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A SYSTEMATIC REVIEW OF RISK FACTOR AND DIAGNOSIS OF VARICOSE VEINS

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ABSTRACT

Varicose veins are enlarged, twisted veins that usually occur in the legs due to weak or damaged vein valves, leading to improper blood flow and pooling of blood. This condition is a part of chronic venous insufficiency and is influenced by factors such as age, gender, heredity, obesity, pregnancy, prolonged standing, and lack of exercise. Symptoms include pain, heaviness, swelling, itching, and visible blue or purple veins. Diagnosis is mainly done by clinical examination and Doppler ultrasound, which detects valve incompetence and venous reflux. Treatment depends on the severity and includes conservative management like compression therapy, exercise, and leg elevation, as well as advanced options such as endovenous laser therapy, radiofrequency ablation, and sclerotherapy. Ayurvedic medicine also plays a beneficial role by addressing the root cause and improving overall vascular health. Herbs like horse chestnut, gotu kola, witch hazel, butcher's broom, and pycnogenol strengthen vein walls, reduce inflammation, and enhance blood circulation naturally. Ayurvedic principles emphasize balancing Tridosha, improving immunity, and offering long-term, side-effect-free healing. With proper lifestyle changes, modern and Ayurvedic approaches together can effectively manage varicose veins, relieve symptoms, and prevent complications.

KEYWORDS: Varicose veins, blood flow, compression, herbal remedies, prevention.

1. INTRODUCTION

Varicose veins are enlarged, twisted, and swollen veins that are most often seen on the legs and feet. They appear blue or dark purple and may look like bulging cords just under the skin.[1] This condition happens when the tiny valves inside the veins stop working properly. Normally, these valves help blood flow upward toward the heart. When they become weak or damaged, blood starts flowing backward and collects in the veins. This extra blood increases pressure, making the veins expand and become varicose.[2]

The veins in the legs have to work hard to move blood upward against gravity. They depend on leg muscles and healthy valves to do this job. When these valves fail, it leads to venous reflux, which means blood flows in the wrong direction.[3] Over time, this constant pressure causes the veins to stretch and lose their shape. Varicose veins are not only a cosmetic problem ;they are also part of a larger condition called chronic venous insufficiency (CVI), which means poor blood flow through the veins.[4]

Varicose veins are very common around the world. Studies show that about 20% to 30% of adults have them, and the risk increases with age.[5] Both men and women can develop varicose veins, but they are more common in women. This is because female hormones during pregnancy, menstruation, and menopause can make the vein walls weaker.[6] People with a family history of varicose veins are also more likely to get them.[7] Certain lifestyles and jobs can increase the risk. People who stand or sit for long periods like teachers, shop workers, and nurses are at higher risk because standing still makes it harder for blood to move back to the heart.[8] Other risk factors include obesity, lack of exercise, pregnancy, constipation, and aging.[9] These conditions raise the pressure inside the veins, which damages the valves over time.

In the early stages, varicose veins may cause few or no symptoms. However, as the condition worsens, people may experience pain, heaviness, tiredness, swelling, itching, and muscle cramps, especially after long hours of standing.[10] The skin around the affected area can also become dark, hard, or scaly. In severe cases, patients may develop skin ulcers (open wounds) around the ankles or thrombophlebitis (inflammation and blood clots in veins).[11]

Doctors usually diagnose varicose veins by examining the legs while the patient is standing. To confirm the diagnosis, a Doppler ultrasound test is often used to check how well blood is

flowing and to locate damaged valves.[12] The severity of the disease can be classified using the CEAP system, which stands for Clinical, Etiologic, Anatomic, and Pathophysiologic.[13]

This system helps doctors plan the right treatment.

The treatment of varicose veins depends on how serious the condition is. In the past, surgery such as ligation and vein stripping was the main method used to remove or tie off damaged veins.[14] But now, newer and less painful treatments are available, such as endovenous laser therapy (EVLT), radiofrequency ablation (RFA), and foam sclerotherapy.[15] These treatments close or seal the affected veins, allowing blood to flow through healthy ones instead. Recovery is usually quick, and the results are very effective.

For people with mild symptoms, conservative treatments can help. These include wearing compression stockings, exercising regularly, losing weight, and elevating the legs when resting.[16] These methods help improve blood circulation and reduce swelling. Simple lifestyle changes, such as avoiding standing for too long and keeping active, can also prevent the condition from getting worse.[17]

Varicose veins can be uncomfortable and unsightly, but they are not just a cosmetic issue. If ignored, they can lead to serious complications. Therefore, early diagnosis and treatment are important. Public awareness about risk factors and preventive measures such as exercise, healthy weight, and proper posture can help reduce the number of people affected.[18] In conclusion, varicose veins are a common and often lifelong condition that affects the superficial veins of the legs. They are caused by valve damage, which leads to poor blood flow and increased pressure in the veins. Although not life-threatening, they can cause significant discomfort and complications if untreated. With modern medical advances and simple lifestyle adjustments, varicose veins can be effectively managed, improving both health and quality of life.[19]

Fig. 1: Varicose veins of the lower limb.

2. CLASSIFICATIONS OF VARICOSE VEINS

They are classified into three types.

1. Primary Varicose Veins

These occur without any underlying deep venous disease. They result from incompetence (failure) of vein valves leading to backward blood flow.

Causes

- Congenital weakness in vein walls or valves
- Prolonged standing or increased venous pressure
- Hormonal changes (pregnancy, puberty, menopause)
- Hereditary factors **Features:**
- Involve superficial veins, commonly the great saphenous vein
- Veins become dilated, tortuous, and visible under the skin.
- Symptoms include heaviness, pain, and swelling after long standing.[20]

2. Secondary Varicose Veins

These develop as a result of another venous disorder, most often deep vein thrombosis (DVT) or venous obstruction.

Causes

- Post-thrombotic damage to venous valves
- Obstruction from tumors or trauma • Post-surgical or post-inflammatory changes

Features

- Usually unilateral (one-sided)
- Associated with skin pigmentation, eczema, or ulcers
- May involve deep and perforator veins.[21,22]

3. Congenital or Familial Varicose Veins

These are present from birth or occur due to hereditary or developmental venous abnormalities.

Causes

- Congenital absence or malformation of venous valves
- Hereditary weakness in connective tissue
- May occur as part of congenital vascular syndromes (e.g., Klippel–Trénaunay Syndrome)

Features

- Appear in childhood or early life
- May involve both superficial and deep venous systems
- Often associated with capillary or lymphatic malformations.[23,24]

3. WHO GETS VARICOSE VEINS ?

Many health problems that get worse over time, like varicose veins, become more common as people get older.[25] Sometimes, vein problems can even be seen in teenagers, though large or visible varicose veins are not common at that age.[26]

In some rare cases, doctors have treated children as young as 12 years old who had serious vein reflux and visible varicose veins. In the past, people thought that varicose veins mostly affected women. However, newer studies show that this belief came from bias in older research. Those studies mainly looked at people who went to the doctor for treatment, not the general population. Since women usually care more about their health and visit doctors more often than men, it appeared that varicose veins were more common in women, but this is not entirely true. Many people also believed that pregnancy causes varicose veins, but research has now shown that this is not correct. During pregnancy, a woman's veins become wider (dilate) because of hormonal and blood flow changes. After the baby is born, the veins return to their normal size. Studies show that no new vein reflux develops in veins that were healthy before pregnancy[27], and the number of pregnancies does not increase the risk of great

saphenous vein (GSV) reflux.[28] However, pregnancy can affect the veins in the pelvic area. Research shows that pelvic venous reflux (a type of backflow of blood in pelvic veins) can become more common during and after pregnancy, and the risk increases with more pregnancies.[29]

4. ETIOLOGY OF VARICOSE VEINS

Varicose veins mainly develop due to venous disease that causes valvular reflux, where the vein valves fail to close properly.[30] This happens because of a combination of genetic factors, loss of vein wall elasticity, weak vascular walls, and increased venous pressure. When valves become incompetent, blood flows backward instead of moving toward the heart, leading to vein dilation and tortuosity. Reversed blood flow, shear stress on vein walls, and inflammation further contribute to the condition.[31]

The most commonly affected veins are the great and small saphenous veins and their superficial branches.[32]

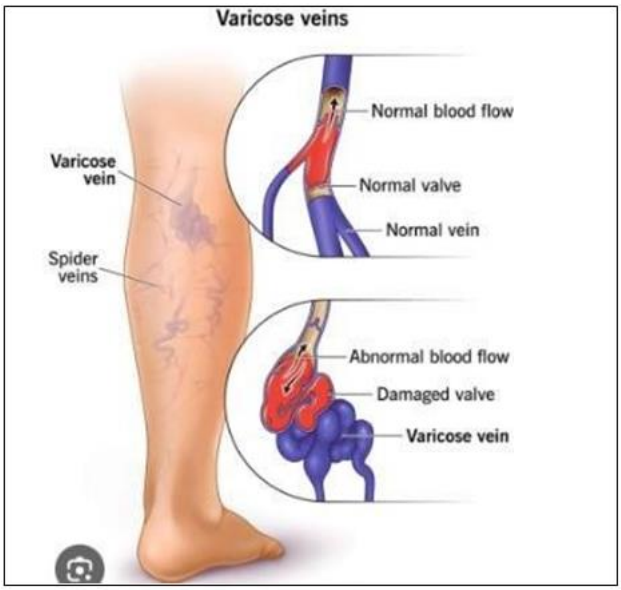

Fig No. 2: Normal and Abnormal Blood Flow in Varicose Veins.

5. PATHOPHYSIOLOGY OF VARICOSE VEINS

Varicose veins happen when the normal structure of the vein wall breaks down. This damage occurs because the veins get stretched too much and the blood flow pressure changes. Due to this, the supporting tissue (called extracellular matrix) around the vein also changes its structure. Many genes and body chemicals (growth factors) that control this supporting tissue are involved in causing these changes, which finally lead to varicose veins.[33]

SIGNS AND SYMPTOMS OF VARICOSE VEINS

1. Pain, itching, or heaviness in the legs[34]
2. Swelling in ankles or feet
3. Itching around affected veins
4. Visible, bulging, or twisted veins
5. Leg cramps, tingling, or numbness
6. Skin changes like discoloration or eczema[35]
7. Fatigue or tired legs
8. Ulceration near ankles (severe cases)[36]

7. WHO SHOULD BE INVESTIGATED AND TREATED?

In July 2013, the National Institute for Health and Care Excellence (NICE) in the UK published guidelines (CG168) explaining which patients with varicose veins should be checked and treated.

According to these guidelines

People with bleeding varicose veins should be referred to a doctor immediately. People with varicose veins or suspected hidden varicose veins should see a vascular specialist if they have any of the following:

- Pain, aching, discomfort, swelling, heaviness, or itching in the legs
- Eczema or dark skin pigmentation on the lower legs
- Superficial vein thrombosis (clot in a surface vein)
- An open venous leg ulcer
- A healed venous leg ulcer

These people should be investigated and treated not only to solve their current problems but also to prevent the condition from getting worse and to improve their quality of life. Some people want to treat visible veins or spider veins (telangiectasia) only for cosmetic reasons. If these patients have no medical symptoms, their treatment is considered cosmetic and not for health improvement.

Doctors must make sure these patients understand that the treatment is only for appearance, not for medical benefit, and such treatment is usually not covered by health insurance.

Recent research has shown that spider veins are often linked to underlying vein problems, such as:

- Reflux in the saphenous veins
- Incompetent perforator veins (IPVs)
- Small local veins that feed the spider veins
- Because of this, before treating spider veins, a duplex ultrasound scan should be done to check for deeper vein issues. Treating spider veins without this scan is considered poor medical practice.[37]

8. RISK FACTOR OF VARICOSE VEINS

Varicose veins develop due to a combination of genetic, hormonal, mechanical, and lifestyle related factors that cause venous valve incompetence and venous wall weakness. The major risk factors are as follows:

1. Age The risk increases with age due to degenerative changes in venous valves and walls, leading to venous insufficiency.[38]
2. Gender (Female) – Varicose veins are more common in women due to hormonal influences such as estrogen and progesterone, which relax vein walls.[39]
3. Family History (Genetic Predisposition) A positive family history significantly increases the risk due to inherited weakness in the vein wall or valve structure.[40]
4. Pregnancy Increased blood volume, hormonal changes, and pressure from the growing uterus contribute to venous dilation and valve dysfunction.[41]
5. Obesity Excess body weight increases intra-abdominal pressure and venous load, promoting venous reflux.[42]
6. Prolonged Standing or Sitting (Occupational Factor) Occupations that require long periods of standing (e.g., teachers, nurses, cashiers) or sitting impair venous return and increase pressure in leg veins.[43]
7. Hormonal Factors (Oral Contraceptives / Hormone Replacement Therapy) Estrogen-containing medications may weaken vein walls and valves.[44]
8. Lack of Physical Activity Sedentary lifestyle reduces calf muscle pump activity, leading to venous stasis.[45]
9. History of Deep Vein Thrombosis (DVT) Prior DVT can damage venous valves and lead to post-thrombotic varicose veins.[46]
10. Smoking Associated with vascular inflammation and impaired venous wall integrity.[47]

9. DIAGNOSIS OF VARICOSE VEINS[48]

1. History Taking

- The diagnosis begins with a thorough patient history.
- The doctor asks about symptoms such as heaviness, pain, swelling, itching, or visible bulging veins.
- Important factors include duration, occupation, family history, pregnancies, and past venous diseases or surgeries.

2. Detailed Physical Examination

- Examination is performed in good lighting and with the patient standing, as varicose veins become more prominent.
- The physician inspects for:
  - Dilated, tortuous veins
  - Skin changes (pigmentation, eczema, ulceration)
  - Edema or trophic changes
- Palpation is done to assess vein tenderness and valve incompetence.

3. Tap Test (Percussion Test)

- The examiner taps over a varicose vein while placing a finger over the saphenofemoral junction.
- Positive test: A fluid thrill felt at the junction indicates valvular incompetence (reverse blood flow).

4. Perthes Test

- A tourniquet is applied to compress the superficial veins, and the patient walks.
- Negative test: The deep veins are competent superficial veins empty normally.
- Positive test: Superficial veins become more distended, indicating deep vein obstruction.

5. Angiogram

- A radiological test using contrast dye injected into the veins to visualize venous anatomy and flow.
- Rarely used today due to non-invasive alternatives, but helpful in complex or recurrent varicose veins

6. Doppler Test

- A handheld ultrasound device that detects the direction of blood flow and presence of reflux.
- Helps assess valve function and detect thrombosis in veins.

7. Color Duplex Ultrasound Scan

- A combination of traditional ultrasound and Doppler.
- Provides a real-time color image of the veins showing:
  - Flow direction
  - Presence of reflux
  - Site of valve incompetence
  - Any blood clots (thrombosis)
- Considered the gold standard for diagnosing varicose veins.

8. Tourniquet Tests (e.g., Trendelenburg Test)

- The leg is elevated to empty veins, and a tourniquet is applied at the thigh.
- The patient stands up:
  - Rapid filling from above after releasing the tourniquet → incompetent saphenofemoral junction.
  - Filling from below with tourniquet in place → perforator incompetence.

9. Venography

- A contrast X-ray study of the venous system.
- It helps identify deep venous obstruction or valvular incompetence.
- Used when non-invasive methods are inconclusive.

10. Ambulatory Venous Pressure Measurements

- Measures changes in venous pressure during walking.
- Normal veins show pressure reduction on walking; persistently high pressure indicates venous reflux or obstruction.
- Mainly used in research or complex diagnostic cases.[48]

10. PREVENTION OF VARICOSE VEINS

Preventing varicose veins involves lifestyle and occupational modifications that reduce venous pressure and improve circulation in the lower limbs. Although not all cases are

preventable especially when heredity is a factor—certain measures can significantly decrease the risk or delay progression.

1. Regular Exercise

Engaging in regular physical activity, such as walking, cycling, or swimming, helps improve leg muscle tone and venous return, reducing venous stasis and pressure in the veins.[49]

2. Weight Management

Maintaining an ideal body weight reduces pressure on leg veins, minimizing the risk of venous dilation and valve incompetence.[50]

3. Avoid Prolonged Standing or Sitting

Occupations requiring long hours of standing or sitting can increase venous pressure. Taking short breaks to move or stretch helps maintain circulation and prevent pooling of blood.[51]

4. Elevating the Legs

Elevating legs above heart level several times a day improves venous return and decreases venous pressure in the lower extremities.[52]

5. Wearing Compression Stockings

Graduated compression stockings support the veins, improve blood flow, and prevent progression of early varicosities, especially in people at risk.[53]

6. Avoiding Tight Clothing

Tight garments around the waist, legs, or groin can restrict venous return and should be avoided.[54]

7. Healthy Diet and Hydration

A diet rich in fiber (to prevent constipation) and low in salt helps avoid venous pressure increases. Adequate hydration maintains optimal blood viscosity.[55]

8. Avoiding High Heels

Wearing flat or low-heeled shoes allows better calf muscle contraction, which aids venous return.[56]

11. TREATMENT OF VARICOSE VEINS

[1] ALLOPATHIC TREATMENT

Table No. 1.

1. Venoactive (Phlebotonic) Drug		
Drugs Name	**Dosage and Duration**	**Mechanisms/Uses**
1. Diosmin + Hesperidin (MPFF) (e.g., Daflon 500 mg) 500 mg	twice daily for 2–6months; may continue longer in chronic cases	Improves venous tone and lymphatic drainage and reduces inflammation and edema.[57]
2. Hydrosmin	200–400 mg/day In divided doses for 4–12 weeks	Strengthens venous wall and improves Microcirculation.[58]
2. Troxerutin (Oxerutins)	300 mg three times daily or 500 mg twice daily for 3–6 months	Improves capillary resistance and reduces leakage
3. Rutosiside (Oxerutins)	500 mg twice daily	Used to reduce swelling and discomfort[59]
4. Calcium Dobesilat (Doxium mg) 500	500 mg twice daily for 3-6 months	Improve microcirculation reduce capillary permeability and reduce edema.[60]
2. Anticoagulant & Antiplatelet Drugs • Used mainly when there is superficial thrombophlebitis or risk of clot formation.		
Drug Name	**Dosage and Duration**	**Uses**
1. Heparin (Topical Ointment)	Apply 2–3 times daily over the affected area for 2–4 weeks.	Improves blood flow and prevents local clots Formation[61]
2 .Enoxaparin (Low Molecular Weight Heparin)	40 mg subcutaneous once daily for 7–10 days (in acute thrombophlebitis)	Prevents deep vein thrombosis and Inflammation[62]
3. Aspirin (low dose):	75–150 mg once daily long-term if thrombotic risk	Prevents platelet aggregation[63]
2. Topical Medicine		
Drug Name	**Dosage and Duration**	**Effect/Uses**
1. Heparin + Benzyl Nicotinate Ointment (Thrombophob gel)	Apply a thin layer 2–3 times daily for 2–4 weeks.	Improves local circulation, reduces pain & inflammation[64]
2. Diclofenac Gel (1% or 1.16%)	Apply 2–4 g gently over the affected area 3–4 times daily	Relieves pain, swelling, and inflammation[65]
4. Supportive / Symptomatic Drugs		
Drugs Name	**Dosage And Duration**	**Uses**
1. Ibuprofen/ naproxen (NSAIDs)	Ibuprofen 400 mg every 8 hours, or Naproxen 250 mg twice daily for 1–2 weeks.	Pain, inflammation, and tenderness[66]
2. Furosemide (if leg edema is present)	20–40 mg once daily As needed; short-term	Reduces swelling due to fluid retention.[67]

[2] SOME OTHER TREATMENTS

Varicose veins can be treated using non-surgical, minimally invasive, or surgical methods depending on the severity of the disease.

The main goals of treatment are.

- To improve blood circulation
- To relieve symptoms like pain, swelling, or heaviness
- To prevent complications such as ulcers or thrombosis.[68]

1. Non-Surgical (Conservative) Treatment

These are the first-line treatments, especially useful for mild to moderate varicose veins or for patients who cannot undergo surgery.[69]

(a) Compression Therapy

- Special elastic stockings (compression stockings) are worn on the legs.
- They gently squeeze the leg, helping the veins and muscles move blood more efficiently toward the heart.
- Reduces pain, swelling, and the feeling of heaviness in legs.
- There are different grades of compression (mild, moderate, and strong) depending on disease severity.
- Must be worn daily during the day and removed at night.

Benefit: Improves venous blood flow and prevents worsening of varicose veins.[70]

(b) Lifestyle Modifications

Simple daily changes can reduce symptoms and slow progression:

- **Regular Exercise:** Walking, cycling, or swimming improves blood circulation.
- **Leg Elevation:** Elevate the legs above heart level several times a day to reduce pressure in leg veins.
- **Avoid Prolonged Standing/Sitting:** Move or stretch legs regularly to promote circulation.
- **Maintain Healthy Weight:** Reduces pressure on the veins.
- **Avoid Tight Clothing:** Especially around the waist or legs.

Benefit: Prevents worsening and improves overall venous return naturally.[71]

2. Minimally Invasive (Non-Surgical Procedures)

Used when conservative methods fail or for moderate to large varicose veins.

These are day-care procedures performed under local anesthesia with quick recovery.[72]

(a) Sclerotherapy

A chemical solution (sclerosant), such as polidocanol or sodium tetradecyl sulfate, is injected into the vein.

This irritates the vein wall, causing it to collapse and seal shut.

The closed vein eventually fades as blood is redirected to healthier veins.

Best for small or medium-sized varicose veins and spider veins.

Benefit: Safe, quick, and effective for cosmetic improvement.[73]

(b) Foam Sclerotherapy

The sclerosant is mixed with air or gas to form a foam before injection.

The foam displaces blood more effectively, giving better contact with the vein wall.

Works well for larger varicose veins.

Benefit: Better results for large veins compared to liquid sclerotherapy.[74]

(c) Endovenous Laser Ablation (EVLA)

A thin laser fiber is inserted into the vein through a small needle puncture.

The laser emits heat energy that closes the vein from inside.

The sealed vein is absorbed by the body over time.

Done under local anesthesia and requires no stitches.

Benefit: High success rate, minimal pain, no hospital stay.[75]

(d) Radiofrequency Ablation (RFA)

A catheter (thin tube) is inserted into the vein.

Radiofrequency (RF) energy heats and seals the vein wall.

Similar to laser ablation but uses radio waves instead of light.

Benefit: Less pain, faster recovery, fewer complications.[76]

3. Surgical Treatments

Surgery is advised for large or complicated varicose veins or when less invasive treatments have failed.[77]

(a) Ligation and Stripping

The affected vein (usually the great saphenous vein) is tied off (ligated) at the junction with the deep vein.

The vein is then removed (stripped) using a special instrument.

Performed under general or spinal anesthesia.

Benefit: Permanent removal of the diseased vein.

Risk: Scarring, bruising, or nerve injury (rare).[78]

(b) Ambulatory Phlebectomy

Small incisions (2–3 mm) are made to remove surface varicose veins.

Usually done under local anesthesia.

No stitches required; recovery is quick.

Benefit: Excellent cosmetic results with minimal downtime.[79]

(c) Subfascial Endoscopic Perforator Surgery (SEPS)

Used for severe cases with skin ulcers or deep venous reflux.

A small camera (endoscope) is inserted under the skin to locate and close perforator veins that allow backward blood flow.

Prevents recurrent ulcers and chronic swelling.

Benefit: Useful in advanced venous disease with better healing outcomes.[80]

4. Other Helpful Therapies

These support main treatments and help manage symptoms.[81]

(a) Physiotherapy

Includes leg exercises and calf muscle strengthening to promote venous return.

Improves circulation and prevents blood pooling in legs.

Benefit: Improves muscle pump function and relieves heaviness.[82]

(b) Hydrotherapy

Alternating hot and cold water baths improve circulation and vein tone.

Cold water causes veins to constrict; warm water causes them to dilate this stimulates blood flow.

Benefit: Reduces leg fatigue and swelling.[83]

(c) Dietary Therapy

Eat foods rich in fiber (whole grains, fruits, and vegetables) to prevent constipation, which increases venous pressure.

Include antioxidants (vitamins C & E, flavonoids) to strengthen vein walls.

Avoid excessive salt to reduce swelling.

Benefit: Supports vein health and reduces fluid retention.[84]

(d) Yoga and Massage Therapy

Yoga poses like Viparita Karani (legs-up-the-wall), Tadasana, and Pavanmuktasana improve circulation.

Gentle leg massage (not deep pressure) helps move stagnant blood.

Benefit: Relieves pain, improves flexibility, and enhances venous drainage.[85]

[3] AYURVEDIC MEDICINE FOR VARICOSE VEINS

• Ideal properties of varicose veins

1. Natural Origin

Ayurvedic medicines are derived from natural sources like plants, minerals, and animal products, making them gentle and biocompatible.

2. Do Not Harm the Body

When used properly, Ayurvedic formulations do not cause harm to organs or tissues.

3. Treats Root Cause

Ayurveda focuses on eliminating the root cause of diseases rather than only relieving symptoms.

4. Individual-Specific Therapy

Ayurvedic treatment is personalized according to Prakriti (body constitution) and health condition.

5. Boosts Natural Immunity

Ayurvedic medicines enhance the body's natural healing power (Vyadhi Kshamatva).

6. Free from Side Effects

Properly prepared and administered Ayurvedic medicines are generally safe and free from side effects.[86]

7. Promotes Longevity and Overall Health

Ayurveda's main aim is to maintain health in the healthy and cure diseases in the sick (Swasthasya Swasthya Rakshanam).

8. Balances Tridosha

Ideal Ayurvedic medicines maintain balance among Vata, Pitta, and Kapha.[87]

9. Provides Long-Term Benefits

Ayurvedic treatment improves body strength and balance, providing long-lasting effects.[88]

10. Eco-Friendly and Sustainable

Ayurvedic preparation methods are natural and environmentally friendly.[89]

• Some Herbs Useful In Varicose Veins

1. Horse chestnut
2. Gotu kola
3. Witch hazel
4. Butcher's broom
5. Pycnogenol

1. Horse Chestnut

Synonyms: Indian chestnut, conker tree

Biological source: Horse chestnut is obtained from the dried seeds of the plant Aesculus hippocastanum Linn.

Family: Sapindaceae

Chemical Constituents: Aescin (saponin), flavonoids, tannins

Uses In Varicose Veins

1. Strengthens vein walls
2. Reduces leg swelling and heaviness
3. Improves blood flow

2. Gotu Kola

Synonyms: Brahmi, Mandukaparni

Biological source: Gotu Kola is obtained from the whole plant of Centella asiatica (Linn.) Urban.

Family: Apiaceae (Umbelliferae)

Chemical Constituents: Triterpenoid saponins (Asiaticoside, Madecassoside), flavonoids, polyphenols.

Uses in Varicose Veins

1. Improves circulation and strengthens vein walls
2. Reduces swelling and inflammation in legs 3. Helps in wound healing for ulcerated veins

Other Uses: Cognitive enhancer, skin healing, anxiety reduction.

3. Witch Hazel

Synonyms

Common Name: Witch hazel

Other Names: Winterbloom, Squawwood, Snapping Hazel

Botanical/Scientific Name: Hamamelis virginiana

Biological Source: Witch Hazel is obtained from the leaves, bark, and twigs of the plant Hamamelis virginiana.

Plant Type: Deciduous shrub or small tree.

Family: Hamamelidaceae

Chemical Constituents: Tannin, flavonoids and complex volatile oil.

Uses

1. **Hemorrhoids**: Soothes swelling and discomfort.
2. **Varicose Veins:** Relieves mild symptoms like itching and inflammation.
3. **Anti-inflammatory:** Used topically for bruises and swelling.

4. Butcher's Broom

Synonyms

Common name for Asparagaceae mon names: Butcher's Broom, Knee Holly, Jew's Myrtle,

Biological Source: Derived from the dried rhizome and roots of Ruscus aculeatus L.

(Family) The plant is a small evergreen shrub native to Europe and the Mediterranean region.

Family: Asparagaceae (subfamily: Nolinoideae)

Chemical Constituents: The plant contains several bioactive compounds:

Steroidal saponins: Ruscogenin, Neoruscogenin

Flavonoids: Quercetin derivatives Polyphenols Essential oils (in minor amounts) and Tannins

Key bioactive: Ruscogenin isresponsible for its vasoconstrictive and antiinflammatory effects.

Uses/Therapeutic Applications

1. **Vascular health:** Improves venous tone, reduces swelling and varicose veins.
2. **Anti-inflammatory:** Helps reduce edema and inflammation.

3. **Hemorrhoids:** Reduces symptoms like pain and bleeding due to venous congestion.
4. **Traditional uses:** Used in folk medicine for leg heaviness, poor circulation, and joint pain.

5. Pycnogenol

Synonyms: French maritime pine extract, Pinus pinaster extract

Biological Source: Extracted from the bark of the French maritime pine, Pinus pinaster Ait.

Family: Pinaceae

Chemical Constituents

- Pycnogenol is rich in polyphenolic compounds, mainly:
- Procyanidins (Oligomeric proanthocyanidins, OPCs) major active component
- Catechin and Epicatechin
- Phenolic acids (e.g., caffeic acid, ferulic acid)
- Taxifolin

Uses/Therapeutic Applications

Pycnogenol is known for its antioxidant and vascular health benefits:

1. **Cardiovascular Health**

- Improves blood circulation
- Reduces blood pressure ➢ Strengthens capillaries and veins

2. **Varicose Veins**

- Reduces swelling and leg pain

3. **Anti-inflammatory Effects**

- Helps with arthritis, asthma, and inflammatory disorders.

12. DISCUSSION

Varicose veins are enlarged and twisted veins that occur when the valves in the veins become weak and cannot push blood upward properly, causing it to collect in the legs.[91] It is more common in people who stand for long hours, are overweight, pregnant, or elderly.[92] Common symptoms include leg pain, heaviness, swelling, and visible bluish veins. Diagnosis is usually confirmed by Doppler ultrasound to check the blood flow.[93]

Conventional treatments such as compression stockings, exercise, and laser therapy help improve circulation and reduce discomfort.[94]

Ayurveda offers a natural and holistic approach to varicose veins. Ayurvedic herbs like horse chestnut (Aesculus hippocastanum), gotu kola (Centella asiatica), and butcher's broom (Ruscus aculeatus) improve vein strength, reduce inflammation, and promote healthy blood flow. Ayurvedic treatments are safe, have minimal side effects, and give long-term relief by balancing the body's doshas (Vata, Pitta, and Kapha).[95]

13. CONCLUSION

Varicose veins are enlarged, twisted veins caused by weak or damaged valves that hinder blood flow, mainly in the legs. Though often seen as cosmetic, they indicate chronic venous insufficiency, which can lead to ulcers and swelling. Risk factors include age, genetics, obesity, hormonal changes, and prolonged standing. Diagnosis is confirmed through Doppler ultrasound. Mild cases improve with exercise, compression stockings, and leg elevation, while severe ones may need treatments like sclerotherapy, laser, or radiofrequency therapy.

Ayurvedic medicines like horse chestnut, gotu Kola, and butcher's broom work gently and naturally to make veins stronger, improve blood flow, and reduce swelling and pain in varicose veins. They give long-term relief without many side effects and help the body heal from the inside. On the other hand, allopathic treatments like laser or surgery give faster results but can have side effects and are mainly useful in serious or advanced cases. So, I believe Ayurvedic treatment is better for long-term management and prevention, while allopathic treatment is needed when the condition becomes severe. By combining both, we can get faster recovery and better long-term results.

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