

(REVIEW ARTICLE)



Varicose veins: A systematic review of the diagnosis and treatment of varicose veins

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Abstract

VARICOSE VEINS is clinical class of chronic venous disease. Varicose veins also known as varicosities.

Varicose veins are tortuous, twisted, enlarged veins, dilated veins most commonly located on the lower extremities. The diseases also show various associated symptoms which worsens the condition of the varicose veins. The ascendancy of varicose veins vary. This review articles deals with brief introduction regarding the etiopathogenesis of varicose veins associated with key word cause symptoms, treatment, risks factors, management, complications, conclusion and reference.

Varicose veins in the lower limb are affect at least a third (30%) of the population. such a condition that increases pressure on the legs veins such as obese, lack of exercise, pregnancy, hormonal fluctuation, smoking etc.

Researchers report that a mild care of varicose veins does not usually require a doctor care, discomfort can be relieved with at home treatment and various alternative remedies, such as color therapy, diet and supplements, herbal therapy exercises, yoga, homeopathy and hydro therapy etc.

Keywords: Varicose veins; Venous; Therapy; Treatment

1. Introduction

A chronic venous disorder is a clinical condition characterized primarily by weakness within the vein wall and associated with valvular dysfunction and venous reflux. Varicose veins are tortuous, twisted, enlarge vein dilated when mast commonly located on the lower extremities. Chronic venous insufficiency (CVI) of the lower limb is a syndrome that includes all the signs and symptoms occur-ring due to persistent venous hypertension. Patients present with a spectrum of symptoms including prominent leg veins, heaviness pain, itching, swelling, muscle cramps discoloration and ulceration. They on usually shows up red and bluish spidery network on leg. These happen because blood pool in the veins if there any disorder in the valves back pump upward. There are three types of Varicose veins: spider veins, thread veins and matted veins are all terms use to describe telangiectasia.

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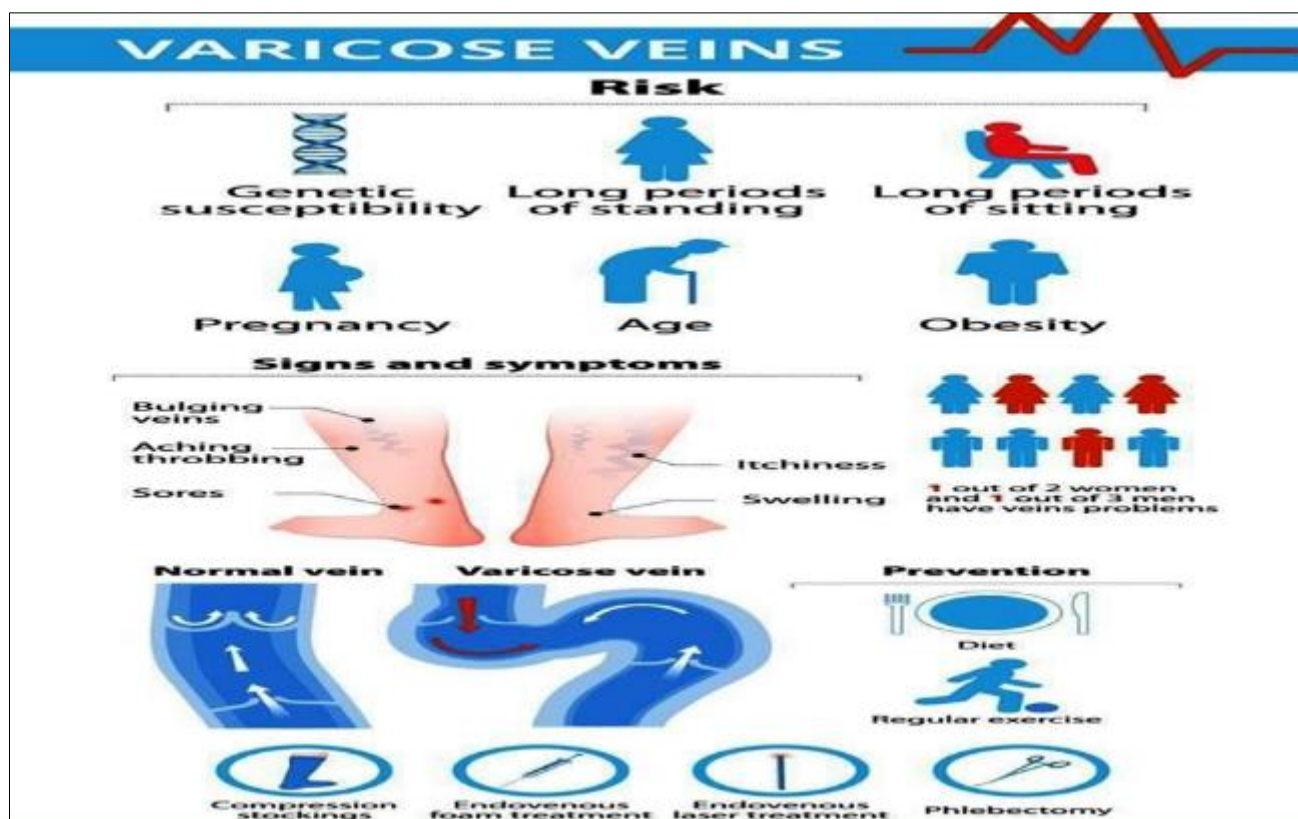


Figure 1 Sign and symptoms

1.1. Definition

Varicose veins are tortuous, enlarged, palpable usually blue or dark purple in the subcutaneous tissue of the legs ankle and are obtained easily visible all of these veins contain one - way valves you to ensure that the blood flows towards the heart, when their valves are usually incompetent so that reflux of blood occurs, And it results in venous hypertension, which can cause symptoms.

2. Treatment

It is not yet clear just how the various treatments will fit into the management of varicose veins. It may well be that some are more suitable for certain kinds of patients (for example, those with large varicosities Or obese legs), and patients may have personal preferences. It is unlikely that most specialists will offer all The possible treatment modalities, but they ought to be able to give good advice about treatment choices And to provide a range of options. The table shows some of the considerations that may guide the choice of treatment

2.1. Physical therapy

Exercise and Yogasans Increase the muscle strength, stimulate the flow of Blood and enhance the circulation. This relieves Pain and other complications and thus promotes Healthy veins. Sarvangasana, Halsana, Pawan Muktasana are some the vitalizing and effective Yogasans for reducing the complications resulting From Varicose veins. In addition to this, the simple Everyday activities such as walking, cycling, Swimming, etc. help toning the muscles. The elevation of the legs using pillows or any other Props overnight or for a few hours in the day time Is recommended as it helps in better flow of blood. Massage therapy in which the tension is applied onto the muscles in the upward direction of the legs Using oils such as citrus oils, olive oil, mustard oil, Castor oil etc. also results in good circulation and Proper drainage of blood

2.2. Compression therapy

The therapy uses the Special type of compression stockings which Constricts the dilated veins by creating pressure on Surface of the calves. Therefore, there is decrease in The passage of the veins which in turn results in Increased blood movement towards the heart

3. Non-surgical treatment

3.1. Sclerotherapy

Spider veins or angioectasis is Treated using this technique. The technique Involves use of sclerosing agents such as Sodium salicylate, polidacanol, chroamted Glycine which is injected using small needles. The treatment is accompanied with compression Stockings to be worn after the sclerotherapy so As to constrict the treated vessels. Side effects to This treatment include scars at the site of Injection, neovascularization (formation of Petite veins which may take a couple of months To year to disappear), swelling and small ulcers (in severe cases)

3.2. Laser treatment

Laser treatment sends strong bursts of light onto the vein, which makes the vein slowly fade and disappear. No cuts or needles are used.

3.3. Ultrasound guided foam sclerotherapy

The Method involves the damaging of the Endothelial layer of the vein so as to create a Blockage and scar formation in the dilated Veins. The sclerosing agent here is in the form Of foam as it provides larger surface area on the Wall of the veins. The side effects to this Treatment were bubble embolism and Thrombophlebitis.

3.4. Endothermal ablation

The treatment Involves use of energy from radiofrequency and Lasers to fasten the affected veins. These Treatments ensure a rapid recovery. It includes Two of the following methods:

The technique of endogenous RFA has been available since 1998; it delivers thermal energy from a bipolar catheter to the insufficient veins. The advantages of RFA include low complication rate, reduced pain, high vein occlusion rates, and early return to work and normal activities. The affected veins are heated by using the bipolar generator and inducing radiofrequency catheter into it along with sheath able electrodes. This method is carried out at the temperature of 85 ± 3 °C.

3.4.1. Radiofrequency ablation

The technique of pendovenous RFA has been available since 1998; it delivers thermal energy from a Bipolar catheter to the insufficient veins. The advantages of RFA include low complication rate, reduced Pain, high vein occlusion rates, and early return to work and normal activities. The affected veins are Heated by using the bipolar generator and inducing radiofrequency catheter into it along with sheath Able electrodes. This method is carried out at the temperature of 85 ± 3 °C.

3.4.2. Endovenous Ablation

The method involves. The closure of the vein by placing the catheter Through the saphenous vein at the Saphenofemoral junction (under the knee) and Passing the laser fiber through it. This method Is 98% successful method to cure the venous Insufficiency. Complications observes were Stiffness in the limb, pain and bruising 2, 4, 7 Surgical Treatments:

4. Surgical treatment

4.1. Vein stripping

This is a surgical technique in Which the affected veins are treated by insertion Of special wires made of any suitable material By providing a tear onto the saphenous vein so As to —strip|| the veins. The leg is operated by Giving general anesthesia and known as Bilateral surgery. Bleeding, bruising, infections Maybe observed as side effects 2, 8

4.2. Ambulatory phlebectomy

The method in Which the superficial veins are removed by Performing incisions in the skin. The procedure Is performed on the out patients by the Dermatologist. The compression socks are Continued to be worn after the surgery for some Period of time. Temporary swelling and Inflammation may be observed.

5. Neutral treatment

5.1. Horse chestnut seed extract

Horse chestnut seed extract scientific name *Asculus hippocastanum* family hippocastanaceae. Standardized horse chestnut seed extract by mouth can reduce some symptoms of poor blood circulation, such as varicose veins, pain, tiredness, swelling in the legs, itching, and water retention. But it might be less effective than maritime pine bark for reducing leg swelling and cramps. Horse Chestnut Seeds Extract: Europe and Germany have been the users of the horse chestnut Seed extract for the management of the Chronic venous insufficiencies. Contents of the horse Chestnut seed extract include aescin, tannins, Flavanoids, quinines, sterols and some fatty acids, Coumarins and scopolin. Of these, aescin is the Most active constituent of the horse chestnut seeds And comprises about 16-20%. It Also decreases the inflammation and edema.which shown the enhance in flow and blood pressure. The extract have the antioxidant Properties which help in toning the veins, reduce The vascular permeabilityand enhance the venous Return. Many oral and Topical formulations have been.



Figure 2 Horse Chestnut Seed Extract

5.2. Gotu kola

Gotu kola extract from whole plant of *Centella asiatica*. Family umbelliferae. Gotu kola contains achemical called triterpenic fraction of *Centella asiatica* (TTFCA). Which have mode of action anti inflammatory, diuretic, antiseptic, leprosy, skin eruptions. Having stronger veins means having fewer varicose veins. Collagen and elastin are also elements of healthy skin that we lose as we age. These facts may provide added reason to believe that gotu kola can help your skin look healthier.

However, the efficacy of gotu kola for treating varicose veins has not yet been established by science. Gotu kola may also help with venous insufficiency by reducing swelling and improving blood flow.

Venous insufficiency is a medical condition in which your blood has a hard time flowing properly. It can be caused by varicose veins and can also contribute to the unsightliness of these veins.



Figure 3 Gotu kola

5.3. Apple cider vinegar

Apple cider vinegar is also known as raw grated apple extracted from fruits of *Malus pumila*. Family Rosaceae which have mode of action apple cider vinegar is used in treatment of Varicose veins and helped in providing the relief from the pain irritation, ulceration, pigmentation, edema, cramps and itching. While apple cider vinegar is known to help protect your body's cells against free radicals and improves blood flow and circulation in the body, no studies have shown that apple cider vinegar has a positive effect on varicose veins. The doctor has gives advice to applied apple cider vinegar on their varicosities for 30 minutes twice a day, in the morning and evening, for one month. It shows that there reduce the pain, edema, itching, pigmentation, fatigue.



Figure 4 Apple Cider Vinegar

5.4. Butcher broom

Butcher Broom extracted from root of *Ruscus aculeatus*. Family Liliaceae mode of action anti-inflammatory, vasoconstriction, antihemorrhagic. These plants contain active constituent steroidal saponins, neoruscogenin and Ruscogenin. other chemicals steroidal saponins, sterols, triterpenes, coumarins glycolic acid, tyramine and flavonoids etc. People use butcher's broom for poor circulation that causes the legs to swell. It is also used for swelling of the arms, varicose veins, and other conditions, But there is no good scientific evidence to support these uses.



Figure 5 Butcher Broom

5.5. Garlic

Synonym: Lasan

Biological source: Garlic consists of ripe bulbs of *Allium Sativum*, belonging to family Liliaceae

Chemical constituent: Garlic contains carbohydrates, proteins, fats, mucilage and essential oil (volatilesir). The volatile oil is the main active constituent. It contains allicin,

Garlic is an excellent herb for reducing inflammation and the symptoms of varicose veins. It also helps break up harmful toxins in the blood vessels and improve circulation. Slice up six garlic cloves and put them in a clean glass jar Extract the juice from three oranges and add it to the jar. Also add two tablespoons of olive oil. Let the mixture sit for about 12

hours. Shake the jar and then put a few drops of the solution on your fingers. Massage the inflamed veins with the solution in a circular motion for 15 minutes. Wrap the area with a cotton cloth and leave it on overnight. Repeat daily for several months, Also, include fresh garlic in your diet.



Figure 6 Garlic

5.6. Amla

Amla is obtained from dried as well as fresh fruit pericarp of the plant *Emblica officianalis* Gaertn. It belongs to the family Euphorbiaceae and is rich in vitamin, iron, and calcium. Hence, it has a powerful antioxidant activity. This activity of Amla is dependent upon the chemical constituents such as emblicanin A and B, punigluconin, and pedunculagin. It is also said to have anti-inflammatory action due to the presence of a high amount of ascorbic acid. Indian gooseberry, also known as amla, is a rich source of vitamin C and antioxidants that can help improve blood circulation and reduce inflammation.

Drink amla juice daily or apply a paste of amla powder and water to the affected area.



Figure 7 Amla

5.7. Tomato

Tomato is obtained from the fruit of *Solanum lycopersicum*, derived from two wild ancestor species, *Solanum pimpinellifolium* and *Solanum cerasiforme*. Treating varicose veins with tomato is quite easy and absolutely can be done at home by yourself. So, how to cure varicose veins with the help of tomato? There are two options for you as following:

Apply the fresh tomato on the skin. Make sure that the tomato is washed under pure water first. Slice it into some thin slices and apply straight on the varicose veins skin. Use a layer of cloth to hold it for around 4 hours. Regularly change

the tomato 3-4 times per day. It is recommended to do at night for the best result Some stitches may happen but no worry it's just the way tomatoes are affecting your veins.



Figure 8 Tomato

5.8. Grapes seeds extract

Grapes seed extracted from seeds of *Vitis vinifera* belongs to family Vitaceae. It contains powerful antioxidant compounds called oligomeric proanthocyanidins (OPCs), which have been found in lab and animal studies to make blood vessels more elastic and also less likely to leak fluids that cause the leg swelling often associated with varicose veins. In addition to solving the problem of varicose veins with antioxidant activity, grape seed extract also possess properties to protect skin cells, inhibit enzymes that destroy collagen under the skin that cause premature aging, strengthen capillaries, promote good circulation, efficiently bring nutrients to the skin. The drug Helps in dilating the constricted blood vessels, Capillary permeability and reducing the blood Pressure to the normal range. It was also found to be Helpful in reducing the swelling itching and pains caused due to vericose veins.



Figure 9 Grapes Seeds Extract

5.9. Citrus fruit

It is a known fact that the entire family of citrus fruits, lemon, sweet lime, orange, and grapefruit are loaded with excellent nutrients and vitamins to keep our body in good shape. But how many of us are aware that antioxidants present in these tangy citrus fruits can inhibit free radicals, which has a great potential to damage blood capillary vessels. Abundantly available, these delicious citrus fruits can be the savior and prevent varicose veins. Make it a point to include it in your daily diet.



Figure 10 Citrus Fruits

5.10. Ginger

Ginger are extracted from Rhizome (under ground stem) of *Zingiber officinale* belongs to family Zingiberaceae. Mode of action relief from rheumatoid arthritis (RA), osteoarthritis, menstrual pain, upper respiratory tract infections, cough, respiratory problems, migraine headache, bronchitis, and diabetes. Fibrin, the agent responsible for the veins to get hardened and lumpy, is present in blood vessel and offers resistances to blood circulation. Ginger, one of the pungent herbal medicines, has the super ability to dissolve fibrin and reinstate blood circulation in vessels. Remember it is not an easy task to breakdown fibrins and it requires powerful food such as ginger to accomplish. It should be noted that ginger delivers the most desirable effect when it is consumed in its fresh form.



Figure 11 Ginger

6. Prevention of varicose veins

6.1. Exercise

The exercise is an essential part to maintain circulation. This helps preventing and managing Varicose veins. Regular exercise like walking, cycling, swimming and water exercise can help improve blood flow, strengthen vein and reduce swelling.

There are some yoganasan they are known to have wonderful effect like Talasana, Utkatasana.

6.2. Do not sit or stand for long periods

This can lead to the pooling of blood in the leg, making Varicose veins worse.

6.3. Wear compression stocking

You must wear compression stockings, compression stockings are specially designed to help improve blood circulation in the entire leg by applying gentle pressure to the veins.

They can help to reduce swelling and discomfort.

6.4. Maintain a healthy weight

Being average weight of obese puts extra pressure on the veins in the legs, making it more likely to develop varicose veins.

Maintaining a healthy weight through a balanced diet and regular exercise and help to reduce risk and improve overall circulation.

Follow a healthy and wholesome diet with fresh fruits and vegetables and fibres.

6.5. Practice and relaxation techniques

You can see, stress can worsen any health condition, so it's essential to find ways to relax and reduce tension.

Conscious yogic relaxation techniques like Nispanda bhava and shavasana can reduce stress levels and improve circulation.

6.6. Anitya bhava

Anitya bhava is a technique that involves thinking about the impermanent nature of everything in life you have to remember every day that every thing changes with time. This practice helps you reduce attachment to physical appearance and accept your condition. This will reduce your emotional stress.



Figure 12 Compression Socks

7. Pathophysiology

Venous pressure in the lower limbs is dependent on the proper functioning of the normal ability of the venous system and calf muscles to return blood, the absence of an upstream venous obstruction, and inflow via the arterial system. Failure of these mechanisms can lead to venous hypertension. CVI of the lower limb develops due to several reasons, including valvular dysfunction, venous wall dysfunction, or deep venous hypertension secondary to proximal venous obstruction. Primary valvular insufficiency develops due to structural and intrinsic biochemical change in the vein wall, secondary venous insufficiency develops due to venous thrombosis.

8. Contraindications

A known allergy to the sclerosant, severe systemic disease, acute superficial or DVT or severe arterial insufficiency affecting the same leg, and pregnancy. Relative contraindications are bronchial asthma and allergic diathesis, known

thrombophilia, a documented history of DVT or arterial insufficiency, or degenerative complications of diabetes affecting the same leg.

9. Complications

Although properly performed sclerotherapy rarely leads to complications, a series of adverse events can occur: allergic reactions (from minor reactions to anaphylactic shock), excessive sclerosing reactions (superficial thrombophlebitis), extensive thrombosis spreading to the deep veins (thromboembolism), orthostatic collapse, transient visual disturbances especially in patients with migraine (foam sclerotherapy), skin necroses or nerve damage (paravascular injection), and extended necroses (intra-arterial injection). The most common side effect is pigmentation (up to 10%), the risk of which can be reduced by performing micro thrombectomy

Abbreviations

- CVI – (chronic veins insufficiency),
- DVT – (Deep vein thrombosis)

10. Conclusion

All of the medication covered in this study play a significant functions in the treatment of Varicose veins. The suffering patient from Varicose veins usually how to under undergo through various Complex treatments, surgical or non-surgical, that Involves number of intricate processes and other Complications. These drugs were found to have all those properties Which help in the treatment of the complications Related to the varicose veins.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors have known conflict of interest to declare.

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