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Case Report

세포교정영양요법(OCNT) 기반 면역력 및 장내 미생물 균형을 개선을 통한 다기관 증상 완화 사례

이종섭 약사
전라남도 순천시 봉화3길 14 명성온누리약국

A Case Report on Multi-System Symptom Relief through the Improvement of Immunity and Intestinal Microbiota Balance Based on Ortho-Cellular Nutrition Therapy (OCNT)

Pharmacist, Jongseop Lee
Myeongseong Onnuri Pharmacy, 14, Bonghwa 3-gil, Suncheon-si, Jeollanam-do, Republic of Korea

ABSTRACT

Objective: Childhood and adolescence are critical periods of growth in physical, physiological, cognitive, and social aspects. During this time, the formation of immune function through the supply of quality nutrition plays a vital role in maintaining health and supporting growth. Furthermore, recent studies have shown that the composition of the intestinal microbiota plays a crucial role in the development and maintenance of immune function, underscoring the importance of maintaining a balanced microbiota.

Case Report: The patient in this case study was a Korean teenage female experiencing gastrointestinal symptoms such as enteritis, diarrhea, abdominal pain, and dyspepsia, along with chronic rhinitis and frequent acute upper respiratory infections. Based on patient interviews, an overall decline in immune function and an imbalance of the intestinal microbiota were identified. Ortho-Cellular Nutrition Therapy (OCNT) was applied to promote improvement in overall symptoms, utilizing anthocyanins, fucoidan, zinc, selenium, vitamin D, *Clostridium butyricum*, and glycyrrhizin. As a result, the frequency of gastrointestinal symptoms significantly decreased, and the incidence of chronic rhinitis and acute upper respiratory infections was substantially reduced, leading to fewer hospital visits.

Conclusion: Appropriate OCNT may help improve the patient's overall immune function and restore balance to the intestinal microbiota. Since this study involves a single patient, the OCNT protocol may have limitations when applied universally. Nonetheless, the results are considered meaningful, as the individualized OCNT significantly contributed to the patient's health.

Keywords Ortho-Cellular Nutrition Therapy (OCNT), immune function, intestinal microbiota, growth period

Introduction

Childhood and adolescence are critical periods marked by multifaceted growth, including physical and physiological development such as skeletal formation, hormonal changes, and immune system maturation; cognitive growth involving abstract thinking, logical reasoning, and emotional regulation; and social development through peer relationships. Various factors influence this growth, which can be broadly categorized into direct factors—such as nutrition, infection, disease, and stress—and indirect factors, including cultural, behavioral, and socio-political environments surrounding the individual.[1]

In particular, during the growth period, the supply of high-quality nutrients plays a critical role in the overall development of children and adolescents. Although the types and sources of required nutrients may vary depending on the stage of growth, they generally include macronutrients—such as carbohydrates, proteins, and fats—and micronutrients, including vitamins and minerals. Macronutrients primarily support energy provision, physical development, and increases in height and weight, while micronutrients play essential roles in specific developmental processes such as skeletal and tissue formation, immune function, hormonal regulation, and neural development.[2]

*Correspondence: Jongseop Lee
E-mail: ljwo1108@naver.com
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In this context, the development of immune function during the growth period plays a vital role in maintaining health and supporting growth in children and adolescents. The immune system in this context refers to processes such as pathogen elimination through innate and adaptive immunity, as well as cytokine secretion. These immune activities can influence the development of cognitive function and, more broadly, the function of neurons and the brain. If the immune system fails to mature properly, excessive inflammatory responses and oxidative stress may accumulate, potentially leading to cognitive decline. Additionally, incomplete development of the self-regulating immune system may lead to allergic diseases.[3]

Additionally, recent studies have shown that the intestinal microbiota may impact the overall health, physical development, and physiological well-being of children and adolescents. The initial formation of the microbiota begins in infancy through breastfeeding, which supplies *Bifidobacterium*-based microbes and short-chain fatty acids (SCFAs). These components contribute to lowering the pH of the colon, thereby promoting the establishment of beneficial bacteria. This process is known to enhance immune function by suppressing excessive inflammatory responses and preventing intestinal permeability.[4] As described above, the relationship between nutrition, immunity, and the microbiota can significantly affect not only the maintenance of health during childhood and adolescence but also overall growth. Therefore, achieving balanced nutritional intake and proper management during the growth period is essential to support healthy development.

The patient in this case study experienced gastrointestinal symptoms, including enteritis, as well as chronic rhinitis and acute upper respiratory infections that interfered with daily life. Ortho-Cellular Nutrition Therapy (OCNT) was applied to improve these symptoms. With the patient's consent, this report aims to present a case in which symptom relief was achieved, resulting in an improved quality of daily life.

Case Study

1. Subject

This case study involves a patient with multiple concurrent conditions.

1) Name: Yang OO (10 years old, F)
2) Diagnoses: Enteritis, chronic rhinitis, acute upper respiratory infections
3) Date of onset: June 2024
4) Treatment period: June 2024 – present
5) Chief complaints: frequent abdominal pain and diarrhea, rhinitis, dyspepsia, dry skin and mucous membranes, frequent acute upper respiratory infections
6) Medical history: abdominal obesity, concern for precocious puberty
7) Social history: excessive appetite, preference for sweets, tendency to overeat
8) Family history: father undergoing obesity management
9) Current illness and medications: The patient visits both a pediatrics clinic and a traditional Korean medicine clinic for abdominal pain and enteritis, and is taking antihistamines and antibiotics for rhinitis symptoms.

2. Method

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

Results

The patient in this case study experienced gastrointestinal symptoms, including abdominal pain, diarrhea, and dyspepsia, as well as respiratory symptoms such as frequent colds, chronic rhinitis, and nasal mucosal dryness, all of which interfered with her daily life. Accordingly, an OCNT protocol tailored to these symptoms was prescribed. During the course of OCNT, the patient reported significant improvement in symptoms and was able to resume normal daily activities. Detailed descriptions of the patient's symptoms and the changes observed during OCNT are presented in Table 2.

Discussion

The patient in this case study was a Korean female adolescent who experienced enteritis, acute upper respiratory infections, and chronic rhinitis, all of which interfered with her daily life. She regularly reported abdominal pain and diarrhea, as well as dyspepsia and symptoms of food retention. Accordingly, she visited a pediatric clinic whenever symptoms occurred to receive medication prescriptions, and she also received herbal medicine at a traditional Korean medicine clinic aimed at improving her body constitution. However, she explained that the medication provided only temporary relief, and the herbal treatment was ultimately insufficient to induce lasting symptom improvement.

Table 1. OCNT applied to the patient

Types \ Session	1st (June 2024 – July 2024)	2nd (July 2024 – August 2024)	3rd (August 2024 – September 2024)	4th (October 2024 – November 2024)	5th (November 2024 – Present)
Viva Kids Gold	101	101	101	101	101
Apple Vinegar Power	101	101	101	101	101
Epibiome F Granule	100	100	100	100	100
Hemoplex Speed Liquid	001	001	-	-	-
Viva Immune Capsule	-	-	100	-	-
Licoplex F Granule	-	-	100	-	-
Cyaplex F Kids Syrup	-	-	-	101 (15 ml per dose)	-
Cyaplex Balm	-	-	101*	-	-

* Prescribed for administration when nasal dryness or rhinitis symptoms are severe
** 100: Once daily, one sachet/capsule per dose in the morning; 001: Once daily, one sachet/capsule per dose in the evening; 101: Twice daily, one sachet/capsule per dose in both the morning and evening

Based on the patient interview and examination, the frequent occurrences of acute upper respiratory infections and enteritis were considered to result from a significant decline in immune function. Symptoms such as abdominal pain, diarrhea, and dyspepsia were presumed to be caused by an imbalance of the intestinal microbiota. In particular, since the patient frequently visited hospitals and had been on long-term medication, it was believed that the intestinal microbiota imbalance persisted, likely contributing to the decline in immunity. Therefore, a personalized OCNT, tailored to the patient's age and condition, was prescribed to improve the balance of the intestinal microbiota, enhance immune function, and alleviate the symptoms of abruptly worsened rhinitis. The primary focus of the OCNT improvements, along with the prescribed components and nutrients, are detailed in Table 3.

To support the patient's immune function, various nutrients—including polyphenols, polysaccharides, and micronutrients (minerals and vitamins)—were utilized. Among the polyphenols, anthocyanins, which are abundant in berries such as aronia and blueberries, were prescribed. These compounds help enhance antioxidant activity and reduce oxidative stress, thereby protecting immune cells from damage. Additionally, they play a crucial role in regulating inflammatory pathways by inhibiting the production of inflammatory cytokines (IL-1β, IL-6, TNF-α) and inflammatory mediators (COX, LOX, MPO, PGE2).[5] Among the polysaccharides, fucoidan was selected. This sulfated polysaccharide, derived from brown seaweed, has been reported to exhibit various immunomodulatory effects, including promoting antigen uptake by immune cells, antiviral activity, and antitumor properties. In a study where fucoidan was administered to mice, immune activation was compared with a control group, showing significantly increased activation of dendritic cells and T cells in the fucoidan-treated group.[6]

Additionally, micronutrients known to support immune function, such as zinc, selenium, iron, and vitamin D, were also prescribed. Zinc is essential for the overall development of immune function; its deficiency can lead to thymic atrophy and reduced activity of natural killer (NK) cells and lymphocyte proliferation, thereby weakening immunity. Selenium, a trace element with antioxidant properties, helps protect immune cells. Its deficiency may impair immune function by reducing lymphocyte activation and antibody production. Iron, when maintained at optimal levels, supports the activation of immune cells such as macrophages, neutrophils, and NK cells. Vitamin D enhances immune responses by promoting the activity of regulatory T cells and dendritic cells.[7,8] Accordingly, various nutrients were used to help activate immune cells and prevent their damage, thereby enhancing overall immune function.

The following interventions were implemented to improve the intestinal microbiota, utilizing ingredients such as mother of vinegar, probiotics, and *Clostridium butyricum*. Mother of vinegar is a substance that forms during the natural fermentation of vinegar and contains various microorganisms, enzymes, and organic acids. In a study where vinegar produced through this fermentation process was administered to mice, the *Firmicutes/Bacteroidetes* ratio—a key indicator of beneficial gut bacteria—decreased, while the proportion of beneficial bacteria increased compared to the control group. These

Table 2. Symptoms experienced by the patient and their changes during the OCNT treatment

Sessions	Symptoms and changes
Before OCNT	• The patient reported the following symptoms: - Gastrointestinal: abdominal pain, diarrhea, dyspepsia, frequent enteritis, food retention, and irregular bowel movements - Respiratory: cold symptoms and chronic rhinitis - Skin: dryness and roughness • The patient displayed a sensitive temperament, overreacting even to minor stimuli.
1st OCNT	• Immediately after starting OCNT, the patient experienced an increased urination frequency of about once every 2–3 hours, which resolved the following day.
2nd OCNT	• Following continued OCNT, the frequency of abdominal pain, diarrhea, and dyspepsia decreased. • Visits to the pediatric clinic for gastrointestinal symptoms became less frequent.
3rd–4th OCNT	• Due to environmental factors such as exposure to air conditioning, rhinitis symptoms worsened, and nasal mucosal dryness was reported. In response, additional OCNT (Viva Immune Capsule, Licoplex F Granule, Cyaplex F Kids Syrup, Cyaplex Balm) was prescribed.
5th OCNT	• Gastrointestinal symptoms such as enteritis, diarrhea, food retention, and dyspepsia significantly improved, with few to no occurrences. • The patient became less susceptible to colds, and pediatric clinic visits related to such illnesses decreased markedly. • The previously observed sensitive temperament was alleviated, with a noticeable reduction in irritability.

Table 3. Key focus areas of OCNT and the corresponding prescribed components and nutrients

Key focus areas	Prescription	Nutrient components
Enhancement of immunity	Viva Kids Gold	Anthocyanin, fucoidan, zinc, selenium, vitamin D
	Viva Immune Capsule	Zinc, selenium
	Cyaplex F Kids Syrup	Anthocyanin, fucoidan
	Hemoplex Speed Liquid	Heme iron
Improvement of intestinal microbiota and gastrointestinal symptoms	Viva Kids Gold	Postbiotics
	Epibiome F Granule	*Clostridium butyricum*, *Bifidobacterium lactis* (probiotic)
	Apple Vinegar Power	Mother of vinegar, bacteriocins, and organic acids
Alleviation of chronic rhinitis symptoms and nasal mucosal dryness	Licoplex F Granule	Glycyrrhizin (licorice)
	Cyaplex Balm	Plant oils, shea butter, lanolin

findings suggest that such metabolic changes may have a positive impact on overall health.[9]

Probiotic and *Clostridium butyricum* are known to contribute to overall gut health improvement. An imbalance in the intestinal microbiota can increase the risk of diseases such as diarrhea and inflammatory bowel disease (IBD). Probiotics inhibit the invasion and growth of pathogenic bacteria in the gut and create a favorable environment for beneficial bacteria by producing natural acidic substances and SCFAs. Furthermore, they contribute to immune regulation by suppressing inflammatory cytokines such as TNF-α and IL-1α.[10] Additionally, administration of butyrate-producing bacteria has been shown to better maintain the diversity of the intestinal microbiota compared to non-administration groups. Notably, *Clostridium butyricum* are known to have higher survival rates in the gut than common probiotics, making them a promising component for gut health.[11]

Finally, to improve the patient's rhinitis symptoms and nasal mucosal dryness, glycyrrhizin and plant oils were used. The patient had a history of chronic rhinitis, and symptoms worsened due to environmental factors like exposure to air conditioning, prompting the prescription of a targeted OCNT. Glycyrrhizin, a compound derived from licorice, is known for its anti-inflammatory properties. When applied to histamine-stimulated cell lines, it showed inhibitory effects on MUC5AC mRNA, which is involved in mucus production, and significantly reduced levels of inflammatory cytokines IL-6 and IL-8, as well as the expression of the inflammatory pathway NF-κB.[12] Plant oils such as olive oil and sunflower seed oil are known to help restore the skin barrier. As a result, they have been found to contribute to skin moisturization and provide anti-inflammatory and antimicrobial benefits.[13]

Using the above OCNT, the patient experienced significant improvement in gastrointestinal and respiratory symptoms that had interfered with her daily life. Notably, the patient expressed satisfaction with the treatment outcomes, and her guardian also confirmed the symptom improvement, demonstrating a willingness to continue OCNT. However, as this case study involved only a single patient, there are limitations in generalizing the same degree of improvement to all patients of the same age group or with similar symptoms. Nonetheless, it is meaningful that the personalized OCNT significantly alleviated symptoms and promoted notable improvements in immune function and intestinal microbiota balance during the growth period. Accordingly, this report is presented with the patient's consent.

References

1. Ulijaszek SJ. The international growth standard for children and adolescents project: environmental influences on preadolescent and adolescent growth in weight and height. Food and nutrition bulletin. 2006;27(4_suppl5):S279-S94.
2. Savarino G, Corsello A, Corsello G. Macronutrient balance and micronutrient amounts through growth and development. Ital J Pediatr. 2021;47(1):109.
3. Brenhouse HC, Schwarz JM. Immunoadolescence: Neuroimmune development and adolescent behavior. Neurosci Biobehav Rev. 2016;70:288-99.
4. van Neerven RJJ. Macronutrients, Micronutrients, and Malnutrition: Effects of Nutrition on Immune Function in Infants and Young Children. Nutrients. 2025;17(9).
5. Ijinu TP, De Lellis LF, Shanmugarama S, Pérez-Gregorio R, Sasikumar P, Ullah H, et al. Anthocyanins as Immunomodulatory Dietary Supplements: A Nutraceutical Perspective and Micro-/Nano-Strategies for Enhanced Bioavailability. Nutrients. 2023;15(19).
6. Jin JO, Zhang W, Du JY, Wong KW, Oda T, Yu Q. Fucoidan can function as an adjuvant in vivo to enhance dendritic cell maturation and function and promote antigen-specific T cell immune responses. PLoS One. 2014;9(6):e99396.
7. Hachimura S, Totsuka M, Hosono A. Immunomodulation by food: impact on gut immunity and immune cell function. Biosci Biotechnol Biochem. 2018;82(4):584-99.
8. Ni S, Yuan Y, Kuang Y, Li X. Iron Metabolism and Immune Regulation. Front Immunol. 2022;13:816282.
9. Xia T, Kang C, Qiang X, Zhang X, Li S, Liang K, et al. Beneficial effect of vinegar consumption associated with regulating gut microbiome and metabolome. Curr Res Food Sci. 2024;8:100566.
10. Kim SK, Guevarra RB, Kim YT, Kwon J, Kim H, Cho JH, et al. Role of Probiotics in Human Gut Microbiome-Associated Diseases. J Microbiol Biotechnol. 2019;29(9):1335-40.
11. Fukushima K, Kudo H, Oka K, Hayashi A, Onizuka M, Kusakabe S, et al. Clostridium butyricum MIYAIRI 588 contributes to the maintenance of intestinal microbiota diversity early after haematopoietic cell transplantation. Bone Marrow Transplant. 2024;59(6):795-802.
12. Li H, Guo D, Zhang L, Feng X. Glycyrrhizin attenuates histamine-mediated MUC5AC upregulation, inflammatory cytokine production, and aquaporin 5 downregulation through suppressing the NF-κB pathway in human nasal epithelial cells. Chem Biol Interact. 2018;285:21-6.
13. Vaughn AR, Clark AK, Sivamani RK, Shi VY. Natural Oils for Skin-Barrier Repair: Ancient Compounds Now Backed by Modern Science. Am J Clin Dermatol. 2018;19(1):103-17.