

세포교정영양요법(OCNT)을 이용한 하지정맥 순환장애 개선 사례

조종빈

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A Case of Improvement in Venous Circulatory Disorder of the Lower Extremities Using Ortho-Cellular Nutrition Therapy (OCNT)

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ABSTRACT

Objective: The human venous system contains approximately 65% of the body's total blood volume and is strongly influenced by gravity. In particular, the veins of the lower extremities are exposed to relatively high hydrostatic pressure. Circulatory impairment in the lower-extremity veins may develop due to factors such as prolonged standing or squatting, physical inactivity, aging, and impaired venous valve function, which may lead to various symptoms of discomfort and reduced quality of life. Symptoms associated with impaired venous circulation in the lower extremities can generally be alleviated through lifestyle modification and exercise. However, for chronic symptoms, improving physiological function and supporting circulatory and metabolic processes may help alleviate them.

Case Report: This case involved a Korean woman in her 70s who experienced multiple symptoms associated with impaired venous circulation in the lower extremities. Owing to the nature of her occupation, she spent prolonged periods in a squatting position and consequently reported lower-extremity edema, pain, numbness, and muscle cramps. Accordingly, Ortho-Cellular Nutrition Therapy (OCNT) comprising *Panax notoginseng* extract, *Ginkgo biloba* extract, magnesium, and methylsulfonylmethane (MSM) was prescribed. Following the intervention, her symptoms gradually improved, with most symptoms subsiding after approximately 5 months of treatment.

Conclusion: As this report involved a single patient, the applicability of the same OCNT regimen to other individuals with lower-extremity venous circulatory disorders is limited. Nevertheless, this case suggests that an appropriate OCNT regimen may serve as a complementary approach for improving venous circulation in the lower extremities and enhancing quality of life.

Keywords Ortho-Cellular Nutrition Therapy (OCNT), Venous Circulatory Disorder of the Lower Extremities, Vascular tissue, Blood circulation, Muscle metabolism

Introduction

The venous system functions as a capacitance vascular system within the human circulatory system, containing approximately 65% of the body's blood volume and possessing a greater capacity for blood storage and distension than other parts of the circulation. Because venous pressure is relatively low, however, the venous system is highly susceptible to gravitational

effects. In the lower extremities, venous pressure may reach approximately 80–90 mmHg depending on posture, requiring the veins to tolerate a substantial pressure load. To compensate for this, veins are equipped with closely spaced valves that reduce the pressure burden and prevent retrograde blood flow, while contractions of the surrounding muscles help propel venous blood upward toward the heart, thereby supporting venous circulation.¹

Venous blood pooling in the lower extremities can occur readily as a result of prolonged standing or sitting, physical inactivity, aging, weight gain, and impaired venous valve function. The calf muscles also act as a principal muscle pump that facilitates the return of venous blood from the lower extremities to the heart; therefore, impaired calf muscle function or muscle fatigue may further exacerbate circulatory impairment by reducing effective venous return. If these conditions recur and persist over a prolonged period, symptoms including lower-

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extremity edema, calf pain, a sensation of heaviness in the legs, numbness, nocturnal cramps, and fatigue may develop, leading to discomfort in daily life and a decline in quality of life. This condition may be clinically described as Venous Circulatory Disorder of the Lower Extremities.²

Edema and pain observed in Venous Circulatory Disorder of the Lower Extremities are not merely localized symptoms or manifestations of transient fatigue. Reduced overall blood flow may contribute to impaired microcirculation, diminished oxygen delivery to tissues, and compromised vascular endothelial function, and may also be associated with muscle fatigue and inflammatory responses. Management of Venous Circulatory Disorder of the Lower Extremities generally centers on measures such as wearing compression stockings, elevating the legs, engaging in regular walking exercise, weight management, and lifestyle modification. In patients with chronic symptoms, however, it may also be necessary to consider improving microcirculation, restoring vascular and tissue function, modulating inflammation, enhancing antioxidant defense mechanisms, and supporting muscle energy metabolism.³

In this context, Ortho-Cellular Nutrition Therapy (OCNT), which supplies nutrients necessary for maintaining cellular function and supports the restoration and activation of cellular activity, has received attention as a complementary approach that may help improve the metabolic environment of vascular endothelial cells, muscle cells, nerve cells, and connective tissue. This case report aims to describe the application of OCNT in a patient with multiple lower-extremity discomforts associated with impaired venous circulation. The patient presented with lower-extremity edema, calf pain, numbness, cramps, and fatigue, and this case aimed to examine the potential use of OCNT as an adjunctive management approach for alleviating these symptoms and associated discomfort.

Case Study

1. Subject

One patient with Venous Circulatory Disorder of the Lower Extremities was included in this case report.

- 1) Name: Park OO (72 years / F)
- 2) Diagnosis: Chronic Venous Circulatory Disorder of the Lower Extremities
- 3) Onset: Approximately 2020
- 4) Treatment period: June 2024 – February 2025
- 5) Chief complaints: Lower-extremity edema, calf pain and numbness, cramps (occurring at night), heaviness, and fatigue
- 6) Past medical history: None

7) Social history: Prolonged maintenance of a squatting posture due to occupational factors

8) Family history: None

9) Present medical history and medications: Currently taking medications for hypertension, hyperlipidemia, and diabetes

2. Methods

The OCNT regimen prescribed to the patient is detailed in Table 1.

Results

In the early phase of OCNT, the patient experienced pronounced lower-extremity edema and calf pain, resulting in substantial discomfort during prolonged physical activity or walking. She also reported a sensation of heaviness and fatigue in the calves. With continued OCNT, the lower-extremity edema and numbness gradually improved, and the patient reported reduced discomfort associated with a sensation of leg distension and altered sensation.

In addition, the recurrent nocturnal cramps were markedly alleviated, reducing discomfort during sleep, while the heaviness and fatigue in the legs also improved, thereby decreasing the burden associated with daily activities and walking. Most of these symptoms had substantially and consistently improved by 5 months after the initiation of OCNT, and these improvements were maintained thereafter. The severity of the symptoms and discomfort perceived by the patient during OCNT is summarized in Table 2.

Discussion

The patient in this case was a Korean woman in her 70s who began experiencing discomfort in the lower extremities around 2020. During the interview, she reported that she was employed in retail sales at the time and that the nature of her occupation required her to remain in a squatting position for prolonged periods. She subsequently developed lower-extremity edema, calf pain, numbness, nocturnal cramps, heaviness, and fatigue, and reported that these symptoms progressively worsened over time. OCNT was therefore prescribed to help alleviate these symptoms.

To improve Venous Circulatory Disorder of the Lower Extremities, enhancement of vascular tissue function should be accompanied by normalization of microcirculation in the lower extremities. For this purpose, *Panax notoginseng* extract and *Ginkgo biloba* extract were selected. *Panax notoginseng* extract

Table 1. OCNT prescribed to the patient.

Prescription \ Months	1	2	3	4	5-7
Notoplex granules	101	101	101	101	101
Viva circu capsules	101	101	101	101	101
Magplex capsules	202	202	102	102	102
Sulfoplex PK tablet	202	202	202	002	2 tablets as needed

* Numeric notation indicates the number of packets, capsules, or tablets taken in the order of morning, afternoon, and evening. 0 indicates no intake.

Table 2. Severity of symptoms experienced by the patient during the course of OCNT. Higher scores indicate greater symptomatic discomfort, with scores ranging from 0 to 5.

Month Symptom	1	2	3	4	5	6	7
Lower-extremity edema	5	3	2	2	1	1	1
Calf pain	5	3	2	1	1	0	0
Calf numbness	4	2	2	1	1	0	0
Nocturnal cramps	5	2	2	1	1	0	0
Heaviness	4	2	1	1	1	0	0
Fatigue	4	2	1	1	1	1	1

0: No symptoms and no impact on daily activities; 1: Mild symptoms with minimal impact on daily activities; 2: Noticeable symptoms requiring minor adjustments in daily activities; 3: Symptoms significantly affect daily activities, making some tasks difficult; 4: Major difficulty performing tasks during daily activities; 5: Symptoms severely interfere with daily activities, causing substantial distress

contains saponin compounds known as notoginsenosides, which contribute to the activation of VEGFR-2, a receptor for vascular endothelial growth factor, and the PI3K-Akt-eNOS signaling pathway, which regulates vasodilation, angiogenesis, and vascular protection.⁴ In addition, notoginsenosides may help alleviate oxidative stress by activating the Nrf2/ARE pathway, which is involved in regulating antioxidant defense mechanisms. This may constitute an important mechanism for protecting vascular endothelial cells against oxidative stress.⁵

Ginkgo biloba extract is a functional ingredient known to support blood circulation and contains quercetin and kaempferol. These constituents may contribute to improving overall blood flow by increasing the levels of cAMP and cGMP, signaling molecules associated with vasodilation, and by modulating precapillary sphincters that regulate blood flow into capillaries. In one randomized controlled trial, participants who received *Ginkgo biloba* extract exhibited higher microvascular connectivity scores and greater blood flow velocity than those in the placebo group.⁶

Magnesium was also included in the OCNT regimen prescribed to the patient. Magnesium is an essential nutrient required for the utilization of ATP in cellular energy metabolism. Through its antagonistic interaction with calcium, it also plays a role in regulating muscle contraction and relaxation and further contributes to maintaining the electrical stability of cardiomyocytes.⁷ Based on these properties, magnesium was used with the aim of supporting consistent blood flow and facilitating venous return from the lower extremities to the heart through appropriate muscle contraction. Magnesium was administered as Magplex.

When Venous Circulatory Disorder of the Lower Extremities persists over an extended period, chronic inflammatory responses may develop within the vasculature, leading to tissue damage.⁸ To address this, Sulfoplex was prescribed. The main component of Sulfoplex is methylsulfonylmethane (MSM), a type of organic sulfur compound. MSM helps reduce the production of pro-inflammatory cytokines, including IL-1 α , IL-1 β , IL-6, and TNF- α , by inhibiting NF- κ B-related signaling that promotes inflammatory responses. It is also known to help suppress the generation of mitochondria-derived reactive oxygen species that contribute to inflammation.⁹ Through these mechanisms, Sulfoplex was intended to contribute to reducing the overall inflammatory response and thereby alleviate the patient's discomfort.

Following the above OCNT regimen, most of the discomfort associated with Venous Circulatory Disorder of the Lower Extremities was alleviated, and this improvement has been maintained to date. The patient also reported an overall improvement in quality of life. However, because this report is based on a single patient, there are limitations to generalizing these findings to all patients with Venous Circulatory Disorder of the Lower Extremities or those with similar symptoms. Nevertheless, this case is considered meaningful because it suggests that OCNT may serve as an adjunctive management approach for multiple forms of lower-extremity discomfort associated with impaired venous circulation. This case is therefore reported with the patient's consent.

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