



# Research Journal of Pharmaceutical, Biological and Chemical Sciences

## **REVIEW ARTICLE**

### **A Review on Leg ulcer Stockings**

**V Parthasarathi\*, G Thilagavathi, AL Alamelu**

Department of Fashion Technology, PSG College of Technology, Coimbatore – 641 004, India.

#### **ABSTRACT**

Leg ulcers remain a major problem in the world wide and the spending reaching more than \$1 billion annually only in the United states. Current treatment options for this kind of problem the use of compression therapy by bandages and stockings. These forms of therapy can produce dramatic improvements and provide solution for the problems. This article reviews the importance, mechanism of stockings and various treatments of leg ulcer.

**Keywords:** Stockings, leg ulcer bandages, Leg ulcer treatment, Compression therapy.

**\*Corresponding author**

Email: sarathihere@gmail.com



## INTRODUCTION

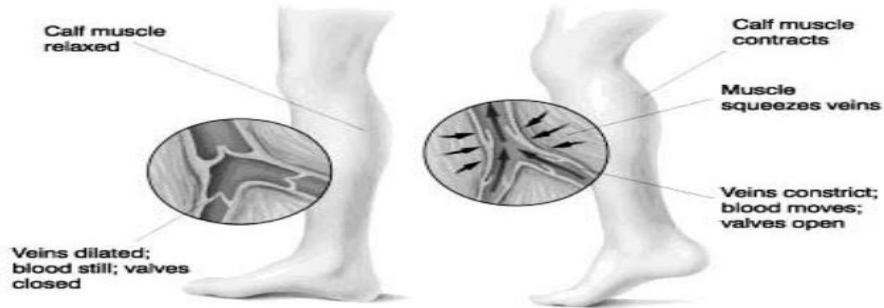
A chronic leg ulcer may be defined as an area of loss of epidermis persisting for 4 weeks or more. The majority of these leg ulcers are due to problems in the veins, resulting in an accumulation of blood in the legs. Leg ulcers arising from venous problems are called venous ulcers. Leg Ulcers are a common problem amongst the general population. Around one percent of people in industrialised countries will suffer from a leg ulcer at some time it is estimated that leg ulceration currently affects 580 000 individuals in the UK at any one time and costs approximately \$300-600 million per annum. Rates of venous leg ulcers rise sharply with age. It is estimated that in people who are over the age of 80, 1 in every 50 are affected by venous leg ulcers and the leg ulcer was found to be more common in women than men. The majority of leg ulcers are caused by venous disease and recurrence rates are high, with two thirds of patients experiencing one or more recurrences. The main treatment has been a firm compression stocking in order to aid venous return. There is a large number of compression garments available and it is unclear whether they are effective in treating venous ulcers and which compression garment is the most effective.

### Leg Ulcer

Venous leg ulcers, sometimes called varicose or stasis ulcers, are a consequence of damage to the valves in the veins of the legs, leading to raised venous pressure. Venous ulcers are characterized by a cyclical pattern of healing and recurrence. They may occur on the lower legs in those people who have poor circulation. Sores or ulcers can develop as a result of chronic widening and malfunctioning of superficial veins and the valves inside these veins. The resulting pooling of blood and fluid in these defective veins can eventually lead to damage or destruction of surrounding tissue and skin in the form of potentially painful ulcerations that are difficult to heal. Sometimes they may only cause relatively minor aching pains and discomfort. They will often not heal unless the proper flow of blood in the affected vein is restored first.

### Mechanism of Leg Ulcer

Veins are part of the blood circulation system. The veins carry blood back to the heart so that it can be pumped into the arteries. Leg veins have flexible valves inside that ensure the blood can only flow back to the heart, especially when standing and walking. The most important veins are deep inside the leg, surrounded by the muscles. During walking, the rhythmic contraction of the leg muscles squeezes these veins and actually pumps the blood back to the heart. A number of problems with the veins can cause this pump to fail and if this happens the venous blood pools in the legs on standing and walking and the blood pressure in the veins increases. Over a number of years the excessive pressure damages the skin and eventually an ulcer develops.



**Fig 1: Mechanism of leg ulcer**

**Causes**

A number of factors increase your risk of developing a venous leg ulcer including

- i) being obese this increases your risk of high blood pressure, which can damage the veins in your legs
- ii) being immobile for a long period
- iii) blood clots that develop inside the leg, which can damage the valves inside the veins. The other factors also include increased age, arterial diseases, Diabetes, arthritis, and cigarette smoking.

**Symptoms**

Venous leg ulcer is a chronic non-healing wound with broken skin and exposed tissue. Pooling of blood, increased pressure in the veins and widening of veins can cause the skin to become red, and over several years, the skin may become tan or a reddish-brown color. This can occur suddenly or may develop after many years.

The skin can also develop a type of inflammation that can cause itching, dryness, oozing fluid, scaling, open sores from scratching, and crusting or scabbing. Some people develop an area of intensely painful skin that turns red or brown, hard, and scar-like. The skin changes are initially noticeable around the ankle, but frequently occur over the shins and on the foot. The legs may feel heavy, tired, or achy, usually at the end of the day or after prolonged standing and the ankles may get swollen that are filled with fluid that temporarily holds the imprint of your finger when pressed.

**Compression Treatment**

Application of a firm compression bandage or a graduated elastic medical compression stocking to a leg with a venous ulcer is one of the most effective methods of treatment. This will lead to about 70% of ulcers healing within six months. People with more severe symptoms, such as severe edema, skin changes, or skin ulcers often need treatment with compression bandages. Compression stockings are suggested for anyone with chronic venous disease. Compression stockings gently compress the legs, which may improve blood flow in the veins by preventing backward flow through the veins of the legs. Effective compression stockings apply



the greatest amount pressure at the ankle and gradually decrease the pressure up the leg. These stockings are available with varying degrees of compression. Stockings are available in several heights, including knee-high, thigh-high, and pantyhose. Knee-high stockings are sufficient for most patients. Some stockings can cause skin irritation or pain, although proper measurement and fitting of the stockings can reduce the risk of discomfort.

### **Types of Compression Stockings**

- Circular knit stockings. These are available in nylon and cotton yarn, and modern stockings substitute elastane for rubber. One disadvantage of these stockings is their lack of stretch, which makes them difficult to put on.
- Flat-bed knit stockings. These are available in nylon, cotton and nylon-plated varieties. Nylon stockings have the least ankle pressure, cotton stockings are the most comfortable and nylon-plated stockings are the most durable. Flat-bed knit stockings are more flexible than circular knit stockings, making them easier to get on and off.
- Net stockings. These are cut out of net fabric and are seamed, so are the least cosmetically accepted stockings. They are only available as a made-to-measure item.
- One-way stretch stockings. These are available only as made-to-measure stockings and are a very heavy circular machine knit stocking [1-10].

### **Selection of Bandages & Stockins**

The physical assessment must include:

- Evaluation of the peripheral limb circulation. This is achieved by the use of a Doppler ultrasound to estimate the ankle brachial pressure index (ABPI). High levels of compression are contraindicated when there is significant arterial impairment
- Consideration of the patient's age, dexterity and any other disabilities. This will influence the type of hosiery prescribed.
- Skin assessment. It is important to check for areas of vulnerability, especially newly healed ulcers where the skin is friable. Vulnerable areas may need protection.
- Allergies. Possible allergens should be noted. Elastane, nylon and Lycra are all used in varying amounts in the production of compression hosiery. To reduce potential allergies all fibres are coated with cotton. Where a patient is shown to be allergic to one of the fibres use of a cotton tubular bandage under the stocking could prevent irritation.

### **REFERENCES**

- [1] Caroline Fife. J Wounds 2007; 19: 255-257.
- [2] Deborah A Simon, Francis P Dix. British Med J. 2004;28: 1358-1356.
- [3] Fletcher A. British Med J 1997; 315.
- [4] G Mosti, Mattaliano V. J Acta Vulnologica 2009; 7: 7-13.
- [5] Hegarty, Reid L. J Medical 2010; 14 (2): 387 – 393.
- [6] John M, Keith G. J Wounds 2005; 17(9): 243-246.



- [7] Kemmler W. J. Cond Res 2009; 1:101- 105.
- [8] Lentner A, Wienert V. Int J Microcirc Clin1996; 320-324.
- [9] Nelson EA, Dale J. J Wound Care 1995; 2: 73-76.
- [10] Weir G. J Wound Care 2008; 1: 44 – 47.