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Clinical assessment of varicose veins patients undergoing surgery

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Abstract

Varicose veins and their associated symptoms and complications constitute the most common chronic vascular disorders leading to surgical treatment. The term varicosity is generally applied to elongated, tortuous, pouched, thickened, inelastic and friable vessels which have permanently lost its vascular efficiency. This variation in the definition of varicose veins has led to wide discrepancies in its incidence reported in the literature. From the reported literate findings the current study was planned to study the different clinical presentations of varicose veins and find out the incompetence in lower limb varicose veins.

The current study was planned on the patients with varicose veins of lower limb who had attended Vardhman Institute of Medical sciences, Pawapuri in surgery department From Feb 2018 to July 2018. Diagnosis was further confirmed with Duplex ultrasonography. After a through history taking, 25 patients were included in this study. The patients underwent routine investigations. A treatment course was decided for the patients depending on their clinical and investigational profile.

The data generated from the present study concludes that most of the patient came to the hospital because of pain and other complications, rather than cosmetic purpose. The patients were in the occupation which required standing for long time had the higher of varicose vein. Severity of the symptoms is not proportional to the duration of varicose veins. The involvement of long saphenous vein is more common than the short saphenous vein. Majority of the patients had long saphenous vein involvement and had perforator incompetence indicating advanced hemodynamic malfunctions. Clinical examination or assessment was almost confirmative in diagnosis of the disease.

Keywords: varicose veins, surgical treatment

Introduction

Varicose veins are superficial veins that have become enlarged and twisted. Typically they occur just under the skin in the legs. Usually they result in few symptoms but some may experience fullness or pain in the area. Complications may include bleeding or superficial thrombophlebitis. When varices occur in the scrotum it is known as a varicocele while those around the anus are known as hemorrhoids. Often there is no specific cause. Risk factors include obesity, not enough exercise, leg trauma, and a family history of the condition. They also occur more commonly in pregnancy. Occasionally they result from chronic venous insufficiency. The underlying mechanism involves weak or damaged valves in the veins. Diagnosis is typically by examination and may be supported by ultrasound. In contrast spider veins involve the capillaries and are smaller [1].

Treatment may involve life-style changes or medical procedures with the goal of improving symptoms and appearance. Life-style changes may include compression stockings, exercise, elevating the legs, and weight loss. Medical procedures include sclerotherapy, laser surgery, and vein stripping. Following treatment there is often reoccurrence [2].

Varicose veins are very common, affected about 30% of people at some point in time. They become more common with age. Women are affected about twice as often as men. Varicose veins has been described throughout history and have been treated with surgery since at least A.D. 400 [3].

Traditionally, varicose veins were investigated using imaging techniques only if there was a suspicion of deep venous insufficiency, if they were recurrent, or if they involved the saphenopopliteal junction. This practice is now less widely accepted. People with varicose veins should now be investigated using lower limbs venous ultrasonography. The results from a randomised controlled trial on patients with and without routine ultrasound have shown a significant difference in recurrence rate and reoperation rate at 2 and 7 years of follow-up [4].

Varicose veins are more common in women than in men and are linked with heredity. Other related factors are pregnancy, obesity, menopause, aging, prolonged standing, leg injury and abdominal straining. Varicose veins are unlikely to be caused

by crossing the legs or ankles. Less commonly, but not exceptionally, varicose veins can be due to other causes, such as postphlebitic obstruction or incontinence, venous and arteriovenous malformations [5].

Venous reflux is a significant cause. Research has also shown the importance of pelvic vein reflux (PVR) in the development of varicose veins. Varicose veins in the legs could be due to ovarian vein reflux. Whiteley and his team reported that both ovarian and internal iliac vein reflux causes leg varicose veins and that this condition affects 14% of women with varicose veins or 20% of women who have had vaginal delivery and have leg varicose veins [6]. In addition, evidence suggests that failing to look for and treat pelvic vein reflux can be a cause of recurrent varicose veins [7].

There is increasing evidence for the role of incompetent perforator veins (or "perforators") in the formation of varicose veins and recurrent varicose veins. Varicose veins could also be caused by hyperhomocysteinemia in the body, which can degrade and inhibit the formation of the three main structural components of the artery: collagen, elastin and the proteoglycans. Homocysteine permanently degrades cysteine disulfide bridges and lysine amino acid residues in proteins, gradually affecting function and structure. Simply put, homocysteine is a 'corrosive' of long-living proteins, i.e. collagen or elastin, or lifelong proteins, i.e. fibrillin. These long-term effects are difficult to establish in clinical trials focusing on groups with existing artery decline. Klippel–Trenaunay syndrome and Parkes–Weber syndrome are relevant for differential diagnosis. Another cause is chronic alcohol consumption due to the vasodilatation side effect in relation to gravity and blood viscosity [8].

A number of vein problems are related to varicose veins, such as telangiectasias, spider veins, varicoceles, and other vein problems [9].

Telangiectasias

Telangiectasias are small clusters of blood vessels. They're usually found on the upper body, including the face. These blood vessels appear red. They may form during pregnancy and often are found in people who have certain genetic disorders, viral infections, or other medical conditions, such as liver disease. Because telangiectasias can be a sign of a more serious condition, see your doctor if you think you have them.

Spider Veins

Spider veins are a smaller version of varicose veins and a less serious type of telangiectasias. Spider veins involve the capillaries, the smallest blood vessels in the body. Spider veins often show up on the legs and face. They usually look like a spider web or tree branch and can be red or blue. They usually aren't a medical concern.

Varicoceles

Varicoceles are varicose veins in the scrotum (the skin over the testicles). Varicoceles may be linked to male infertility. If you think you have varicoceles, see your doctor.

Other Related Vein Problems

Other types of varicose veins include venous lakes, reticular veins, and hemorrhoids. Venous lakes are varicose veins that appear on the face and neck. Reticular veins are flat blue veins often seen behind the knees. Hemorrhoids are varicose veins in and around the anus.

Varicose veins and their associated symptoms and complications constitute the most common chronic vascular disorders leading to surgical treatment [10]. The term varicosity is generally applied to elongated, tortuous, pouched, thickened, inelastic and friable vessels which have permanently lost its vascular efficiency. This variation in the definition of varicose veins has led to wide discrepancies in its incidence reported in the literature. From the reported literature findings the current study was planned to study the different clinical presentations of varicose veins and find out the incompetence in lower limb varicose veins.

Methodology

The current study was planned on the patients with varicose veins of lower limb who had attended Vardhman Institute of Medical sciences, Pawapuri in surgery department From Feb 2018 to July 2018. Diagnosis was further confirmed with Duplex ultrasonography. After a through history taking, 25 patients were included in this study. The patients underwent routine investigations. A treatment course was decided for the patients depending on their clinical and investigational profile. All the patients were informed consents the aim and objective of the present study was conveyed to them. Approval of the institutional ethical committee was taken prior to conduct of this study.

Following was the inclusion and exclusion criteria for the present study.

Inclusion criteria

1. Patients with unilateral and bilateral varicose veins in lower limbs
2. Both male and female patients are included.

Exclusion criteria

1. Lower limb varicose veins with deep vein thrombosis.
2. Lower limb varicose veins with pregnancy.
3. Lower limb varicose veins with abdominal mass.

Results & Discussion

Varicose veins of the lower limb are the most common peripheral vascular disease of mankind. The term varicose is derived from Latin word ‘varicose’, which means dilated. Varicose vein by definition means dilated, elongated and tortuous vein. In developed countries patients turn up to treatment for cosmetic reasons, however in our Indian scenario it is the complications and not the cosmetic reasons that bring the patient to the doctor. The data was generated from the 25 patients undergoing the varicose veins surgery and discussed with the already reported findings.

Table 1: Basic Information

Parameter	No. of Cases
Total No. of Cases	25
Age	
20-30 years	3
31-40 years	9
41-50 years	8
51-60 years	3
60 above	2
Limb Involved	
Left	14
Right	10
Bilateral	1
Symptoms:	
Prominent vein and pain	19
Itching and pigmentation	2
Ankle edema	3
Pain and ulceration	1
Type of venous system involved:	
▪ Long saphenous system	10
▪ Long saphenous +incompetent perforators	8
▪ Short saphenous system	4
▪ Both long and short saphenous veins	3

Table 2: Surgical procedure performed

Parameter	No. of Cases
Saphenofemoral flush ligation and ligation of anatomical constant tributaries at their termination along with stripping of long saphenous vein by using intraluminal stripper.	11
Perforators were identified sub-fascially and ligated in addition to the above procedure	8
Saphenofemoral and saphenopoplitialflush ligation with stripping of both long and short saphenous vein	2
The saphenofemoral, saphenopoplitial flush ligation with stripping of long and short saphenous vein and sub-fascial ligation and excision of incompetent perforators were performed.	1
Saphenopoplitial flush ligation with stripping of short saphenous was done after ligating the tributaries	2
Saphenopoplitial flush ligation with sub-fascial ligation of perforators	1
Total	25

Disease of the venous system is a major problem affecting western societies resulting in considerable morbidity in the population and cost to the health services. Also, in many countries, varicose veins are probably the commonest disorder presenting to the general surgeons.

The surgical treatment of varicose veins can be achieved in different ways like:-

i) Trendelenburg's operation + stripping + phlebectomies of remaining varicosities.
ii) Trendelenburg's operation + stripping + sub fascial ligation.
iii) Sub-fascial ligation.
iv) Endovascular laser treatment (EVLT).
v) Transilluminated powered phlebectomy (TIPP).
vi) Radio-frequency ablation (RFA) waves to close the varicose veins.
vii) Catheter-assisted ablation of veins.

The majority of the cases are from 31 to 50 years of age group. These findings correlate well with the findings of Shankar *et al*. [11] The reason for the highest incidence of varicose veins at this age might be due to excess physical activities in man's life. [12] The incidence is less before 20 years which can be because of greater elasticity of skin and veins and active muscular movement. The hydrostatic pressure within the venous system gets increased when the person attains his full height and hence, the frequency increases after puberty [13].

The use of color Doppler is a valuable supplement to clinical examination for effective treatment of varicose veins and its use is strongly recommended to prevent recurrences and reduce morbidity as it is effective tool in detecting venous incompetence. SP junction is highly variable and should always be marked pre-operatively Using Doppler. The outcome of cases of primary varicose veins depends on a thorough and complete clinical examination and duplex scan by an experienced radiologists.

Malhotra *et al*, [14] (1972) in their study comprising 677 patients from both North and South India had an age range of 18-65 years. In this study series male to female ratio was found to be 2.5:1. Malhotra *et al* (India) did not record a single case of female patients. Burkitt *et al*, [15] (India) showed a ratio of 1.5:1. Leipnitz *et al*, [16] in Germany recorded a ratio of 1:2. The decreased occurrence of disease in females at our set up may be due to the fact that our middle class and lower class women are not much worried about the cosmetic appearance. Secondly the women may be resistant to complications of varicose veins probably due to hormonal influence or less average height compared to male which has a direct impact on venous hypertension or less violent muscular activity.

In study conducted by Tuchsen F *et al*, [17] men working mostly in a standing position, the risk ratio for varicose veins was 1.85 [95% confidence interval (95% CI) 1.33-2.361 in a comparison with all other men. The corresponding risk ratio for women was 2.63 (95% CI 2.25-3.02).Thus Working in a standing position is associated with subsequent hospitalization due to varicose veins for both men and women.

Varicose veins are treated with lifestyle changes and medical procedures. The objectives of the treatment are to alleviate the symptoms, prevent complications and improve the appearance. In order to prevent the appearance of varicose veins, we can note that some risk factors are uncontrollable. Among these factors we can cite the family history because we cannot intervene on the genetic factor. Also, age as a risk factor is a factor that cannot be addressed. The same applies to sex or woman during pregnancy. On the other hand, it is possible to act on the overweight factor for example as an aggravating factor. Mainly, the best prevention remains the lifestyle.

Lifestyle changes are often the first treatment for varicose veins. These changes can prevent varicose veins from getting worse, reduce pain and delay the onset of varicose veins. Prevention cannot usually prevent varicose veins from forming. However, this can prevent those who are already

getting worse. Adequate measures can prevent other varicose veins from forming.

Complications of the varicose vein after surgery are very rare and include - wound infections were the major complications and treated meticulously. Apart from surgery sclerotherapy, foam therapy and laser endoluminal ablation are the available treatment for varicose veins. However, surgery is the only treatment with long-term effectiveness because surgical method of flush ligation with vein stripping will maintain the competency of venous valves for longer duration and there will be less chances of recurrence in post-surgical cases.

Conclusion

The data generated from the present study concludes that most of the patient came to the hospital because of pain and other complications, rather than cosmetic purpose. The patients were in the occupation which required standing for long time had the higher of varicose vein. Severity of the symptoms is not proportional to the duration of varicose veins. The involvement of long saphenous vein is more common than the short saphenous vein.

Majority of the patients had long saphenous vein involvement and had perforator incompetence indicating advanced hemodynamic malfunctions. Clinical examination or assessment was almost confirmative in diagnosis of the disease.

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