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Review on Varicose Vein

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ABSTRACT

Twisted, enlarged veins called varicose veins, which are most commonly found on the lower limbs, lead to disability and disfigurement. Varicose vascular incidence varies. At least one-third of the populace is thought to have varicose veins in their lower limbs. Family history, weight, advanced age, pregnancy, and prolonged standing are risk factors. Incompetent valves, weakened vascular walls, and heredity variables all play a role in the pathophysiology. Diet, lifestyle modifications, and hydrotherapy are examples of conservative treatments for varicose veins that, in order to be effective, demand a high level of patient compliance. Interventional therapies include surgery. The choice of therapy is influenced by the patient's preferences, possible complications, cost, and symptoms. The risk factors, symptoms, treatment (conservative and surgical), complications, and prevention of varicose veins are all covered in this review.

Introduction

_veins are a very prevalent issue with widely varying prevalence estimates, and they can be disabling and lower quality of life. Although they can also be found in the rectum (haemorrhoids), oesophagus (esophageal varices), etc. [1], they are readily identifiable by their twisted, bulging, superficial appearance on the lower extremities. A lot of people have varicose veins: Aged 18–64, Identifiable by their twisted, bulging, superficial appearance on the lower extremities. Having varicose veins is very Buy Premium for unlimited words.

Definition

In the subcutaneous tissues of the legs [5, ankle], varicose veins are tortuous, enlarging, palpable, and typically blue or dark purple. They are also frequently plainly visible. All of these veins have one-way valves to keep the blood flowing in the direction of the heart; however, when these valves malfunction, the blood refluxes and causes venous hypertension, which can lead to symptoms.

History

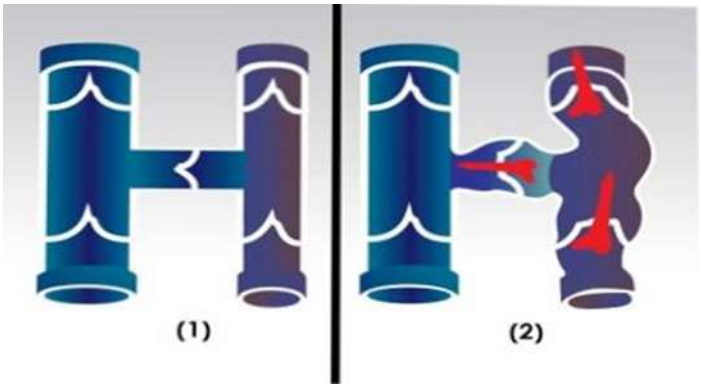
Varicose veins were first mentioned in writing on the Ebers Papyrus from 1550 BC, which was discovered in Athens [2]. Canus Marius, the dictator of ancient Rome, is thought to have been the first patient to undergo surgery for his varicose vein. Hippocrates, a Greek philosopher who lived from 460 to 377 B.C., recommended small punctures for varicose veins and detailed the use of compressive bandages. Aurelius Cornelius Celsus (25 B.C.–50 A.D.) treated leg sores with plasters and linen bandages. He exposed them and then used a blunt spike to avulse them. Claudius Galen (130–200) invented a technique for bandaging that kept the edges of the wound together. For the next 1400 years, Galen's theory of circulation stayed the norm. The idea of unidirectional blood circulation was put forth by William Harvey (1578–1657) [3]. Midthigh was first presented by Giovanni Rima (1777–1843). Buy Premiumfor unlimited words. In the 1860s, Friedrich Trendelenburg conducted great saphenous vein surgery as well as popularised his eponymous Trendelenburg test for saphenous reflux, modernising the era of vascular intervention for varicose veins. Diagnostic testing experienced significant advancements in the second half of the 20th century, but the surgical treatment of varicose veins saw only minor improvements following this development. Venous disease has seen a resurgence of attention and innovation at the start of the twenty-first century. Although endovenous thermal ablation and sclerotherapy play leading roles in the current treatment of superficial venous disease, surgical approaches are still useful when used correctly and carried out with skill [4].

Risk factor

Fig.1. Development of. Fig.2. varicose vein

Varicose vein.

Vain: a healthy vain.



The idea that the venous wall is weak is one of the explanations put forth to explain the origin of varicose veins. Significantly decreased vein wall elasticity has raised the possibility that venous valves play a part in the formation of alterations in the elastic characteristics of the vascular wall are a secondary cause of varicose veins [5]. People who have characteristics that predispose them

to vascular disorders are more likely to acquire varicose veins as a result of oestrogens,

progestogens, or their associated action (familial history, prolonged standing, obesity, and sedentary). Additionally, they make these patients' peripheral venous conditions worse [6]. Proximal limb venous hypertension is brought on by wearing tight underwear. A low-fiber diet makes you more likely to experience constipation and more abdominal discomfort. Squatting while defecating is prevented by raised bathroom seats. All of these hypotheses concern venous hypertension, which is connected to the emergence of venous insufficiency.

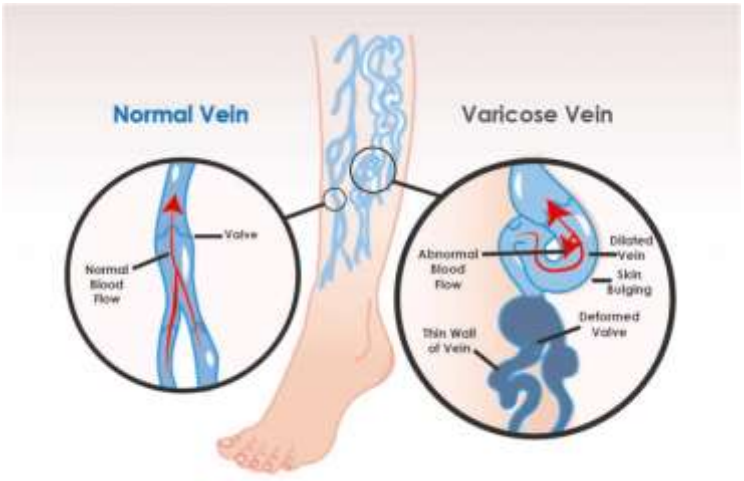


Fig. 2 Varicose veins develop From valvular incompetence, Resulting in dilation of the Superficial venous system.

Development of varicose vein

Every leg vein has valves placed at regular distances. These valves make sure that blood travels back to the heart in opposition to gravity, working with the heart's pump and the leg muscles to do so. When the thigh muscles are contracted, as when walking, the deep veins between the muscles are compressed, forcing blood out of them. Blood only travels one way, towards the heart, thanks to healthy valves that stop any backflow to the feet. The deep vein system is where the majority of the blood goes to the heart. Although they frequently turn into varicose veins, the superficial veins simply serve as a supporting role in the transportation of blood. When hereditary connective tissue causes superficial veins to expand.

Classification

Based on the clinical severity, aetiology, anatomical location, and pathophysiology of varicose veins, the classification technique is used. CEAP categorization for chronic venous disorders revision (Eklof B et al. 2004) [7]

- **Clinical Classification**

C0: no visible or palpable signs of venous disease

C1: telangiectasies or reticular veins

C2: varicose veins

C3: edema

C4a: pigmentation or eczema

C4b: lipodermatosclerosis or atrophieblanche

C5: healed venous ulcer

C6: active venous ulcer

S: symptomatic, including ache, pain, tightness,

Skinirritation, heaviness, and muscle cramps, and attributable to venous dysfunction

A: asymptomatic

- **Etiologic Classification**

Ec: congenital

Ep: primary

Es: secondary (postthrombotic)

En: no venous cause identified

- **Anatomic Classification**

As: superficial veins

Ap: perforator veins

Ad: deep veins

An: no venous location identified

- **Pathophysiologic Classification**

Basic CEAP

Pr: reflux

Po: obstruction

Pr,o: reflux and obstruction

Pn: no venous pathophysiology identifiable

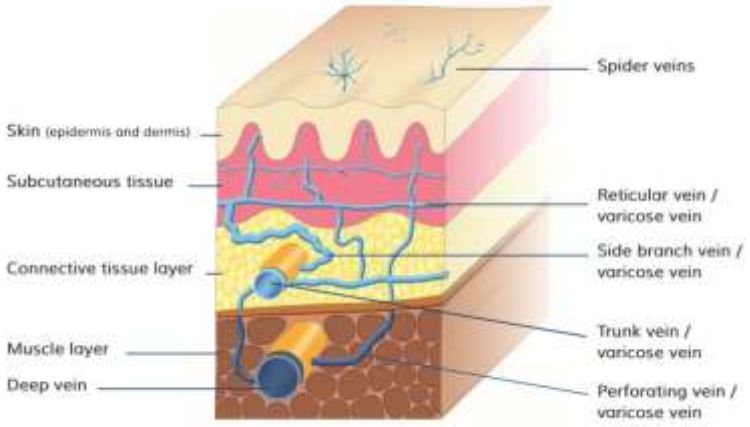


Fig. 3. Overview of the positions Of the different types of varicose veins in and under the skin

- **Risk Factors**

The most important risk factors leading to the development of varicose veins are:

- **Age**
- As people age, their vein walls' cells become less elastic, which leads to the valve system's failure. According to a cross-sectional study conducted by Evans CJ et al. (1999) on 1566 participants, roughly one-third of men and women between the ages of 18 and 64 had trunk varices [8]

Due to female hormones' impact on the vein walls, women are more likely than males to develop varicose veins. After analysing 3,822 adults, Brand FN et al. (1988) came to the conclusion that women are more likely than men to have varicose veins, have lower levels of physical exercise, higher systolic blood pressure, and smoke more [9].

- **Heredity**

The likelihood of developing varicose veins is raised if parents or grandparents had the condition. A research by Lee AJ et al. (2003) found that self-reported evidence pointed to a familial susceptibility [10].w

- **Prolong standing**

Due to the effects of gravity, jobs that require extended standing raise the volume and pressure of blood in the lower limbs. According to Kohno K et al. (2014), being overweight and spending a lot of time standing up at work both contribute to the formation of varicose veins [11].

- **Hormone changes**

Varicose veins develop during adolescence, pregnancy, multiparity, menopause, post-menopause, hormone replacement therapy, and other medications containing oestrogen and progesterone. After closely analysing the data, Lesiak M et al (2012) came to the conclusion that a Caesarean section, pregnancy, and family factors are linked to the inheritance of varicose changes and venous insufficiency [12].

- **Obesity**

Varicose veins can develop as a result of increased strain on the veins caused by being overweight. In a retrospective cohort study performed by Seidell JC et al in 1986, it was found that women with varicose veins were more likely to be overweight [13].

- **Smoking and alcohol**

Smoking and drinking increase the chance of Capillaries with varices. Cross-sectional studies were performed by Ahti TM et al. A survey with 4903 participants has found that Alcohol may make varicose veins more prone to develop. Smokers had a higher prevalence of in women and Smokers had more varicose veins than non-smokers in both sexes [14]. Age 70 years and obesity were significantly associated with the occurrence of venous thromboembolism, according to a retrospective study performed by Musil D et al. (2016) on 641 patients [15].

- **Pathophysiology**

According to an article by Naoum JJ and Hunter GC from 2007, the clinical and histologic characteristics of varicose veins are caused by a disruption of the venous wall's normal structure as a result of remodelling of the extracellular matrix in response to increased venous distention and altered hemodynamic shear stress. The aetiology of varicose veins has been linked to a number of genes, growth factors, and their inhibitors that are known to alter the extracellular matrix [16].

Causes of varicose Vein

Varicose veins can have main, secondary, or congenital causes.

• First-degree varicose veins

Varicose veins have a hereditary component, or inherent vein wall weakness, and can affect some family members.

• Secondary Varicose Veins

Varicose veins that appear as a result of secondary causes, such as deep vein thrombosis or injuries.

• Hereditary and inherited Due to vascular malformation in the limb, present at birth, varicose veins are caused by deviations in the venous system's normal growth. KTS, or Klippel-Trenaunay syndrome.

- **Physical Signs and Symptoms**

Varicose veins can be purely an aesthetic issue for some individuals. Others experience more severe symptoms and indications as a result.

- Aching discomfort that might get worse after spending a lot of time sitting or standing.

-Pain, regardless of its characteristics, location, or intensity, is one of the most consistent clinical aspects of venous thrombosis, according to Henriet JP (1992), and it serves as a warning. A note to the doctor [17].

- The veins are blue or dark purplish and appear twisted, swollen, and lumpy.

- A throbbing or cramping pain;
- An itchy or irritated rash;
- A darkening of the skin and a loss of its soft substance.

• Swelling

• A minor wound to the region may cause abnormally

Prolonged bleeding.

- Heaviness/tiredness: Sensitive skin near the capillaries

Diagnosis of varicose veins [1]

- Searching of history

• Thorough physical evaluation in adequate lighting

• Both the puncture test and the Perthes test were positive.

• Angiogram

• Doppler test—a type of ultrasound examination that looks for blood clots in the veins and measures the direction of blood flow in the veins.

• Venography; tourniquet exams (such as the Trendelenberg test); and ambulatory venous pressure readings.

- **Prevention**

Oliver R. Et al. (2007) conducted a review of 24 articles and looked into a variety of parameters before coming to the conclusion that leg ulceration affects quality of life [18].

• **Exercise**

Engaging in regular exercise can help to improve blood circulation and muscle and vein strength. Avoid excessively demanding exercises if the patient already has varicose veins.

- **Weight management**

Weight management prevents greater pressure on leg circulation. Take quick breaks from sitting every 30 minutes to avoid prolonged times of inactivity.

• **Clothing**:

To aid in promoting healthy circulation throughout the body, be sure to wear loose-fitting, comfy clothing.

• **Elevate legs:**

Throughout the day, take a few brief breaks to raise your legs above your torso. The blood of the veins will be improved.

• **Compression stockings:**

they aid in the better blood circulation of the legs' muscles and vessels. Retrospective medical records of 170 instances of varicose veins were examined by Joseph et al. (2016), who came to the conclusion that wearing compression stockings at work could improve quality of life [19].

- **Healthy diet**

Consume a high-fiber, low-sodium diet. Consuming a low-sodium diet can help to reduce limb swelling.

According to a clinical case study by Lozano SA et al (2014), nutrition plays a crucial role in the avoidance and management of chronic wounds. Low extremity wounds are more common in people under 65, and the risk of malnutrition is associated with age-related physiological alterations [20].

- **Treatment [1]**
- Conservative Measures

•Compression (e.g., bandages,Support stockings)

•Elevation of the affected leg

•Life style modifications

•Weight loss

- Endovenous or Interventional Therapy

•External laser therapy

- Sclerotherapy
- Surgery
- Ligation
- Phlebectomy
- Stripping

After reviewing studies, S.Subramonia and TA Lees (2007) came to the conclusion that no singular treatment approach is suitable in every circumstance. Traditional surgery is still performed frequently and is safe and efficient [21].

After reviewing 39 relevant studies, Murad MH et al. (2011) came to the conclusion that short-term studies support the effectiveness of less invasive treatments because they are linked to lower post-procedural disability and discomfort [22].

Sclerotherapy

It is an outpatient, minimally invasive treatment. A sclerosing solution is injected using a needle into small and medium-sized varicose veins, scarring and closing those vessels. The line should swell and disappear in a few weeks. Patients should anticipate seeing a 50% to 90% improvement after their initial treatment.

Know

Endovascular Laser Ablation (EVLA)

In this procedure, a thin catheter that can be heated with radiofrequency energy is introduced into an enlarged vein. The heat damages the vein by causing it to collapse and close shut as the catheter is removed. The preferred method of therapy for larger varicose veins is this.

In a research involving 798 participants, Cotton SC et al. (2016) found that endovenous laser ablation and ultrasound-guided foam sclerotherapy both produced faster healing times than surgery [23].

Ambulatory phlebectomy

Hooks are used to extract varicose veins through minute skin incisions. Only the areas of the limb being pricked will be anaesthetized, and the vein will be cut out in one procedure.

The Swedish Council on Health Technology Assessment came to the conclusion that senior patients who undergo varicose vein surgery are less likely to develop venous leg ulcers again [24].

- **Hydrotherapy**

A high level of patient compliance is necessary for the warm sitz bath to be a successful non-invasive treatment for uncomplicated varicose veins. [25]

- **Complementary and Alternative Medicine**

In that paper, Tobon J (2010) stated that one approach to managing chronic pain (pain from venous leg ulcers) is to take a more holistic approach that incorporates complementary and alternative medicine therapies. [26]

- **Herbs:**
- Horse chestnut,
- Gotu kola
- Pycnogenol
- Butcher’s broom
- Witch hazel,

And Some dietary additives, like bioflavonoids and vitamin C, are beneficial for treating varicose veins.[27]

- **Complications**
- Skin ulcer
- superficial thrombophlebitis,
- bleeding

Aquila I et al. (2017) describe the case of an 88-year-old man who was discovered deceased in a sizable blood pool at home. The victim's left foot had an ulcer, and there were clear signs of untreated varicose veins on the lower limbs, according to an external inspection. In this study, the importance of treating varicose veins in preventing unfavourable outcomes like sudden death from acute haemorrhage is highlighted [28].

- **Deep vein thrombosis (DVT)**

According to Engbers et al (2015).'s case control study of 401 cases, varicose veins, leg ulcers, and leg oedema are all risk factors for venous thrombosis in older persons [29].

Conclusion

Usually varicose veins are less complicated vascular disorder. But if undiagnoised and untreated they transferred into severe uncomfortable circulatory disorder. Thought there's no way to completely prevent varicose veins by life style modification the circulation and muscle tone can be improved which reduce the risk of developing varicose vein and prevent from recurrence.

Sclerotherapy is an outstanding technique for varicose vein treatment. It is least invasive. It is highly efficient.

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