



## Case Report

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# The Long Term Effect of Compression in Lower Limb Edema During Pregnancy: A Case Report



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### Abstract

Lower limb edema with its accompanying subjective ailments, is a frequent condition in pregnant women and in the postpartum period. In this case report, we present a case of lower limb edema in the 33rd week of pregnancy when the compression therapy (CT) initiating with compressive bandaging (CB) was applied and the further improvement by use of compression garments (CG) before and after delivery, and 3 years later.

**Keywords:** Compression therapy; Compression garments; Compressive bandaging; Pregnancy; Lower Limb Edema

**Abbreviations:** CT: Compression Therapy; CB: Compressive Bandaging; CG: Compression Garments; LLV: Lef Limb Volume; RLF: Right Limb Volume

### Introduction

Lower limb edema is increasingly frequent in gravid women during the third trimester of pregnancy [1,2]. It occurs as a result of venous hypertension mainly caused by mechanical obstruction of the venous flow in the pelvis. The unquestionable method applied in the prevention and treatment of the venous-lymphatic dysfunctions is compression therapy (CT) involving compressive bandaging (CB) and wearing compression garments (CG) [3]. Literature concerning the application of CT in pregnancy and postpartum period is scarce. In this case report we describe a woman in the 33rd week of first pregnancy with lower limb edema and the effect of CT. Written informed consent was obtained for the publication of this case report.

### Case Report

A 32-year-old woman, in her 33rd week of first physiological pregnancy was referred to our Lymphedema Clinic with lower limb edema and accompanying subjective ailments as soreness, the feeling of heaviness of legs, paresthesia, burning sensation, and nocturnal cramps. On physical examination, the swelling was localized on both legs, mainly in the dorsal region of both feet and lower legs with a pitting consistency. The Stemmer's sign (thickened fold of the skin at the base of the toes in the foot),

which is classically measured at in patients with lower extremity swelling, was positive. In ultrasonography, patency of the superficial and deep veins on both sides were found. "Beginning of chronic vein insufficiency with insufficient perforators" on the right side was described. Venous status according to CEAP classification was C3s. She had no history of thrombophlebitis, or thromboembolic events. Despite these venous disturbances, no CT during pregnancy was recommended by the consultant vascular surgeon. After physical evaluation in the Lymphedema Clinic we started the physiotherapeutic management with use of CT. In the first phase of the treatment CB (short-stretch bandages) in combination with skin care were applied every day for two weeks and the patient was encouraged to walk.

At the end of the intensive treatment circular knit compression stockings (23-32mmHg, German RAL Class II) were prescribed, wearable during day, before delivery and in the postpartum period. Circumference measurements were taken before treatment, after one day and two weeks, and one and three years after delivery. Leg volumes were calculated based on the truncated cone formula [4]. The greatest improvements with respect to the decrease in size of the swelling and changes in the consistency were observed in the first days of therapy. After one and three years, further

improvement from continuing of CG in limb volumes change were observed. The positive influence of compression on subjective

symptoms, especially pain improving quality of life was also observed. Changes in the limb volumes are presented in Table 1.

**Table 1:** Lower limb volumes before and after treatment.

Treatment Phase	Consistency	LLV	RLV	Change	Change	Change	Change
Before admission	of edema	[ml]	[ml]	LLV[ml]	RLV[ml]	%	%
Before admission	+++	3478	3395				
Intensive 1 day	++	3024	3146	-454	-249	-13	-7,9
Intensive 2 weeks	+	2997	3007	-481	-388	-13,8	-11,4
Maintenance 1 year	-	2613	2592	-865	-803	-24,8	-23,6

LLV-left limb volume; RLV-right limb volume; +++-intensity of edema.

### Discussion

Despite lower limb edema with its accompanying conditions concerns as many as about 80% of pregnant women, especially during the second and third trimesters [1] like in our presented case report, literature concerning the application of CT in the management of lower limb edema during pregnancy and postpartum period is scarce. The link between venous disease and pregnancy is well known but has rarely been described from symptomatic point of view [5]. There is also lack of qualitative data concerning bilateral lower extremity volume during pregnancy. Only few data are available on the effect of wearing CG on subjective symptoms and quality of life of pregnant women in daily practice [2,5]. In a recent study we demonstrated that chronic venous insufficiency, arterial hypertension and venous thrombosis diagnosed before pregnancy, as well as the lack of physical activity during pregnancy, contributed to the development of lower limb edema [6]. Interdependence was observed between the occurrence of edema during pregnancy and such conditions before pregnancy as chronic venous insufficiency. Immediate compression including CB with mobilization is recommended to reduce the swelling and pain in acute vein thrombosis during pregnancy [2]. It should be considered in all women with recognized edema especially with venous flow abnormalities diagnosed before pregnancy like in our patient.

The purpose of the compression use during pregnancy is to reduce edema formation and to support the mechanically impaired venous flow, which is additionally hampered by the influence of hormones on the venous wall, and functional calf muscle pump insufficiency [5]. The overloading with extravasation leads to an overloading of the lymphatics resulting in "phlebolymphedema" demonstrating a positive Stemmer sign. Wearing compression

regularly especially during physical activities, improves also the lymphatic system deficiency and quality of life reducing the swelling and leg symptoms. The level of compliance to CG wearing appears positively and significantly linked to the initial level of severity of the edema [5] like in our patient who accepted a moderate compression in daily practice for a long time.

### Conclusion

Compression during pregnancy and postpartum period in women with leg oedema is a justifiable recommendation.

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