

## A REVIEW ON VARICOSE VEIN INTO ULCER

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### Abstract:

Varicose ulcers are the chronic wounds caused by the venous valves. The venous valves allow the blood flowing in backward direction and increases the pressure in the veins. It leads to varicose ulcer that occurs in the medial side of the leg with irregular edges in appearance. The improper circulation of blood in the legs affects the veins and causes severe pain when they turn to ulcer wounds. Lack of medical attention creates open wounds in the area of the ankle, backside of the leg, etc., . The treatment is based on the damaged tissues of the wound. Based on the tissues the doctors start their procedure to heal the wound. This survey paper examines the stages of varicose ulcer, classification, causes of varicose ulcer, identification of tissues, treatment.

**Keywords:** Varicose Vein, CEAP, Chronic Wound.

### Introduction

Varicose veins most commonly affect females at the time of pregnancy due to their increased body weight. It affects not only females, people who are overweight than their body mass index(BMI), above 40 years of age, obesity, standing for a long time in working area, heredity consuming alcohol, etc., It mainly affects lower extremities in the body[1]. Varicose veins are not properly treated which leads to cosmetic problems. Such as swelling of legs, ulcer wounds. It needs surgery for further medications. The life quality was very low when compared with other people[2]. Varicose veins are comes under chronic venous disease which consists of reticular veins, spider veins, etc,. It is identified by using ultrasound, doppler and therapies. Vascular disorder leads to pigmentation of skin patches around the affected areas. The melanin content of the blood causes pigmentation. Leg ulcer is controlled by compression therapy. In worst cases surgery is needed .It is controlled by proper exercise, balanced diet, reduction of weight, etc,. Patients who are hospitalized by pulmonary embolism leads to death without any reason [3]. Varicose ulcer affects people who are in the occupation like teachers, traffic police,

daily wages in supermarkets and construction sites etc.,. Varicose veins are purple, blue in color means veins turn into varicose ulcers [4] and become more painful which leads to tissue damage and clotting of blood shown in below figure 1. There are two types of criteria in varicose ulcers. They are i) Inclusion ii) Exclusion. Inclusion criteria includes the patients with the symptom of venous ulcer, ache, bleeding, skin discoloration and the age greater than 18. Exclusion criteria include the patients with the symptoms of thrombosis in veins, and pregnant ladies leads to vascular disease [5]. Before starting the treatment doppler is taken for the assessment of damaged tissue by the doctors. This survey paper gives the detailed description of stages, classification, causes, treatment of varicose ulcer.



Figure 1 : Varicose Ulcer

## **STAGES OF VARICOSE ULCER**

### **Stage 1 (Reticular veins or Spider veins)**

The veins are blue, purple in color and look like a spider web in nature. In this stage the patient has no pains in the veins so it is not a serious issue. If it is not treated properly it changes to varicose veins. It occurs due to obesity, imbalance hormone levels [6].

### **Stage 2 (Varicose Veins)**

The veins are dark purple in color and bulging in nature with twisted veins. It occurs in legs and feet. The people who are standing for a long period of time experience more pain and it leads to bleeding of blood from the veins. The color changes in the veins resulted in hardening

and heaviness of the legs. The hardening of veins is the main symptom of chronic venous insufficiency disease [7].

### **Stage 3 (Leg and Ankle swelling)**

In this stage the veins appear in leather like form which is brown in color. It leads to high blood pressure and vein thrombosis and experience pain while walking due to poor circulation of blood in the body. It causes heart problems, ulcer or wounds in legs and feeling itchy around the affected area of veins [8]. Leg swelling is the main cause of chronic venous disorders.

### **Stage 4 (Lipodermatosclerosis)**

The stage 4 is defined as the pigmentation of the skin or discoloration of veins. The skin is brown in color and has a rough texture like leather. The discoloration of the veins are caused by the flat tissues in the skin. In this stage the patients experience pain in the veins and cracking of veins leads to bleeding [9] .

### **Stage 5 ( Varicose Ulcer)**

The final stage of varicose veins are called varicose ulcer or venous stasis. The ulcer is in the form of open sores or wounds. The ulcers are formed due to excess of white blood cells and poor oxygen supply. The ulcer wound has yellow, green-like fluid leaking outside from the sores. The patient immediately needs medical attention for treatment [10].

### **CLASSIFICATION:**

The ceap classification was introduced by John porter in the year of 1993. Based on the ceap classification the assessment was done to find the stages of varicose ulcer. The abbreviation of ceap classification as C denotes clinical classification, E denotes Etiologic classification, A denotes anatomic classification and P denotes pathophysiology classification [11].

### **CLINICAL CLASSIFICATION:**

There are 6 types of classes in the C domain.

C0 - It denotes the initial stage of disease means no visible veins.

C1 - It denotes reticular veins or spider veins of telangiectasies that come under stage1.

C2 - It denotes varicose veins comes under stage 2

C3- It denotes edema that comes under stage 3 with no skin changes.

C4 a - It denotes pigmentation and eczema comes under stage 4 with skin changes.

C4 b - It denotes lipodermatosclerosis comes under stage 4 with skin changes.

C5 - It denotes a healed ulcer of veins that comes under stage 5 with open sores or wounds.

C6 - It denotes active venous ulcer comes under stage 5 with open sore or wound.

#### **ETIOLOGIC CLASSIFICATION:**

This type of classification is used to find the factors of varicose ulcer. In this etiologic classification Ec denotes primary factors, Es denotes some secondary factors and En denotes identification of no venous [12].

#### **ANATOMIC CLASSIFICATION;**

This type of classification is used to find the type of veins which is to be involved in the varicose ulcer. In this anatomic classification As denotes the superficial veins, Ap denotes the perforator veins, Ad denotes deep veins , An denotes no location was identified to find the veins [13] .

#### **PATHOPHYSIOLOGY CLASSIFICATION:**

This type of classification is to find the blood flowing direction in the veins. In this pathophysiology classification Po denotes obstruction, Pr denotes reflux, Pr/o denotes reflux and obstruction and Pn denotes no pathophysiology of venous [14].

#### **CAUSES OF VARICOSE ULCER:**

The main cause of varicose ulcers is vein valves and walls are weaker, hereditary, age, gender, pregnancy, obesity, hormonal imbalance, no proper exercise and balanced diet , smoking, injuries in the leg etc,. The deoxygenated blood flows back to the heart due to weaker vein valves of their gravitational force. So there is no muscle relaxation for the proper blood flow. The weaker vein walls occur due to the elasticity lose of the particular veins with changes in their lumen length and diameter. Women mostly suffers varicose ulcer due to their hormonal changes in puberty, menopause, pregnancy, birth control medications [15]. People with age above 40 normally suffer from varicose ulcer because of the elasticity of the veins. This leads to blood flowing backward in the veins. Pregnant women mostly suffer from varicose ulcers caused by the increased pressure in the region of the pelvic for the growth of the uterus. During pregnancy time the blood volume was increased for both mother and child. The improper circulation of blood, hormonal changes leads to varicose ulcer [16].

#### **TREATMENT OF VARICOSE ULCER:**

The doctors assess the varicose ulcer wound by their stages, ceap classification to start their treatment. The treatment of varicose ulcers was done in many ways. There are 2 methods. They are 1.Surgical and 2. Non Surgical.

#### **SURGICAL TREATMENT:**

In this treatment the doctors remove the affected varicose veins. The surgical treatment methods consists of i) stripping of veins ii) ligation of veins iii) ambulatory phlebectomy iv) transilluminated powered phlebectomy. The surgical invasive methods are cryosurgery, subfacial endoscopic perforator surgery(SEPS) [17].

#### **NON SURGICAL TREATMENT:**

The doctors follow some types of therapies to heal the wound of varicose ulcer. They are

i) Sclerotherapy ii) Endovenous Ablation therapy iii) Coil Embolization iv) Pharmacotherapy v) Compression therapy vi) Color therapy vii) Aromatherapy viii) Ayurveda ix) Herbal therapy x) Homoeopathy xi) Hydrotherapy xii) Yoga xiii) Reflexology xiv) Juice therapy xv) Aromatherapy [18].

#### **CONCLUSION:**

This survey paper gives a detailed description of how varicose veins turned into varicose ulcers. Based on this survey people with lack of awareness suffer from varicose veins. If they start the treatment at the earlier stages means there is an improvement in the veins to return to their normal stage. If not treated properly the varicose veins turned into varicose ulcers and needed surgery. In the future using machine learning algorithms to find the stages, tissue types, wound depth, percentage of tissues which is to be affected and type of treatment to be needed.

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