

## Case Report

# Perioperative nutrition management in stage 4 ovarian cancer patient with high bowel obstruction: a case report

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## Summary

Nutrition management in stage IV oncological patients is challenging. Finding a balance between ion, protein, carbohydrate, and lipid intake and output is often nearly impossible. A 36-year-old patient with terminal-stage ovarian cancer and bowel obstruction is presented. She was admitted to the surgery department with complaints of vomiting, abdominal pain, absence of flatulence, and defecation for the last two days. Laboratory findings showed anemia, low protein levels, low potassium, and elevated liver enzymes. Venous infusions were administered to restore nutritional values. Food and liquid intake were stopped. After 6 days of hospital stay, the patient underwent a surgical procedure - a high ileostomy, to restore stool passage. A serious complication occurred - nearly 1600 ml. of stool was excreted from the ileostomy every 24 hours. Combination of medications - loperamide hydrochloride (2 mg daily), continuous venous infusions with lipid and carb-rich solutions, and proper diet managed to decrease the stoma outtake to 600 ml per day. Placing a port-a-cath system provided the patient with an easily managed device, allowing her to continue parenteral nutrition at home and increasing the likelihood of discharge from the hospital.

**Key words:** ileostomy, oncology, surgical complication



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## Introduction

Ovarian cancer is one of the most common malignancies in women (Momenimovahed et al. 2019). In many cases, it is diagnosed in later stages, making the possibility of proper treatment increasingly insufficient (Jayde et al. 2010; Huepenbecker et al. 2021). When reaching the terminal stage of the disease, many patients suffer from various complications such as malnutrition, bowel obstructions due to intra-abdominal tumor masses, vascular coagulation disorders, lymphedema, etc. Ileus is a common surgical complication and often requires an operation. In the context of hypoproteinemia and dyselectrolytemia, even a minor surgical procedure can lead to an unfortunate outcome (Rinninella et al. 2019; Brajcich et al. 2022; Gearing et al. 2023; Arends 2024). Preparing the

patient includes administering intravenous medications and infusions, placing a nasogastric tube, performing enemas, and providing individual physical therapy (Gadducci et al. 2010).

## Case report

This report aims to show the pre- and postoperative nutritional management of a 36-year-old terminal patient with ovarian cancer, suffering from severe malnutrition due to the inability to ingest food orally. The patient had been treated with chemotherapy for ovarian cancer with peritoneal metastasis. A total hysterectomy had been performed earlier. Her PET-CT, before admission to the surgical department, showed no metabolic lesions in her abdomen, suspected to be metastatic. However, she was administered in the clinic with a typical image of bowel obstruction. A nasogastric tube was placed. Oral intake of food and liquid was prohibited. Two enemas were performed without giving results. Nutritional parameters were examined, showing a hemoglobin level of 87 g/L and low serum iron levels. Apart from an albumin level of 24 g/L, the overall protein level was 56 g/L. Deficiencies in potassium and protein were corrected with intravenous supplementation.

Furthermore, lipid infusions were needed to keep the patient's energy levels in order. Surgery took place on the 6<sup>th</sup> day of hospitalization. During the operation, a block of metastatic lesions was seen in the pelvis, engaging a bid portion of the ileum, as well as sigmoid colon and ileo-colic segment. Proximal to the obstruction, the intestines were enlarged, with swollen walls and full of gas and liquid, i.e., an intraoperative picture of bowel obstruction. A segment of the jejunum, approximately 140 cm from the ligament of Treitz, was used to form a high ileostomy. After the procedure, a major complication occurred - serious fluid outtake by the high ileostomy, nearly 1600 ml per day. Once the patient resumed bowel function, on the 3<sup>rd</sup> postoperative day, liquid and solid food intake were reintroduced. The focus on diet was put. The number of food portions a day and the size were controlled. The diet consisted mainly of carbs and lean protein, with as few liquids as the patient tolerated. To compensate for fluid intake, venous infusions continued.

Additionally, loperamide hydrochloride 2 mg per day and pectin were administered to manage stool output. After 2 days, the ileostomy output was around 600 ml per day. To further improve quality of life and facilitate ongoing nutritional support, a port-a-cath system was inserted, allowing infusions of amino acids and lipid-rich solutions at home.

## Discussion

Perioperative management of a patient with stage 4 ovarian cancer, high bowel obstruction, and high ileostomy requires a multidisciplinary approach focused mainly on symptom control, pain management, and balanced nutritional venous intake. To prolong the survival of those patients, bowel obstruction should be resolved. Surgical intervention for malignant bowel obstruction (MBO) in advanced ovarian cancer can be complicated due to locally advanced disease. In many cases, the only options for the surgeon are forming an ostomy (e.g., a high ileostomy), bypass, and, in rare cases, resection. This should be done according to nutritional reserves, laboratory values, and the patient's overall condition. Even so, morbidity and mortality are high, and median survival post-intervention

is typically short (3–6 months). Surgery is generally reserved for those without severe cachexia, poor performance status, or extensive carcinomatosis (Paul Olson et al. 2014; Daniele et al. 2015; Jin et al. 2020; Palsdottir et al. 2023; Toth et al. 2024). While surgery can relieve obstruction and improve oral intake, it is associated with significant risks: postoperative mortality rates of 6–32%, serious complications in 7–44%, and frequent re-obstruction or readmission. The decision to proceed should be individualized after a discussion with the patient about the expected goals and outcomes of the treatment, as well as potential complications (Paul Olson et al. 2014; Jin et al. 2020). Before and after the operation, certain management should be considered: bowel rest, nasogastric tube, analgesia, antiemetics, antisecretory agents (e.g., octreotide), and corticosteroids (e.g., dexamethasone). Recent prospective data support the use of a combination of dexamethasone, metoclopramide, and octreotide for symptom control in inoperable MBO, with improvement in nausea and pain, though prognosis remains poor. Parenteral nutrition remains controversial and should be individualized (Huang et al. 2021; Walter et al. 2024). Perioperative nutritional assessment is essential for such patients because malnutrition is common and worsens outcomes (Daniele et al. 2015; Tenderenda et al. 2024). In addition, key considerations should include careful assessment of functional bowel length, symptom burden, prognosis, and patient goals. For patients with a high-output ileostomy, special attention to fluid and electrolyte management is necessary, as high-output stomas can lead to dehydration and electrolyte imbalances. Close monitoring and replacement of sodium, potassium, and magnesium are critical, and dietitians should be involved to optimize both macronutrient and micronutrient intake. If oral intake is not feasible or insufficient, parenteral nutrition (PN) should be considered for selected patients who are eligible for chemotherapy. Home parenteral nutrition can prolong survival and maintain quality of life. Nutritional status indices such as the Nutritional Risk Index (NRI) and Prognostic Nutritional Index (PNI) may help prognosticate survival and guide intervention (Bozzetti 2019; Tenderenda et al. 2024; Utrilla Fornals et al. 2024). In all cases, the involvement of a specialist dietitian and a multidisciplinary team is recommended to tailor interventions, monitor for complications, and align care with patient goals (Garutti et al. 2023; Utrilla Fornals et al. 2024).

The literature emphasizes the importance of aligning interventions with patient goals, prioritizing quality of life, and involving palliative care early. Decision-making should consider the patient's wishes, expected survival, and the burden of interventions (Paul Olson et al. 2014; Daniele et al. 2015; Palsdottir et al. 2023).

## Conclusion

Nutrition in patients with terminal-stage oncological disease can be challenging. Nevertheless, the presence of a high-output ileostomy is a risk factor for dumping syndrome. With proper management and teamwork, those patients can achieve a high quality of life despite the diagnosis.

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## Additional information

### Conflict of interest

The authors have declared that no competing interests exist.

### Ethical statements

The authors declared that no clinical trials were used in the present study.

The authors declared that no experiments on humans or human tissues were performed for the present study.

The authors declared that no informed consent was obtained from the humans, donors or donors' representatives participating in the study.

The authors declared that no experiments on animals were performed for the present study.

The authors declared that no commercially available immortalised human and animal cell lines were used in the present study.

### Use of AI

During the preparation of this work, the authors used ChatGPT and OpenEvidence to complete grammar, spelling checks and thorough literature overview. After using those tools, the authors reviewed and edited the content as needed and take full responsibility for the content.

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Conceptualization: MK. Supervision: PGM, DD. Writing - original draft: MS. Writing - review and editing: TY.

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### Data availability

All of the data that support the findings of this study are available in the main text.

## References

Arends J (2024) Malnutrition in cancer patients: causes, consequences and treatment options. *European Journal of Surgical Oncology* 50: 107074. <https://doi.org/10.1016/j.ejso.2023.107074>

- Bozzetti F (2019) The role of parenteral nutrition in patients with malignant bowel obstruction. *Supportive Care in Cancer* 27: 4393–4399. <https://doi.org/10.1007/s00520-019-04948-1>
- Brajcich BC, Stigall K, Walsh DS, Varghese TK, Barber AE, Kralovich KA, Wescott AB, Pockaj BA, Ko CY, Laronga C (2022) Preoperative nutritional optimization of the oncology patient: a scoping review. *Journal of the American College of Surgeons* 234: 384–394. <https://doi.org/10.1097/XCS.000000000000055>
- Daniele A, Ferrero A, Fuso L, Mineccia M, Porcellana V, Vassallo D, Biglia N, Menato G (2015) Palliative care in patients with ovarian cancer and bowel obstruction. *Supportive Care in Cancer* 23: 3157–3163. <https://doi.org/10.1007/s00520-015-2694-9>
- Gadducci A, Cosio S, Spirito N, Genazzani AR (2010) The perioperative management of patients with gynaecological cancer undergoing major surgery: a debated clinical challenge. *Critical Reviews in Oncology/hematology* 73: 26–140. <https://doi.org/10.1016/j.critrevonc.2009.02.008>
- Garutti M, Noto C, Pasto B, Cucciniello L, Alajmo M, Casirati A, Pedrazzoli P, Caccialanza R, Puglisi F (2023) Nutritional management of oncological symptoms: a comprehensive review. *Nutrients* 15: 5068. <https://doi.org/10.3390/nu15245068>
- Gearing PF, Hawke JA, Mohan H, Heriot AG, Khan A, Beaumont A, Laing E, Waters PS (2023) Perioperative nutritional assessment and interventions in patients undergoing cytoreductive surgery and hyperthermic intraperitoneal chemotherapy (HIPEC): a systematic review. *European Journal of Surgical Oncology* 49: 902–917. <https://doi.org/10.1016/j.ejso.2023.02.015>
- Huang X, Xue J, Gao M, Qin Q, Ma T, Li X, Wang H (2021) Medical management of inoperable malignant bowel obstruction. *Annals of Pharmacotherapy* 55: 1134–1145. <https://doi.org/10.1177/1060028020979773>
- Huepenbecker SP, Sun CC, Fu S, Zhao H, Primm K, Giordano SH, Meyer LA (2021) Factors impacting the time to ovarian cancer diagnosis based on classic symptom presentation in the United States. *Cancer* 127: 4151–4160. <https://doi.org/10.1002/cncr.33829>
- Jayde V, White K, Blomfield P (2010) Symptoms and diagnostic delay in ovarian cancer: a summary of the literature. *Contemporary Nurse* 34: 55–65. <https://doi.org/10.5172/conu.2009.34.1.055>
- Jin M, Shen F, Li M, Chen Y (2020) Palliative treatment for bowel obstruction in ovarian cancer: a meta-analysis. *Archives of Gynecology and Obstetrics* 302: 241–248. <https://doi.org/10.1007/s00404-020-05545-y>
- Momenimovahed Z, Tiznobaik A, Taheri S, Salehiniya H (2019) Ovarian cancer in the world: epidemiology and risk factors. *International Journal of Women's Health* 11: 287–299. <https://doi.org/10.2147/IJWH.S197604>
- Palsdottir K, Salehi S, Johansson H, Groes-Kofoed N, Falconer H, Joneborg U (2023) Incidence of and survival after surgical intervention for bowel obstruction in women with advanced ovarian cancer. *Acta Obstetrica et Gynecologica Scandinavica* 102: 1653–1660. <https://doi.org/10.1111/aogs.14674>
- Paul Olson TJ, Pinkerton C, Brasel KJ, Schwarze ML (2014) Palliative surgery for malignant bowel obstruction from carcinomatosis: a systematic review. *JAMA Surgery* 149: 383–392. <https://doi.org/10.1001/jamasurg.2013.4059>
- Rinninella E, Fagotti A, Cintoni M, Raoul P, Scaletta G, Quagliozzi L, Miggiano GAD, Scambia G, Gasbarrini A, Mele MC (2019) Nutritional interventions to improve clinical outcomes in ovarian cancer: a systematic review of randomized controlled trials. *Nutrients* 11: 1404. <https://doi.org/10.3390/nu11061404>

- Tenderenda K, Gierczak A, Panczyk M, Sobocki J, Zaczek Z (2024) Nutritional status as a prognostic factor for survival in palliative care: a retrospective observational analysis of home parenteral nutrition in cancer patients with inoperable malignant bowel obstruction. *Nutrients* 16: 1569. <https://doi.org/10.3390/nu16111569>
- Toth R, Toth Z, Loczi L, Torok M, Acs N, Varbiro S, Keszthelyi M, Lintner B (2024) Management of malignant bowel obstruction in patients with gynaecological cancer: a systematic review. *Journal of Clinical Medicine* 13: 4213. <https://doi.org/10.3390/jcm13144213>
- Utrilla Fornals A, Costas-Batlle C, Medlin S, Menjon-Lajusticia E, Cisneros-Gonzalez J, Saura-Carmona P, Montoro-Huguet MA (2024) Metabolic and nutritional issues after lower digestive tract surgery: the important role of the dietitian in a multidisciplinary setting. *Nutrients* 16: 246. <https://doi.org/10.3390/nu16020246>
- Walter M, Hansen E, Hamid S, Carozza D, Mann G, Roche C, George A, Attwood K, Case A (2024) Palliative management of inoperable malignant bowel obstruction: prospective, open label, phase 2 study at an NCI comprehensive cancer center. *Journal of Pain and Symptom Management* 67: 20–26. <https://doi.org/10.1016/j.jpainsym-man.2023.09.014>