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Varicose Veins: A Review and Management

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Abstract: ***Twisted, swollen veins that are commonly found on the lower limbs can be deformative and incapacitating. Varicose vein prevalence varies. At least one-third of people are thought to have lower leg varicose veins. Family history, obesity, advanced age, pregnancy, and prolonged standing are risk factors. The pathogenesis includes weakening vascular walls, defective valves, and genetic factors. Treatment options for varicose veins include surgery, interventional therapy, and conservative measures like diet, lifestyle modifications, and hydrotherapy—all of which depend heavily on patient compliance to be effective. The symptoms, patient preferences, cost, and possible risks all influence the therapeutic selection. This review looks at varicose vein risk factors, symptoms, management (surgery and conservative measures), and complication avoidance.***
Keywords: Varicose Veins, Pregnancy, Obesity, Pathophysiology

I. INTRODUCTION

Varicose veins are a frequent condition that causes disability and a decline in quality of life. Estimates of their prevalence vary widely. It's Hemorrhoids and esophageal varices are two more common locations for them, although their twisted, bulging, superficial appearance on the lower extremities makes them clearly identifiable. Varicose veins are quite frequent, affecting 40% of men and 32% of women between the ages of 18 - 64 .

Cardia G et al. (2012) came to the conclusion in their article that leg varices is a progressive condition, meaning that there are multiple effective treatment options available. Observation is crucial during the investigation.

According to an exploratory qualitative study conducted by Franz A. Wann Hansson (2016), patients with varicose veins classified as C4 had noticeable disease symptoms that affected their daily lives. These symptoms necessitated the use of various coping mechanisms to manage them, as well as significant changes to their social and recreational lives.

A. Defination

Usually blue or dark purple in the subcutaneous tissues of the legs, and ankle, and frequently visible, varicose veins are twisted, swollen, and palpable. These veins are all equipped with one-way valves to make sure the blood goes to the heart. When their valves malfunction, blood reflux occurs, resulting in venous hypertension, which can produce symptoms**.**

B. Incidence

Ebrahimi H et al. (2015) conducted a cross-sectional study on 197 hairdressers and concluded that varicose veins in the legs of female hairdressers had a high prevalence, and it was associated with increasing age, family history, high blood pressure, and prolonged standing. The estimated prevalence rate of varicose veins in India providing warning is about 47,928,177 statistics. According to another estimate, 15 to 20% of the population in India is suffering from vein disease.

C. CEAP Classification

Based on the clinical severity, etiology, anatomical location, and pathophysiology of varicose veins, a classification system for these veins is employed.

CEAP classification for chronic venous diseases revised (Eklof B et al. 2004)

D. 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, skin irritation, heaviness, muscle cramps, and other complaints attributable to venous dysfunction
A: asymptomatic

E. Anatomic Classification

As: superficial veins
Ap: perforator veins
Ad: deep veins
An: no venous location identified

F. Pathophysiologic Classification

Basic CEAP
Pr: reflux
Po: obstruction
Pr,o: reflux and obstruction
Pn: no venous pathophysiology identifiable.

G. Risk Factors

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

1) Age

The vein walls' tissues become less elastic as people age, which leads to valve system failure.
A cross-sectional study conducted by Evans CJ et al. (1999) on
A study including 1566 participants found that almost one-third of men and women between the ages of 18 and 64 had trunk variations.

2) Gender

Because of the way that female hormones affect the vein walls, women are more likely to develop varicose vein disease. In 1988, Brand FN et al. looked at 3,822
Adults concluded that women are more likely than men to have varicose veins and that women also tend to smoke more frequently, have higher systolic blood pressure, and engage in less physical exercise.

3) Heredity

Varicose veins are more likely to occur if one's parents or grandparents experience the condition. Research by Lee AJ et al. (2003) found that concluded that a familial predisposition was suggested by self-reported evidence.
A case-control study by CornuThenard et al. (1994) on 134 families revealed a significant role for inheritance in the development of varicose veins.
After reviewing the data, Kohno K et al. (2016) concluded that genetic variables play a significant role in the familial transmission of varicose veins from parents to children.

4) Prolonged Standing

Because of the effects of gravity, jobs that require extended standing raise blood pressure and volume in the lower limbs.
According to Kohno K et al. (2014), being overweight and standing for extended periods at work aggravate the development of varicose veins.
Tuchsen F et al. (2000) interviewed 5940 participants and concluded that working in a standing position is associated with subsequent hospitalization due to varicose veins for both men and women.

5) Hormonal Changes

These can happen during adolescence, menopause, pregnancy, multiparity, post-menopausal, hormone replacement therapy, and other medical conditions.

carrying progesterone and estrogen may aid in the development of varicose veins.

After a thorough analysis of the data, Lesiak M et al. (2012) concluded that venous insufficiency and varicose alterations are inherited and that pregnancy, cesarean sections, and familial variables are related to these conditions.

After surveying 611 women, M. Dindelli et al. (1993) found that having two or more second parades was linked to a higher chance of developing venous illness during pregnancy.

Compared to women who did not have a family history of varicose disease, those who experienced venous disease during pregnancy reported this condition more frequently.

6) Obesity

Varicose veins can result from the increased pressure that being overweight puts on veins. Retrospective cohort analysis by Seidell JC et al. (1986) is concluded

Women with varicose veins had a greater frequency of recorded morbidity in the overweight group.

7) Alcohol and Smoking

Smoking and alcohol use also raise the risk of varicose veins.

In 2010, Ahti TM et al. carried out cross-sectional research including 4903 individuals, The conclusion is that drinking alcohol is probably going to make women more likely to get varicose veins, and that smokers were more likely to develop varicose veins in both genders than non-smokers.

A retrospective study by Musil D et al. (2016) on 641 individuals found a high correlation between obesity and age ≥70 years and the incidence of venous thromboembolism.

8) Lack of Movement

Sitting for extended periods, especially with crossed or bowed legs, can make veins work harder to pump blood to the heart.

9) Sun Exposure

A fair-skinned person may develop spider veins on their nose or cheeks as a result.

10) Physical Trauma

Trauma damage underlying blood vessels.

11) Pathophysiology

The clinical and histologic characteristics of the varicose vein are caused by a disturbance of the normal structure of the venous wall as a result of extracellular matrix remodeling brought on by altered hemodynamic shear stress and increased venous distention. Varicose vein pathogenesis has been linked to several genes, growth factors, and their inhibitors that are known to alter the extracellular matrix.

H. Causes of Varicose Vein

The causes of varicose veins may be primary, secondary, or congenital.

1) Primary Varicose Veins

Innate vein wall weakening is a hereditary condition contributing to varicose veins, which can develop in certain individuals from the same family.

2) Secondary Varicose Vein

veins that become varicose due to a secondary cause, such as trauma or deep vein thrombosis. The causes of congenital and familial varicose veins include vascular malformations in the limb, and abnormalities in the venous system's normal development, existing from birth. Syndrome Klippel Trenaunay (KT syndrome).

Congenital and Family Varicose veins can result from vascular malformations in the limb, abnormalities in the venous system's normal development, existing from birth. Syndrome Klippel Trenaunay (KT syndrome).

I. Clinical Manifestations

For some people, varicose veins are simply a cosmetic problem. For others it causes more serious signs and symptoms.

1) Aching pain that may get worse after sitting or standing for a long time.
- In a 1992 paper, Henriet JP concluded that pain is one of the most consistent clinical conditions, independent of its features, location, or intensity.
- characteristics of venous thrombosis and indicates to the physician a warning sign.

2) Veins look twisted, swollen, and lumpy
3) The veins are blue or dark purple
4) Throbbing or cramping
5) Rash that is itchy or irritated
6) Darkening of the skin and loss of soft texture of the skin.
7) Swelling
8) A minor injury to the affected area may result in longer bleeding than normal
9) Heaviness/Tiredness: Tender areas around the veins
10) Lipodermatosclerosis - fat under the skin just above the ankle can become hard, resulting in the skin shrinking
11) Venous eczema: Skin in the affected area is red, dry, and itchy
12) Atrophieblanche - irregular whitish patches that look like scars that appear at the ankles.
13) Restless legs syndrome

- Diagnosis of Varicose Vein
  - History taking
  - Detailed physical examination in sufficient light
  - A positive tap test and a negative Perthes test.
  - Angiogram
  - Doppler test - an ultrasound scan to check the direction of blood flow in the veins and check for blood clots in the veins.
  - Color duplex ultrasound scan
  - Tourniquet tests (such as the Trendelenberg test)
  - Venography • Ambulatory venous pressure measurements

J. Prevention

Oliver R et al. (2007) reviewed 24 articles investigated the different parameters, and concluded that leg ulceration has an impact on quality of life

1) Exercise: Regular exercise is a way to promote increased blood circulation, as well as vein and muscle strength. If already the patient has varicose veins, overly strenuous exercises should be avoided.
2) Weight Control: Weight control avoids placing increased pressure on leg circulation.
3) Avoid sitting for long periods by taking short walks every 30 minutes.
4) Clothing: Be sure to wear loose-fitting comfortable clothing to help promote good circulation throughout the body.
5) Elevate legs: Take several short breaks throughout the day to elevate your legs above the heart level. This will improve venous circulation.
6) Compression Stockings: It helps veins and leg muscles move blood more efficiently. Joseph et al (2016) reviewed retrospective medical records of 170 varicose vein cases and concluded that the use of compression stockings at the workplace could help in the betterment in quality of life .
7) Healthy Diet: Eat low sodium and high-fiber diet. Eating a low-sodium diet can help to prevent swelling in the legs.
8) After reviewing a clinical case report by Lozano SA et al. (2014), it is determined that diet has a significant role in the management and prevention of chronic wounds. The

9) Low extremity wounds are more common in people over 65, and age-related physiological changes are linked to an increased risk of malnutrition.

Do not stand or sit for long periods. If a person must stand for a long time, shift weight from one leg to the other every few minutes. While sitting for a long period, stand up and move around.Avoid wearing high heels for extended periods.
Stay Active: Using your leg muscles helps to maintain blood flow.
Control Blood Pressure: High blood pressure increases the load on blood vessels and increases their vulnerability to varicose veins.
After analysing 16 publications, Brown A. (2012) came to the conclusion that there may be some benefit to increasing physical activity, enhancing mobility, and doing foot exercises in terms of reducing ulcer recurrence.

K. Treatment

1) Compression (e.g., bandages,Support stockings)
2) Elevation of the affected leg
3) Life style modifications
4) Weight loss Endovenous or Interventional Therapy
5) External laser therapy
6) Sclerotherapy Surgery
7) Ligation
8) Phlebectomy
9) Stripping

After reviewing research, S Subramonia, TA Lees (2007) came to the conclusion that no one therapy approach is suitable for every situation. Traditional surgery is safe, efficient, and still often used.
After reviewing 39 relevant papers, Murad MH et al. (2011) came to the conclusion that short-term studies are supportive of the effectiveness of less intrusive therapies, which are linked to lower levels of pain and periprocedural impairment.

L. Sclerotherapy

It is a slightly invasive outpatient procedure. A needle is used to inject small and medium sized varicose veins with a sclerosing solution that scars and closes those veins. In a few weeks, the vein should collapse and fade away. Patients can expect to see a 50% to 90% improvement following their first procedure.
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M. Endovascular Laser Ablation (EVLA)

enlarged vein and heats the tip of the catheter using either radiofrequency energy. As the catheter is pulled out, the heat destroys the vein by causing it to collapse and seal shut. This is a preferable treatment for larger varicose veins. Cotton SC et al. (2016) conducted a study on 798 participants which concluded that both ultrasound-guided foam sclerotherapy and endovenous laser ablation resulted in more rapid recovery than surgery.

N. Hydrotherapy

An excellent noninvasive treatment for simple varicose veins is a warm sitz bath, yet it does require a high level of compliance of patients.

O. Herbs

1) Horse chestnut
2) Pycnogenol
3) Gotu kola
4) Butcher’s broom
5) Witch hazel
6) Some nutritional supplements are also helpful in varicose vein such as bioflavonoids, vitamin essential fatty acids and dimethylglycine.

P. Complications

1) Skin ulcers

2) Superficial thrombophlebitis

3) Bleeding

According to Aquila I et al. (2017), an 88-year-old man was discovered dead in a sizable blood puddle at his residence. The victim's exterior examination revealed an ulcer.

on the left foot and noticeable, untreated varicose veins on the lower limbs. This study highlights how treating varicose veins can help avoid unfavorable outcomes including an abrupt death from an acute hemorrhage.

• Deep Vein Thrombosis

Engbers et al (2015) case-control study on 401 cases it conclude that clinical features of venous insufficiency, varicose veins, leg ulcers and leg edema, are risk factors for venous thrombosis in older people.

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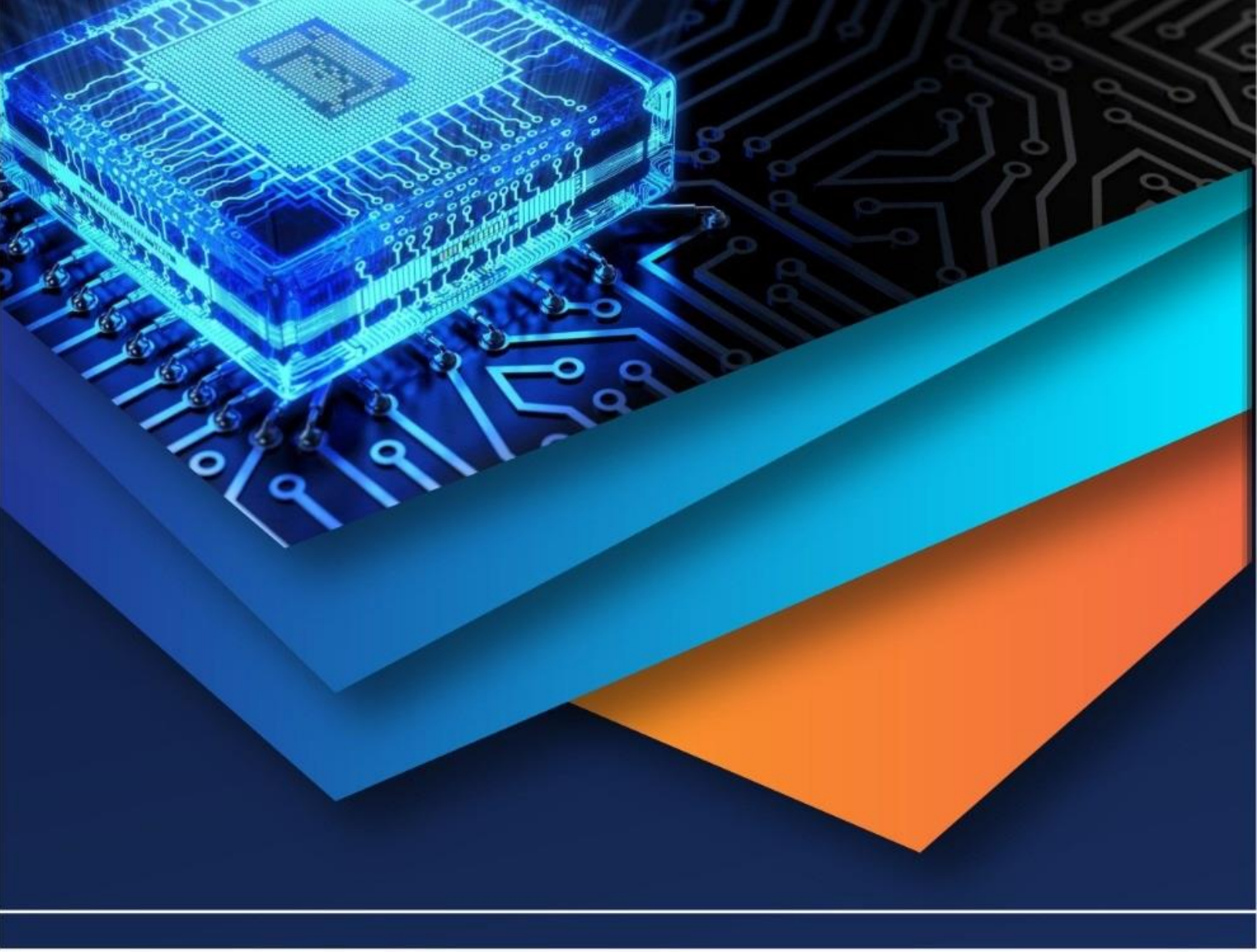

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