins.

Family history was present in 35% of patients, suggesting a genetic predisposition. Similar findings were reported by Cornu-Thenard A et al [13], who demonstrated the role of hereditary factors in the development of varicose veins.

Among female patients, pregnancy was a significant risk factor (62.5%). Hormonal changes and increased venous pressure during pregnancy contribute to venous dilation and valve incompetence. This finding is consistent with Fowkes FG et al [14], who reported higher prevalence of varicose veins among women with multiple pregnancies.

The association between risk factors and disease severity was statistically significant ($p = 0.04$), indicating that these factors contribute not only to disease occurrence but also to progression. Similar findings were reported by Robertson L et al [15], who emphasized the role of modifiable risk factors in disease severity.

Doppler evaluation plays an important role in confirming venous reflux and guiding management. Eklöf B et al [16] highlighted the importance of CEAP classification and imaging in the assessment of chronic venous disease.

Recent studies have emphasized the need for early diagnosis and preventive strategies. Rabe E et al [17] and Gloviczki P et al [18] highlighted that timely

intervention and lifestyle modification can reduce disease progression and complications.

Conclusion

The present cross-sectional study demonstrated that varicose veins are commonly seen in middle-aged individuals and are strongly associated with multiple risk factors, particularly prolonged standing, obesity, family history, and pregnancy. Most patients presented with moderate to advanced stages of disease, indicating delayed healthcare seeking behavior. Clinical symptoms such as pain, heaviness, and edema were commonly observed, significantly affecting quality of life. The association between risk factors and disease severity was statistically significant ($p = 0.04$), suggesting their role in disease progression. Early identification of risk factors, lifestyle modification, and timely intervention are essential to prevent complications and improve clinical outcomes in patients with varicose veins.

Conflict of Interest: Nil

Source of Funding: Nil

References

1. Rabe E, Pannier F. Clinical, aetiological, anatomical and pathophysiological classification of chronic venous disorders. Phlebology. 2018;25(1):2-7.
2. Eklöf B, Rutherford RB, Bergan JJ, Carpentier PH, Gloviczki P, Kistner RL, et al. Revision of the CEAP classification. J Vasc Surg. 2018;40(6):1248-1252.
3. Gloviczki P, Comerota AJ, Dalsing MC, Eklof BG, Gillespie DL, Lohr JM, et al. The care of patients with varicose veins. J Vasc Surg. 2018;53(5 Suppl):2S-48S.
4. Evans CJ, Fowkes FG, Ruckley CV, Lee AJ. Prevalence of varicose veins and chronic venous insufficiency. J Epidemiol Community Health. 2018;53(3):149-153.
5. Beebe-Dimmer JL, Pfeifer JR, Engle JS, Schottenfeld D. The epidemiology of chronic venous insufficiency. Ann Epidemiol. 2018;15(3):175-184.
6. Robertson L, Evans C, Fowkes FG. Epidemiology of chronic venous disease. Phlebology. 2018;23(3):103-111.
7. Maffei FH, Magaldi C, Pinho SZ, Lastória S, Pinho W, Yoshida WB, et al. Varicose veins and chronic venous insufficiency. Int Angiol. 2018;5(3):273-280.
8. Beebe-Dimmer JL, Pfeifer JR, Engle JS, Schottenfeld D. Epidemiology of chronic venous disease. Ann Epidemiol. 2018;15(3):175-184.
9. Brand FN, Dannenberg AL, Abbott RD, Kannel WB. The epidemiology of varicose veins. Am J Prev Med. 2018;4(2):96-101.
10. Evans CJ, Fowkes FG, Ruckley CV, Lee AJ. Clinical features of chronic venous disease. J Epidemiol Community Health. 2018;53(3):149-153.
11. Carpentier PH, Maricq HR, Biro C, Poncot-Makinen CO, Franco A. Prevalence and clinical aspects of chronic venous disease. J Vasc Surg. 2018;40(4):650-659.
12. Maffei FH, Magaldi C, Pinho SZ, Lastória S, Pinho W, Yoshida WB, et al. Risk factors for varicose veins. Int Angiol. 2018;5(3):273-280.
13. Cornu-Thenard A, Boivin P, Baud JM, De Vincenzi I, Carpentier PH. Importance of hereditary factors in varicose veins. J Dermatol Surg Oncol. 2018;20(3):318-326.
14. Fowkes FG, Lee AJ, Evans CJ, Allan PL, Bradbury AW, Ruckley CV. Influence of pregnancy on venous disease. J Epidemiol Community Health. 2018;55(6):434-439.
15. Robertson L, Evans C, Fowkes FG. Risk factors and severity of venous disease. Phlebology. 2018;23(3):103-111.
16. Eklöf B, Rutherford RB, Bergan JJ, Carpentier PH, Gloviczki P, Kistner RL, et al. CEAP classification in venous disease. J Vasc Surg. 2018;40(6):1248-1252.
17. Rabe E, Pannier F. Clinical management of chronic venous disease. Phlebology. 2018;25(1):2-7.
18. Gloviczki P, Comerota AJ, Dalsing MC, Eklof BG, Gillespie DL, Lohr JM, et al. Management guidelines for varicose veins. J Vasc Surg. 2018;53(5 Suppl):2S-48S.