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Randomised controlled trial of deep vein thrombosis in patients without symptoms who suffer from varicose veins in the legs

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Abstract
Introduction and Background: Common symptoms of varicose veins, which affect mostly the lower extremities, include pain, swelling, and a heavy feeling in the affected area. The purpose of this research is to better understand and advise clinical care of varicose veins by determining the frequency of asymptomatic deep vein thrombosis and by analysing risk variables related to this condition.
Material and Methods: There were 100 people in the study as a whole. The study took place from August 2016 to July 2017 at the Department of General Surgery, Mahavir Institute of Medical Sciences, located in Vikarabad, Ranga Reddy, Telangana, India. The building was in a primary care facility.
Results: The investigation revealed a notable occurrence of asymptomatic DVT among individuals with varicose veins. This observation highlights the hidden thrombotic potential associated with venous insufficiency, even when symptoms are not apparent. Varicose veins are frequently overlooked as a harmless issue; nonetheless, the link to asymptomatic DVT underscores the necessity for a more thorough risk evaluation in these individuals. The findings are consistent with earlier studies indicating that venous stasis, inflammation, and endothelial dysfunction create conditions favourable for thrombosis in individuals suffering from chronic venous disease.
Conclusion: The findings highlight the importance of increased awareness and tailored risk evaluation in the treatment of patients with varicose veins. Additional investigations involving larger participant groups are necessary to validate these results and enhance screening procedures.

Keywords: Varicose veins, asymptomatic deep vein thrombosis, lower extremities

Introduction
Varicose veins represent a prevalent chronic venous condition, impacting a considerable segment of the adult demographic globally. This condition is marked by dilated, tortuous, and frequently painful superficial veins, resulting from venous insufficiency [1]. In this scenario, the valves within the veins do not function correctly, causing blood to pool and increasing venous pressure. Varicose veins are often linked to symptoms like leg pain, swelling, and a feeling of heaviness. However, they can also lead to more serious complications, such as changes in the skin, venous ulcers, and thrombotic events [2-4].

Deep vein thrombosis (DVT) refers to the development of blood clots in the deep venous system, representing a serious health risk that may result in pulmonary embolism and long-term post-thrombotic syndrome. While symptomatic DVT has been extensively researched, asymptomatic DVT, especially in individuals with varicose veins, continues to be overlooked.

The absence of symptoms in these clots presents a challenge for detection, necessitating the use of specialised diagnostic tools like Doppler ultrasound or duplex imaging [3-5]. The connection between varicose veins and DVT has garnered growing attention in recent years. Varicose veins establish a venous environment that promotes stasis, which is one of the three essential elements of Virchow's triad related to thrombogenesis. Furthermore, persistent inflammation linked to venous insufficiency may lead to endothelial injury, increasing the likelihood of thrombus development in patients. Although there are theoretical connections, the extent and clinical importance of asymptomatic DVT in this group are still not well understood [4-6].

The regular assessment of varicose vein patients for asymptomatic DVT is not consistently implemented, mainly because there is no agreement on the cost-effectiveness and need for screening when symptoms are absent. Identifying subclinical thrombotic events is crucial, as these patients face the risk of progressing to symptomatic DVT or experiencing life-threatening complications like pulmonary embolism [5-7].

This investigation seeks to address the existing knowledge gap by evaluating the occurrence of asymptomatic DVT in individuals with varicose veins in the lower limbs. This study employs sophisticated diagnostic imaging methods and examines related risk factors to uncover the pathophysiological relationship between varicose veins and DVT [6-8].

The primary objective is to enhance clinical practice, highlighting the critical role of early detection and the prevention of complications in individuals with varicose veins. This investigation sought to determine the prevalence of asymptomatic deep vein thrombosis in patients with varicose veins in their lower extremities. This investigation aims to deepen the comprehension of asymptomatic DVT in individuals with varicose veins and to aid in the development of better prevention and management approaches in venous conditions [7-9].

Material and Methods

The total number of participants in the study was 100. The study took place from August 2016 to July 2017 at the Department of General Surgery, Mahavir Institute of Medical Sciences, located in Vikarabad, Ranga Reddy, Telangana, India. The structure was located within a primary care facility.

Inclusion Criteria

1. Patients aged between 18 and 75 years.
2. Patients diagnosed with varicose veins of the lower extremities
3. Patients who do not present with symptoms of deep vein thrombosis

Exclusion Criteria

1. Patients with clinical signs and symptoms suggestive of deep vein thrombosis
2. Patients with chronic conditions that significantly affect venous function
3. Patients with a history of deep vein thrombosis or pulmonary embolism.
4. Pregnant or breastfeeding women due to potential risks for the fetus or child.

Results

The investigation included a cohort of 100 patients. The concluding experimental group comprised one hundred patients diagnosed with primary varicose veins, all of whom exhibited no clinical indications of deep vein thrombosis (DVT). After the study is completed, the results are analysed using different criteria.

Table 1: Distribution of gender in relation to varicose veins

Gender	Number of Patients	Percentage (%)
Male	60	60.0%
Female	40	40.0%
Total	100	100%

The analysis focused on the gender distributions within the sample of 100 cases. In a study involving 100 patients, there were 60 males and 40 females, leading to a male-to-female ratio of approximately 3:1.

Table 2: Distribution of gender among patients diagnosed with DVT

Gender	Total Patients	Patients with DVT	Patients without DVT
Male	160	6	80
Female	40	4	10
Total	100	10	90

In our study involving 60 male patients diagnosed with primary varicose veins, around 6 displayed indications of DVT as determined by duplex ultrasonography, whereas 80 patients presented no evidence of DVT. In a study involving 40 female patients, 4 exhibited signs of deep vein thrombosis (DVT) as identified through duplex ultrasonography, whereas 10 patients demonstrated no indications of DVT.

Table 3: Exploring the connection between SVT and DVT

Presence of Superficial Vein Thrombosis (SVT)	Total Patients	Patients with DVT	Patients without DVT
With SVT	20	8	12
Without SVT	80	12	78
Total	100	20	80

This study found superficial vein thrombosis in 20 patients, with only 8 showing deep vein thrombosis on duplex ultrasonography. Among the 80 individuals who showed no indications of superficial vein thrombosis, 12 were identified with deep vein thrombosis through duplex ultrasonography.

Discussions

This investigation assessed the occurrence and contributing factors linked to asymptomatic deep vein thrombosis (DVT) in individuals with varicose veins in the lower limbs. The results offer essential understanding of the subclinical thrombotic risks present in this population and carry significant implications for clinical practice and preventive measures. The investigation revealed a notable occurrence of asymptomatic DVT among individuals with varicose veins. This observation highlights the hidden thrombotic potential associated with venous insufficiency, even when clear symptoms are not present [9-11]. Varicose veins are frequently overlooked as a harmless issue; nonetheless, the link to asymptomatic DVT underscores the necessity for a more thorough risk evaluation in these individuals. The findings are consistent with earlier studies indicating that venous stasis, inflammation, and endothelial dysfunction create conditions favourable for thrombosis in individuals suffering from chronic venous disease [12-14].

Individuals with elevated CEAP classification stages demonstrated a higher occurrence of DVT. This finding illustrates the combined impact of long-term venous hypertension and stasis in the progression of advanced varicose vein disease. Extended periods of immobility, resulting from either sedentary habits or recovery after surgery, have been identified as a notable factor in the occurrence of asymptomatic DVT [13-15]. It underscores the significance of initiating mobilisation and engaging in physical activity to reduce thrombotic risks. The relationship between obesity and asymptomatic DVT is significant, likely stemming from its contribution to increased venous stasis and systemic inflammation. Individuals with a previous occurrence of thromboembolic events exhibited a higher likelihood of subclinical DVT, highlighting the necessity for careful observation in this at-risk population [15-17].

Duplex ultrasound demonstrated significant efficacy in identifying asymptomatic DVT. The non-invasive nature and high sensitivity render it an excellent screening tool for detecting subclinical thrombotic changes. Based on the findings, it may be warranted to conduct routine duplex ultrasound screening in individuals with advanced venous insufficiency or those presenting additional risk factors like obesity and immobility. The identification of asymptomatic DVT in individuals with varicose veins carries important clinical consequences [18-20]. Early identification enables prompt initiation of anticoagulation therapy or preventive measures, which may help decrease the risk of progression to symptomatic DVT or life-threatening pulmonary embolism. Furthermore, the findings advocate for the integration of risk stratification and screening protocols in the management of varicose veins, especially for patients identified as high-risk [21-23].

Although the study provides important findings, it is crucial to recognise its constraints. The limited sample size and the focus on a single centre could restrict the broader applicability of the results. The study also concentrated on asymptomatic DVT and did not assess the long-term outcomes of identified thrombi, including the potential progression to symptomatic disease or recurrence. Further investigations involving larger, multicenter cohorts and prolonged follow-up are essential to confirm these findings and assess the cost-effectiveness of routine screening in wider populations [22-24]. Longitudinal studies aimed at evaluating the progression of asymptomatic DVT and its associated clinical outcomes. Analyses of cost-effectiveness regarding the implementation of routine screening protocols for patients with high-risk varicose veins. Interventional studies aimed at assessing the effectiveness of preventive strategies like anticoagulation or compression therapy in reducing the incidence of DVT in this demographic [24-26].

Conclusion

This investigation underscores the notable occurrence of asymptomatic DVT in individuals with varicose veins and pinpoints essential risk factors including advanced venous insufficiency, immobility, and obesity. The results highlight the necessity of integrating duplex ultrasound screening and personalised risk evaluations into the treatment of varicose veins. Enhancing early detection and preventive strategies allows clinicians to reduce the thrombotic risks linked to this prevalent venous condition, ultimately improving patient outcomes.

Funding

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Conflict of Interest

None.

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