# How to avoid a "shoe lace injury" following varicose vein treatment

#### Authors:

Joana Mürmann Sara-Lyn Hool Wolfgang Mouton, MD

Department of Surgery , Spital Thun STS AG , 3600 Thun, Switzerland.

#### **Correspondence address:**

PD Dr.med. Wolfgang G. Mouton Department of Surgery Spital Thun STS AG Krankenhausstrasse 12 Switzerland

Tel: + 41 33 226 29 21 Fax: + 41 33 226 29 26 E-mail: wolfgang.mouton@spitalstsag.ch

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#### **Conflict of interest:**

The authors report no conflicts of interest.

#### Abstract

As varicose veins are being treated more frequently in an outpatient setting it is becoming increasingly important to inform patients of the potential for bandage-related nerve injuries and how to avoid them. A nerve trauma of the medial branch of the superficial peroneal nerve can be caused by the bandage applying too much pressure either primarily or secondarily due to swelling and haematoma. This type of nerve trauma is more commonly seen when (hiking) shoe laces are too tight (the so-called "shoe lace injury").

Patients undergoing varicose vein treatment need to be informed and instructed to immediately loosen the bandage when too tight in order to avoid an injury to the medial branches of the superficial peroneal nerve.

Key words: varicose veins, nerve injury

# **1. Introduction**

Procedure related nerve injuries do unfortunately occur as complications of varicose vein surgery or endovenous vein ablations [1-4]. As varicose veins are being treated more frequently in an outpatient setting it is becoming increasingly important to inform patients of the potential for bandage-related nerve injuries and how to avoid them.

## 2. Methods and patient

A 60-year old female patient presented with ankle oedema and perimalleolar skin changes due to a left short saphenous vein insufficiency and right perforating vein insufficiency (C4 according the CEAP classification). Cardiovascular risk factors were a positive family history and obesity (BMI 34 kg/m2). In duplex sonography the deep venous system was found to be competent but the left short saphenous vein and a relevant right medial calf perforator were found to be incompetent. Due to the

number of varicose side branches the procedure was performed under spinal anaesthesia. The patient was positioned on the abdomen. A left short saphenous vein high ligation and stripping was performed as well as a right perforator ligation and stab avulsions of the side branches on both legs. There were no stab avulsions on the dorsum of the feet and the varicose side branches were localized on the posterior sides of the legs.

As the patient lives in an alpine valley she wished to stay overnight. During the night she had the feeling that the bandage was too tight but did not bother to disturb the nurse. When the bandage was changed the next morning the patient complained of numbness on the dorsal aspect of the first three toes on both sides.

Clinically and later confirmed by neurological examination the deficit corresponded to an injury of the medial branches of the superficial peroneal nerve. There was no indication that the injury was caused by spinal anaesthesia, surgery or retractors. Until proven otherwise the nerve trauma was caused by the bandage much pressure applying too either primarily or secondarily due to swelling and haematoma. This type of nerve trauma is more commonly seen when (hiking) shoe laces are too tight. One year after surgery the neurological recovery on the right side is complete; on the left side the recovery is complete after two years.

### **3. Discussion/ Conclusions**

Nerve injuries as complications of varicose vein surgery or endovenous vein

ablations do unfortunately occur [1,2,4]. Especially procedure-related injuries to the saphenous or sural nerve are well known. However bandage-related nerve injuries exist as well. We presented a bandagerelated injury to the superficial peroneal nerve. This so-called "shoe lace injury" is originally described as a result of shoe laces being tied up too tight over, particularly in hiking and skiing shoes [3] (Figure 1). The "shoe lace injury" can be seen as well when a bandage sits too tight over a certain time span. Medical Research Archives, Vol. 4, Issue 2, July 2016 How to avoid a "shoe lace injury" following varicose vein treatment



**Figure 1.** On the right foot the medial branch of the superficial peroneal nerve is shown in yellow, with its cutaneous innervation in red.

Patients undergoing varicose vein treatment therefore need to be informed and instructed to immediately loosen the bandage when too tight in order to avoid an injury to the medial branches of the superficial peroneal nerve (the so-called "shoe lace injury").

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