

Case Report

세포교정영양요법(OCNT)을 이용한 IIIC기 대장암 환자의 재발 억제 및 종양표지자 안정화 사례

조종빈

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Recurrence-Free Follow-up and Stabilization of Tumor Marker Levels in a Patient with Stage IIIC Colorectal Cancer Receiving Ortho-Cellular Nutrition Therapy (OCNT): A Case Report

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ABSTRACT

Objective: Colorectal cancer is a malignant tumor with high incidence and mortality rates worldwide, accounting for approximately 10% of all cancer-related deaths. Although various surgical treatments and chemotherapy regimens are currently available, the likelihood of recurrence and metastasis varies by disease stage. In particular, cases with serosal invasion or multiple lymph node metastases are classified as high-risk, and in such patients, it is important to establish appropriate treatment and management strategies considering factors such as lymphovascular invasion (LVI), perineural invasion (PNI), and carcinoembryonic antigen (CEA) levels. Recently, it has been suggested that Ortho-Cellular Nutrition Therapy (OCNT) may support recovery and symptom management after cancer treatment by improving overall cellular function.

Case Report: A Korean man in his 50s was undergoing colectomy and adjuvant chemotherapy after being diagnosed with stage IIIC colorectal cancer. During treatment, he reported symptoms causing discomfort in daily life, including fatigue and weakness, anxiety, numbness in the hands and feet, loose stools, facial pallor, and weight loss. Accordingly, OCNT including anthocyanins, omega-3 fatty acids, selenium, zinc, vitamin D, resveratrol, butyrate-producing bacteria, and curcumin was prescribed. As a result, his symptoms gradually eased; during OCNT, CEA levels remained stable and decreased, and he was assessed as having no recurrence or metastasis.

Conclusion: Although limited to a single patient, this case is considered to demonstrate the potential utility of OCNT as an adjunct to chemotherapy, based on notable improvement in bothersome symptoms, a stable clinical course, and the medical team's assessment in a patient with high-risk colorectal cancer.

Keywords Ortho-Cellular Nutrition Therapy (OCNT), Colorectal cancer, High-risk group, Carcinoembryonic antigen (CEA), Cellular metabolism

Introduction

Colorectal cancer is a malignant neoplasm with high incidence and mortality rates worldwide, accounting for

approximately 10% of all cancer cases and cancer-related deaths. It is the second most commonly diagnosed cancer in women and the third in men, with approximately 900,000 deaths reported worldwide in 2019. The disease may present with symptoms such as bloody stools, changes in bowel habits, anemia, and abdominal pain, and diagnostic evaluation includes colonoscopy, computed tomography (CT), and magnetic resonance imaging (MRI). In addition, tissue samples are obtained from suspicious lesions, and prognosis is assessed and treatment strategies are determined based on pathological evaluations of factors such as TNM staging, histological grade, and lymphatic, venous, and perineural invasion. Treatment options include curative resection techniques such as endoscopic mucosal resection, endoscopic submucosal dissection, and full-thickness resection,

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as well as anticancer therapies such as radiotherapy and chemotherapy.¹

Postoperative treatments such as chemotherapy and radiotherapy are used to reduce the risk of recurrence. Nevertheless, the risk of recurrence remains. In particular, stage III colorectal cancer characterized by T4 disease, including serosal penetration, or N2 disease involving metastases in four or more regional lymph nodes is classified as high-risk due to the increased risk of recurrence. In these cases, potential microscopic residual disease may contribute to recurrence, highlighting the importance of long-term follow-up and the establishment of treatment strategies to prevent recurrence. Lymphovascular invasion (LVI) and perineural invasion (PNI) are considered important prognostic factors associated with aggressive tumor behavior and metastatic potential, emphasizing the need for appropriate treatment planning and ongoing management.^{1,2}

Furthermore, carcinoembryonic antigen (CEA) is a widely used serum biomarker for monitoring for recurrence in patients with gastrointestinal cancers, and elevated CEA levels may raise suspicion of recurrence or distant metastasis. CEA measurements combined with imaging studies can be used to assess prognosis following surgery and treatment, while regular follow-up examinations after chemotherapy help evaluate the clinical course.³

Recent studies have shown that the tumor microenvironment, including tumor-specific gene expression patterns, and factors such as chronic inflammation, impaired immune function, oxidative stress, mitochondrial dysfunction, and the gut microbiota play important roles in cancer progression and recurrence risk.⁴ Ortho-Cellular Nutrition Therapy (OCNT) is a nutritional approach aimed at improving cellular function by providing nutrients tailored to individual health status to support antioxidant activity, immune regulation, and mitochondrial metabolism, thereby helping maintain cellular homeostasis and improve overall physiological function. This approach has been proposed as a potential means of supporting recovery and improving quality of life following cancer treatment through potential reductions in chronic inflammation and oxidative stress, maintenance of immune function, and improvements in cellular energy metabolism.⁵

This case report describes a patient with high-risk stage III colorectal cancer characterized by metastases in eight regional lymph nodes, LVI, and PNI, who received OCNT alongside standard chemotherapy following curative surgery. During OCNT, follow-up CT scans showed no evidence of recurrence or distant metastasis, while blood tests confirmed that CEA levels remained within the reference range. This case is reported with the patient's consent.

Case Study

1. Subject

This case report involved a single patient with colorectal cancer.

- 1) Name: Kim OO (56 years old / M)
- 2) Diagnosis: Stage IIIC colorectal cancer
- 3) Date of onset: July 2025
- 4) Treatment period: November 2025 – October 2026 (present)
- 5) Chief complaints: Fatigue, anxiety, loose stools, weight loss, cold sensation in the fingertips, and facial pallor

- 6) Past medical history: None
- 7) Social history: None
- 8) Family history: None
- 9) Present illness and current medications: Adjuvant FOLFOX chemotherapy administered through cycle 12

Detailed pathological findings, staging, examination results, surgical procedures, and treatment course are presented in Table 1.

Table 1. Detailed pathological findings, staging, examination results, surgical procedures, and treatment course of the patient.

Item	Details
Diagnosis	Stage IIIC colorectal cancer (transverse colon adenocarcinoma)
Pathological findings	Moderately differentiated adenocarcinoma with invasion of the visceral peritoneum, LVI, and PNI. Resection margins were negative.
Stage (TNM)	Classified as stage IIIC (pT4aN2b) according to the AJCC 8th edition, with tumor penetration through the serosa and metastases in 7 of 165 regional lymph nodes.
Immunohistochemistry (IHC)	MLH1(-), PMS2(-), MSH2(+), and MSH6(+), indicating deficient mismatch repair (dMMR) and suggesting microsatellite instability-high (MSI-H) status due to the loss of MLH1-associated mismatch repair proteins.
Surgery	Right hemicolectomy was performed, with resection of a total of 75 cm of bowel, including 10 cm of the small intestine. The tumor measured 13.5 × 9 cm.
Adjuvant chemotherapy course	Adjuvant FOLFOX chemotherapy was administered every two weeks following surgery. The patient has received 12 cycles to date.

2. Methods

OCNT was initiated after the patient completed seven cycles of FOLFOX chemotherapy. The OCNT regimen prescribed to the patient is detailed in Table 2.

Results

Before OCNT initiation, the patient reported various symptoms, including fatigue, lethargy, anxiety, tingling in the fingertips, facial pallor, weight loss, and loose stools. Following OCNT initiation, the patient reported overall improvement in symptoms. In particular, fatigue, lethargy, and anxiety improved, and the patient reported an improvement in quality of life, stating that these symptoms had nearly resolved. Facial pallor also diminished, accompanied by an improvement in overall complexion, while weight loss slowed and body weight has since remained stable. Furthermore, tingling in the fingertips and feet, which the patient began experiencing following chemotherapy, also improved to the extent that it no longer interfered with daily activities (Table 3).

Table 2. OCNT prescribed to the patient.

Prescription \ Months	1	2	3	4	5	6 ~ Present (2026.10)
Cyaplex F Fine Granules	101	101	101	101	101	101
Eufaplex Alpha Stick	101	101	101	101	101	101
TMplex Fine Granules	100	100	100	100	100	100
Selenplex Capsules	202	202	202	202	202	202
Epibiome Fine Granules	101	101	101	101	101	101
Resplex Fine Granules	101	101	–	–	–	–
Curcuplex Fine Granules	–	–	101	–	–	–
Haliplex Fine Granules	–	–	–	101	101	101
Diverol F Capsules	–	–	101	101	101	101
Bifido Sanyacho Liquid	–	–	–	–	001	001

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

Table 3. 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.

Symptom \ Months	1	2	3	4	5	6 ~ Present (2026.10)
Fatigue, lethargy	4	2	1	0	0	0
Anxiety	5	3	1	1	1	1
Loose stools	4	2	1	0	0	0
Tingling in the fingertips	4	3	2	1	1	0
Facial pallor	4	3	2	1	0	0
Weight loss (kg)	-5	-3	-2	-1	0	0

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

The overall improvement was also reflected in clinical examinations. Serial measurements of serum CEA levels showed a gradual decrease during the OCNT intervention period, with levels remaining within the normal reference range (Fig. 1). An abdominal CT scan performed in April 2026 for follow-up evaluation revealed no evidence of local recurrence at the surgical anastomotic site, pathologically enlarged intra-abdominal lymph nodes, liver metastasis, or other distant

metastases. The final radiological assessment also found no evidence of recurrence or metastasis. The patient is currently continuing OCNT supplementation alone, and a further decrease in CEA levels was observed in July 2026.

Discussion

The patient in this case was a Korean man in his 50s who was diagnosed with colorectal cancer in July 2025 and had undergone right hemicolectomy. He was undergoing standard FOLFOX chemotherapy following surgery. During the early phase of treatment, the patient experienced chemotherapy-related symptoms, including fatigue, generalized lethargy, anxiety, tingling in the hands and feet, loose stools, facial pallor, and weight loss, which interfered with his daily activities. Accordingly, OCNT was administered as an adjunct to chemotherapy with the aim of improving physiological functions impaired by adjuvant chemotherapy, particularly antioxidant defenses, inflammatory regulation, immune function, cellular energy metabolism, and gut microbiota balance.

First, alleviating oxidative stress and regulating inflammation are essential for improving cellular function. Oxidative stress disrupts intracellular redox signaling, while inflammatory responses promote the production of pro-inflammatory cytokines, thereby impairing cellular function.

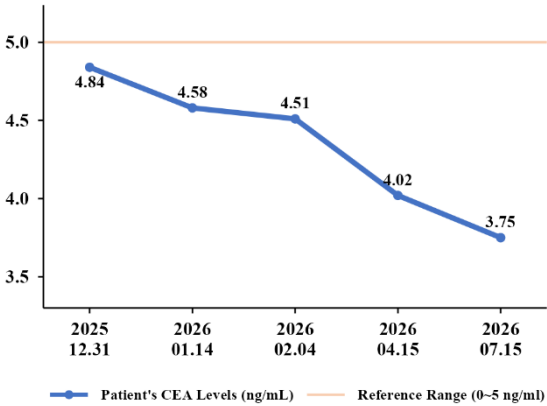


Fig. 1. Changes in the patient's CEA levels during the OCNT intervention period.

Oxidative stress and inflammation are pathophysiologically interconnected, and their interaction can amplify cellular damage.⁶ Accordingly, OCNT was prescribed to help alleviate oxidative stress and regulate inflammatory responses.

Anthocyanins in Cyaplex X are polyphenolic compounds found in red or blue fruits and vegetables. A randomized controlled trial investigating anthocyanin supplementation reported significant reductions in malondialdehyde (MDA) and isoprostanes, which are markers of oxidative stress, along with increases in total antioxidant capacity (TAC) and antioxidant enzymes such as superoxide dismutase (SOD) and glutathione peroxidase (GPx).⁷ Omega-3 fatty acids in Eufaplex Alpha are a class of polyunsaturated fatty acids known for their beneficial effects on cardiovascular and metabolic health. Among these, alpha-linolenic acid (ALA), a plant-derived omega-3 fatty acid, is partially converted into eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) in the body and has been investigated for its potential to alleviate inflammatory responses by reducing the expression of pro-inflammatory cytokines.⁸

Next, Selenplex, Tmplex, and Diverol F were prescribed as part of OCNT to help enhance and maintain the patient's immune function. Selenplex primarily contains selenium, Tmplex contains trace minerals such as selenium and zinc, and Diverol F primarily contains vitamin D. Normal immune function plays an important role throughout the course of cancer by helping to suppress cancer development and progression and influencing recurrence risk and treatment response.⁹

Following ingestion, selenium is incorporated into selenoproteins in the body, contributing to the maintenance of immune function and antioxidant activity. In terms of immune function, selenium supports immune cell function through mechanisms such as T-cell receptor expression, while its incorporation into GPx may help maintain the antioxidant defense system. Zinc is an essential trace mineral required for the catalytic activity of various enzymes in the body, and zinc deficiency is known to be associated with impaired immune function.¹⁰ Vitamin D has traditionally been recognized for its role in facilitating calcium absorption. However, various studies have shown that vitamin D also contributes to the maintenance of overall immune function through the activation of innate immune responses, regulation of immune cell function, and maintenance of immune homeostasis.¹¹

Next, OCNT was prescribed to support cellular metabolic function, with Resplex specifically selected to improve mitochondrial function. Mitochondria play an important role in regulating cellular energy metabolism and redox balance, and targeting abnormal metabolism and oxidative stress-related signaling in cancer cells may represent an important therapeutic strategy. Furthermore, mitochondria support immune cell function by supplying energy and play a role in inducing apoptosis in cancer cells, further highlighting their importance.¹² Resveratrol in Resplex may promote mitochondrial biogenesis and proliferation by activating the SIRT1, AMPK, and PGC-1 α signaling pathways, thereby contributing to improvements in overall mitochondrial function, including energy production.¹³

The patient reported discomfort due to loose stools following colorectal cancer surgery. The patient's gut microbiota was considered a possible contributing factor to these symptoms. The gut microbiota has been shown to play an important role in regulating overall bowel habits, including stool consistency and defecation frequency, with lower microbial species richness

observed in individuals with looser stools.¹⁴ Accordingly, butyrate-producing bacteria and probiotics were prescribed to improve the patient's gut microbial environment. Following ingestion, butyrate-producing bacteria can produce butyrate in the intestine, helping create an environment favorable for the growth of beneficial gut bacteria, such as *Bifidobacterium* and *Lactobacillus*. They may also help strengthen the intestinal barrier, thereby reducing the penetration of harmful substances and harmful bacteria.¹⁵ Furthermore, *Bifidobacterium animalis* subsp. *lactis* is a probiotic bacterium known for its potential to inhibit harmful intestinal bacteria and improve intestinal motility and bowel function.¹⁶ These components were provided by prescribing Epibiome and Bifido Sanyacho Liquid.

Finally, Curcuplex and Haliplex were prescribed with the aim of supporting colorectal tumor management and anticancer treatment. Curcuplex primarily contains curcumin, while Haliplex contains curcumin, genistein, resveratrol, and EGCG as its main components. Curcumin may influence cancer cell death by modulating the PI3K/AKT signaling pathway involved in cancer cell survival and proliferation and regulating NF- κ B expression. EGCG may also inhibit cancer cell proliferation and survival and help reduce the accumulation of reactive oxygen species in mitochondria and alleviate oxidative damage by activating NRF2-related pathways. Furthermore, genistein may help inhibit cancer cell migration and invasion by modulating MMP-2 and MMP-9 expression and EMT-related signaling pathways.¹⁷

During and after chemotherapy, the patient maintained a stable health status while receiving OCNT, and no evidence of recurrence was observed during follow-up. However, as this case report involves only a single patient, the outcomes observed with this OCNT regimen cannot be generalized to other patients with colorectal cancer. Nevertheless, this case suggests the potential utility of OCNT as an adjunct to chemotherapy, as its use in a patient with high-risk stage IIIC colorectal cancer classified as T4aN2b was accompanied by notable improvements in bothersome symptoms and maintenance of stable CEA levels. Accordingly, this case is reported with the patient's consent.

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