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Case Report

세포교정영양요법(OCNT)을 사용해 근육통 개선을 보인 증례 보고

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A Case Report on the Improvement of Myalgia Using Ortho-Cellular Nutrition Therapy (OCNT)

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ABSTRACT

Objective: The mechanisms behind muscle pain are somewhat understood, but identifying the exact cause and starting point of the pain remains challenging. Myalgia and pain in the musculoskeletal system can serve as indicators of various diseases and can lead to significant discomfort in daily life, making it crucial to accurately identify the cause, assess the intensity of the pain, and provide appropriate treatment.

Case Reports: A Korean patient in her 50s who complained of discomfort in walking and at night due to myalgia. The patient underwent Ortho-Cellular Nutrition Therapy (OCNT) for approximately one week, using oral and topical preparations containing methylsulfonylmethane (MSM), magnesium, selenium, glucosamine, and *Panax notoginseng*. After the therapy, the degree of pain significantly improved, and after the treatment ended, the patient reported minimal discomfort, even when standing for long periods at work.

Conclusion: In this case study, OCNT significantly improved muscle pain, which helps alleviate muscle inflammation and strengthen muscle function. While this case report is limited to a single patient, it suggests the significance of personalized OCNT for individuals.

Keywords Ortho-Cellular Nutrition Therapy (OCNT), myalgia, muscle damage, inflammation response

Introduction

Pain in the musculoskeletal system is a significant indicator of various diseases and disorders. This pain can be primarily categorized into myalgia, which occurs in soft tissues such as muscles, tendons, and ligaments, and articular disorders, which arise in joint tissues. These two categories are closely related from an ergonomic and structural perspective, but most musculoskeletal pain is classified as muscle pain. Muscle pain can be further subdivided based on the site and nature of the pain, including myofascial pain, fibromyalgia, myopathy, non-articular rheumatism, tendonitis, and other conditions.[1]

Muscle pain arises from the activation of muscle nociceptors, which recognize various types of pain sensations in the muscles. These nociceptors are divided into different receptors that respond to mechanical, thermal, and other types of stimuli. In the case of myalgia, the activation of polymodal nociceptors, which can respond to all these stimuli, plays the most significant role in the development of muscle pain. The causes that stimulate nociceptors include external factors such as mechanical, thermal, chemical, and electrical stimuli and internal factors like ischemia and excessive exercise. When these factors excessively activate nociceptors, pain can occur to the extent that it disrupts daily life.[2] Through this mechanism, when muscle pain occurs, it manifests as a dull ache or cramping, and it is often difficult to pinpoint the exact starting point of the pain. Additionally, the pain can radiate to surrounding muscles, fascia, and joints, spreading to other areas.[3]

Therefore, when a patient complains of myalgia, assessing the extent of their discomfort plays a crucial role in determining subsequent actions. The Visual Analogue Scale (VAS) is commonly used to measure the severity of pain in this context. It involves drawing a 10 cm line, where the 0 cm point represents no pain, and the 10 cm point represents the most intense pain the patient can imagine. The patient is asked to mark the point corresponding to their pain level, and the distance from the 0 cm point is measured to assess the intensity of the pain. Similarly, the Numeric Pain Scale (NPS), where patients rate their pain on a scale from 0 to 10, is also commonly used. Additionally, the McGill Pain Questionnaire (MPQ), developed to assess pain, can provide a more comprehensive evaluation of pain, as it offers a multifaceted way to observe and measure the patient's pain level and is widely used.[4]

Once the severity of the patient's pain has been assessed, it is crucial to identify the underlying causes of the pain and

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provide appropriate treatment. The treatment methods can be broadly categorized into non-pharmacological treatment, pharmacological treatment, and nutrition and lifestyle management. Non-pharmacological treatments involve massaging the pain area to relax the muscles and alleviate discomfort, which the patients can easily apply. Additionally, techniques like electrical stimulation, ultrasound, and low-level laser therapy can deactivate the pain area, making it less sensitive. Pharmacological treatments may include oral medications such as anticonvulsants, muscle relaxants, and non-steroidal anti-inflammatory drugs (NSAIDs). In some cases, local anesthetics or steroids may be directly administered to the affected area. Nutrition and lifestyle management, on the other hand, may involve supplementing essential nutrients such as iron and vitamin D, correcting posture, ensuring sufficient rest, and engaging in regular exercise, all of which can contribute to symptom improvement.[1] Therefore, applying an appropriate treatment method is essential based on a comprehensive consideration of the patient's condition, lifestyle, and other relevant

The patient in this case study reported experiencing myalgia, which suddenly occurred and led to discomfort in daily life. Therefore, Ortho-Cellular Nutrition Therapy (OCNT) was administered to this patient, significantly improving symptoms. This case is being reported with the patient's consent.

Case Study

1. Subject

The case was conducted on a patient with myalgia:

1) Name: Park OO (59 years old / F)
2) Diagnosis: Pelvic myalgia
3) Time of onset: December 2024
4) Treatment period: December 22, 2024 to December 27, 2024
5) Chief complaints: Pain severe enough to cause difficulty walking, pain occurring at night
6) Past medical history: Knee arthritis, Morton's neuroma
7) Social history: None
8) Family history: None
9) Current medical history and medications: None

2. Methods

- Primary OCNT (December 22, 2024 - December 23, 2024)

· Oral medications
Sulfoplex PK tablets (303, twice a day, 3 tablets per dose)
Magplex Speed (101, twice a day, 1 sachet per dose)
Notoplex granules (101, twice a day, 1 sachet per dose)
Selenplex capsules (101, twice a day, 1 capsule per dose)

- Secondary OCNT (December 24, 2024 - December 27, 2024)

· Oral medications
Sulfoplex PK tablets (303, twice a day, 3 tablets per dose)
Magplex Speed (101, twice a day, 1 sachet per dose)
Vivacosamine capsules (202, twice a day, 2 capsules per dose)

· Topical medication
Sulfoplex Cream
Sulfoplex Stick

The patient was instructed to apply the topical medication 3 to 4 times a day, massaging the affected area to enhance absorption. Additionally, the patient continued to take the previously used Cyaplex F, Eufaplex capsules, and Viva Circu.

Results

The patient developed myalgia in the pelvic region and sought to resolve it through OCNT. OCNT was applied for approximately one week, and after the treatment, the patient reported an overall improvement in pain and a reduction in discomfort during daily activities. The progress of the symptoms felt by the patient during the OCNT period is detailed in Table 1.

Table 1. Description of discomfort experienced by the patient during the OCNT duration

December 22	The pain was so severe that the patient was unable to walk, but after the initial OCNT, the pain slightly decreased. However, the pain recurred during the night, reaching an intensity that significantly disrupted the patient's ability to sleep.
December 23	The improvement in pain was not significant, and the prescribed OCNT was continued. Among these, the patient increased the frequency of application of the Sulfoplex Stick on her own.
December 24	There was some improvement in pain, but slight discomfort remained in the pelvic muscles.
December 25	The improvement in pain was clearly noticeable, and the pain level was mild enough to be tolerable.
December 26	There was some pain, but she had no significant issues standing for about 12 hours due to the nature of her job.
December 27	She almost felt no pain and had no difficulties in daily activities.

Discussion

The patient in this case study is a Korean woman in her 50s who complained of discomfort due to myalgia in the pelvic area. However, the patient did not seek medical attention for this condition, so the exact origin or cause of the pain was not identified. During an interview at the pharmacy, it was revealed that the patient often had to stand for long periods due to her work environment and had a history of interdigital neuroma in the feet and osteoarthritis in the knee joints. It was hypothesized that the patient's work environment caused muscle strain, leading to pelvic area inflammation and subsequent pain. Therefore, the OCNT aimed to supply high-quality nutrients to assist in the recovery of the damaged muscles, enhance their function, and reduce inflammation to alleviate the pain.

Methylsulfonylmethane (MSM) regulates the inflammatory response by inhibiting the NF-κB pathway, reducing the expression of inflammation-related genes, and decreasing the production of inflammatory mediators such as cytokines. Additionally, it helps enhance antioxidant capacity by inhibiting the production of reactive oxygen species (ROS) in the mitochondria of cells. MSM is known to assist in improving arthritis and cartilage function through these mechanisms, and it has also been found to help alleviate myalgia and aid in muscle damage recovery.[5] In a randomized controlled trial, the group that took MSM over the same period showed significantly lower levels of creatine kinase, which indicates muscle cell damage, and bilirubin levels compared to the control group that took a placebo. Additionally, the total antioxidant capacity was higher in the MSM group.[6] The treatment aimed to supply MSM internally and externally using Sulfoplex PK tablets, Sulfoplex

Cream, and Sulfoplex Stick, which are rich in the aforementioned ingredients.

Magplex Speed is primarily composed of magnesium, a crucial nutrient in energy production, muscle contraction and various biochemical reactions. Numerous studies have shown that adequate magnesium intake helps protect muscles from damage and reduces delayed onset of myalgia. Particularly for individuals with high physical activity levels, it is recommended to consume approximately 10-20% more magnesium than the standard intake guidelines.[7] The two ingredients were applied throughout the entire OCNT period and are believed to be the key nutrients contributing to improving myalgia.

The topical medications used in this OCNT, Sulfoplex Cream and Sulfoplex Stick, contain methyl salicylate. When applied to the skin, this ingredient acts as a counterirritant, stimulating pain receptors to help alleviate deep tissue pain. Additionally, this stimulation induces a burning sensation, which has been shown to assist in pain relief by increasing blood flow and tissue temperature in the local area.[8] In addition, the active ingredient in Vivacosamine, which is also found in Sulfoplex Stick, glucosamine, is known to promote mild anti-inflammatory properties at the joint level and help protect the joints. Additionally, studies have shown that glucosamine reduces the accumulation of receptors for advanced glycation end products (RAGE), which trigger oxidative stress and inflammation, and support collagen synthesis, which plays a role in the flexibility and resilience of muscle tissues. Therefore, these ingredients are considered to have been beneficial adjuncts in improving muscle pain and function.

Selenplex, used to enhance muscle function, contains selenium, a trace mineral crucial in muscle formation and maintenance, as highlighted by numerous studies. Additionally, selenium deficiency accelerates oxidative damage to muscle tissues and, in severe cases, can lead to the development of muscle diseases such as Keshan disease.[10] Therefore, appropriate supplementation with selenium was aimed at supporting muscle function maintenance. Notoplex, on the other hand, is primarily composed of *Panax notoginseng*, which has been shown in studies to reduce skeletal muscle fiber atrophy and inhibit the infiltration of inflammatory cells, thereby preventing skeletal muscle damage. Furthermore, it is known to alleviate cartilage cell damage, joint degeneration, and symptoms of osteoporosis.[11] Therefore, it is believed that these ingredients helped strengthen muscle function that had been impaired by pain and inflammation.

The patient in this case study complained of sudden pelvic myalgia and showed rapid improvement within a relatively short period of one week. It is believed that the combination of the patient's regular OCNT and the additional OCNT administered had a synergistic effect, contributing to the swift recovery. Additionally, it is noteworthy that the symptoms, which had previously caused significant disruption to daily activities to the point of hindering walking, were improved to the point where they no longer had any impact after the OCNT treatment.

Nevertheless, since this case study involves a single patient, there are limitations in applying the same OCNT to all myalgia patients. However, it is significant that the OCNT, which provided appropriate nutrients tailored to the patient's condition, significantly improved the myalgia symptoms. Therefore, this case study is reported with the patient's consent.

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