

CASE REPORT

Ovarian cancer recurrence manifested as a solitary intraluminal mass in ileum

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Abstract

Background: Most advanced ovarian cancer cases experience recurrence following primary treatment. While the majority of recurrences manifest within the peritoneal cavity or lymph nodes. **Case:** A rare case was reported where ovarian cancer recurred as a solitary mass within the ileal (small intestine) lumen after the patient achieving complete remission for more than one year. The medical records, including surgical findings and images, of a 49-year-old woman with recurrent ovarian endometrioid carcinoma were reviewed. The patient had initially undergone debulking surgery in 2020, with pathology confirming ovarian endometrioid carcinoma, right pelvic lymph node metastasis, and The International Federation of Gynecology and Obstetrics stage IIIC. After completing six courses of chemotherapy, the patient achieved complete remission. However, the patient continued experiencing frequent dyspepsia and black stool, despite no obvious elevation in tumor markers. Subsequent imaging revealed a right pelvic mass lesion months later. Exploratory laparotomy then found a solitary tumor mass within the ileal lumen, representing a recurrence of the metastatic endometrioid carcinoma. **Conclusions:** Clinicians should also consider less common sites of recurrence or metastasis, such as the intestinal lumen, when patients present with unexplained gastrointestinal symptoms.

Keywords

Ovarian cancer; Intestinal metastasis; Recurrent ovarian cancer

1. Introduction

Epithelial ovarian cancer is the most common type of ovarian cancer, accounting for about 90% of ovarian tumors [1]. When detected before it spreads, the five-year survival rate exceeds 90%. However, when diagnosed at an advanced stage, it is often found to have metastasized within the pelvic cavity to abdominal organs or beyond the peritoneal cavity to distant parenchymal organs, reducing the five-year survival rate to approximately 30% [2]. While these advanced cases may initially respond to platinum-based chemotherapy, some chemoresistant cancer cells can persist in the metastatic sites and remain dormant. This can eventually lead to disease relapse [3].

Ovarian cancer metastasis typically spreads through one of three main routes—transcoelomic, haematogenous or lymphatic. These are the most common pathways observed for the metastatic dissemination of ovarian cancer, whether to abdominal organs or more distant parenchymal sites [4]. Among those, transcoelomic metastasis was convinced to be the most common pattern [5]. For epithelial ovarian cancer (EOC), which accounts for approximately 90% of all ovarian cancer cases, the initial spread typically occurs via direct extension into adjacent organs. These adjacent organs commonly affected include the fallopian tubes, uterus and occasionally the

rectum, bladder, and pelvic sidewall. The unique characteristic of ovarian cancer is that its metastatic tumors typically do not infiltrate visceral organs, but rather grow as surface implants. This pattern of metastatic spread can often be easily observed under laparoscopy, either as peritoneal metastases or as surface spreading over adjacent organs [6].

For most women with advanced ovarian cancer, the combination of surgery and platinum-based chemotherapy will initially result in clinical remission, as evidenced by normal examination, cancer antigen (CA)-125 levels, and computed tomography scan findings. However, up to 90 percent of these patients will eventually relapse and succumb to disease progression. Generally, lower CA-125 levels are associated with a longer time until relapse and better survival rates [7]. As a result, this tumor marker is widely used as a tool for follow-up monitoring after cancer treatment.

This case presents a patient with recurrent ovarian endometrioid carcinoma, where the solitary site of recurrence was found to be inside the ileal lumen. The patient presented with gastrointestinal symptoms related to obstruction and bleeding, which are classic signs of small bowel tumors. However, these types of intestinal recurrences are often delayed in being diagnosed.

2. Materials and methods

We reviewed the medical records including surgical findings and images of the 49-years-old woman with recurrent ovarian endometrioid carcinoma.

3. Results

This is a 49-years-old, nullipara female patient, with type 2 diabetes mellitus and hypertension under medicine control. The patient presented to our outpatient clinic complaining of abnormal uterine bleeding that had persisted for approximately one month. This was accompanied by a sensation of low abdominal fullness and pain. Physical exam revealed a round abdomen with a palpable lower abdominal mass. Computerized tomography (CT) showed one big lobulated mass at the pelvic region, with heterogeneous contrast enhancement and mild ascites in the abdominal region. Elevated tumor marker CA-125 310.4 U/mL (normal range: 35 U/mL) was also noted [7]. She received laparotomy and right ovarian cancer with pelvic peritoneal metastasis was proven. Debulking surgery which achieved grossly complete resection of the tumor was performed. The pathologic report showed ovarian endometrioid carcinoma involving pelvic peritoneum, one right pelvic lymph node metastasis, without other metastatic lesions noted. Ovarian endometrioid carcinoma FIGO stage IIIC with peritoneal metastasis was diagnosed. She underwent adjuvant chemotherapy comprising paclitaxel (175 mg/m²) and carboplatin (Area Under the Curve 5) administered every 3 weeks, completing 6 cycles. Bevacizumab (7.5 mg/kg) was introduced during the second cycle. The patient tolerated the treatment well and continued to follow up regularly at our department. Over the course of the following year, the tumor markers and CT imaging studies all remained within normal parameters. Aside from frequent episodes of dyspepsia and unexplained lower abdominal cramping after meals, the patient did not report any other concerning symptoms. Both gastric panendoscopy and colonoscopy examinations yielded negative findings.

Unexplained fluctuations of the CA-125 levels were noted one year after remission, sometimes up to 121.8 U/mL, then down to 16.0 U/mL without any-evidence of recurrence in image study. Six months later, the patient began experiencing episodes of black, tarry stools, with a positive fecal occult blood test. Magnetic resonance imaging revealed an increased, enhancing soft tissue mass located in the right pelvic region (Fig. 1).

Given the high suspicion of tumor recurrence, an exploratory laparotomy was performed. During the surgical exploration, an intraluminal tumor mass approximately 8 cm in diameter was identified within the ileum, located 80 cm proximal to the ileocecal junction. Small bowel resection with anastomosis was performed. There was no other grossly intraperitoneal lesion noted, but multiple peritoneal biopsies were still done. The pathology showed metastatic endometrioid carcinoma at the small bowel, through serosa into muscularis and submucosa of ileum (Fig. 2). No evidence of metastases from other biopsy sites. After recovering well from the surgical procedure, the patient

was started on a platinum-based chemotherapy regimen consisting of carboplatin (AUC 5), doxorubicin (30 mg/m²), and bevacizumab (7.5 mg/kg) administered every 3 weeks for 6 cycles. Maintenance therapy with bevacizumab (7.5 mg/kg) was prescribed in June 2023. With this treatment, the patient achieved complete remission once again. Since then, the patient has remained without any notable complaints during the subsequent follow-up period.

4. Discussion

Metastasis is a complex, multi-step process that involves critical interactions between cancer cells and the surrounding stromal components within the tumor microenvironment [8]. Ovarian cancer is considered the most lethal gynecological malignancy, and is characterized by a pattern of peritoneal disseminated metastasis. While hematogenous or lymphatic routes of metastasis are commonly observed in many solid tumors, these alternative routes occur relatively less frequently in ovarian cancer. The common sites of metastasis for ovarian cancer include adjacent organs, such as the fallopian tubes, uterus, rectum, bladder and pelvic sidewall [5]. Small bowels, containing duodenum, jejunum and ileum, were a rare site of metastasis [9].

Given the rarity of small bowel neoplasms, which account for only 2% of all primary gastrointestinal tumors [10], secondary neoplastic involvement of the small intestine is more common than primary small intestinal neoplasia. In the setting of widespread peritoneal carcinomatosis, extraluminal involvement of the small bowel is particularly common [11]. Primary tumors originating from the colon, ovary, uterus, and stomach typically involve the small bowel, either through direct invasion or intraperitoneal spread. In contrast, primary tumors from the breast, lung, and melanoma more commonly metastasize to the small bowel via hematogenous dissemination [12].

Regardless of whether they are primary or metastatic in nature, the diagnosis of small bowel tumors is often delayed, as most of these tumors are asymptomatic during the early stages of their development [9]. The most common clinical symptoms associated with small bowel tumors related to obstruction and bleeding. Obstruction typically presents as recurrent cramping abdominal pain, which is usually periumbilical or epigastric in location and often occurs following meals. In addition to the obstructive pain, some patients may also experience associated bloating, nausea, or vomiting. However, these symptoms are not particularly specific and can also be observed in normal functional bowel disorders, which can contribute to diagnostic delays. Chronic occult bleeding is another common clinical presentation of small bowel tumors. In contrast, severe overt bleeding is less common and is typically seen with tumors that have a rich blood supply, such as leiomyomas, angiomas, and sarcomas. Minardi *et al.* [13] collected 85 patients with 89 small-bowel tumors (22 primary malignant, 23 primary benign and 44 metastatic) over a 10-year period. Among them, 50% are metastatic tumors. Regardless of whether the small bowel tumor is primary or metastatic in origin, the most common presenting signs and symptoms include abdominal pain, nausea and vomiting. In more detail, patients



FIGURE 1. Magnetic resonance imaging of a recurrent lesion over the pelvic region. Increase enhanced soft tissue mass in the right pelvic region, suspect peritoneal tumor infiltration. Arrow indicated the location of the pelvic mass.

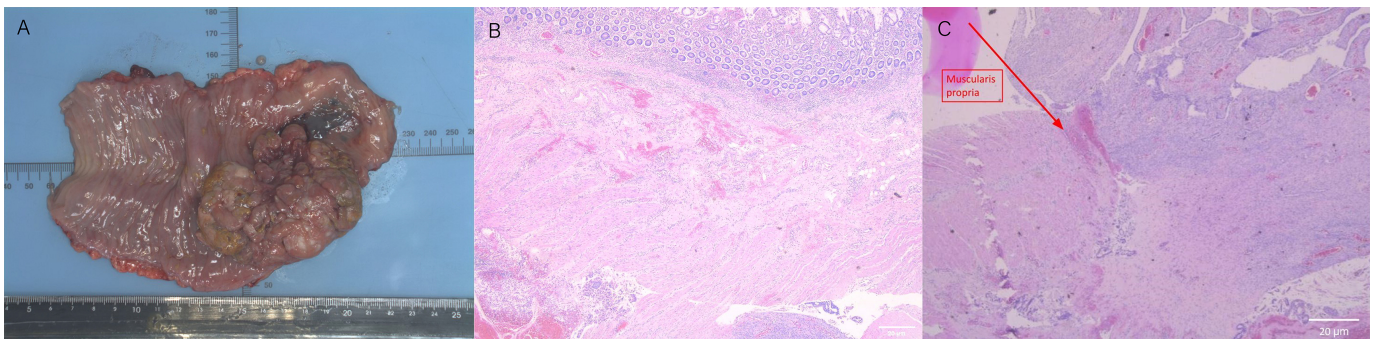


FIGURE 2. The pathology finding of small bowel resection. (A) Grossly, the tumor seemed to penetrate from ileum serosa into the submucosa. (B) Transaction of the tumor site revealed endometrioid carcinoma with mixed cystic, glandular, papillary and cribriform patterns infiltrating from the serosa into the muscularis and submucosa of the ileum. (C) Section shows endometrioid carcinoma with mixed cystic, glandular, papillary and cribriform patterns infiltrating from the serosa into muscularis and submucosa of ileum. The arrow points out the site of muscularis propria, which is invaded by malignancy as well.

with benign small bowel tumors more commonly present with gastrointestinal hemorrhage, while those with metastatic small bowel tumors are more likely to present with symptoms of obstruction. Of all 44 metastatic tumors, 5 of them are from ovarian cancer, with one located at duodenum and 4 at ileum. Less than colon cancer (17 cases), ovarian cancer stands as the second most common site of metastatic origin.

Our patient presented with abdominal pain without specific location and poor appetite as the first sign of recurrent disease. Occult bleeding was lately noted, which corresponds with two of the most common signs of small bowel tumors. Though we performed colon fibroscopy and gallium scan for surveying possible tumor recurrence small bowel metastasis was still not found. A mean delay of up to 18 months for malignant tumors over small bowel has been reported [14]. Given the tremendous advancements in diagnostic tools available today, the delayed diagnosis of small bowel tumors should largely be avoidable. In the case presented, the magnetic resonance imaging finding of an increased, enhancing soft tissue mass in the right pelvic region prompted the decision to perform an exploratory laparotomy. The finding of the operation correlated with her symptom.

The invasion depth can be variable among small bowel tumors. O'Hanlan *et al.* [15] reviews 100 separate bowel resections from patients diagnosed with ovarian carcinoma and underwent bowel resection. Among all 71 patients, 30 of them received at least one site of small bowel resection. From a total 34 segments of small bowel, 5 segments invade submucosa and 2 segments deep enough to create mucosal perforation. Most of them (27 segments) are confined in muscularis propria, serosa and subserosa. Baiocchi *et al.* [16] reported 50 individuals who underwent operations for epithelial ovarian cancer that included bowel resection. Of all forty-one patients having bowel resection with mesenteric lymph nodes that were suitable for analysis, serosal involvement in 14 cases (34.1%), muscularis propria invasion in 13 cases (31.7%), submucosa invasion in six cases (14.6%), and mucosa in eight cases (19.5%).

The surgical approach for small bowel metastasis tumors has been controversial. Both bowel resection and tumor excision have their drawbacks. Kebapçı *et al.* [17] conducted a study involving 49 patients with advanced-stage ovarian cancer and intestinal metastasis. They compared the prognosis between resection procedures and excision surgery. Although resection methods are superior in achieving optimal results, they are associated with higher complication rates and a subsequent lower quality of life. Wu BZ *et al.* [18] and Wu PC *et al.* [19] reported similar conclusions. It is noted that among these 49 patients, only 2 cases involved intestinal surgery related to the ileum. For patients with mucosal invasion, both disease-free survival and overall survival are shorter compared to those with serosal and muscularis invasion.

CA-125 has been used over the decades to detect recurrence of ovarian cancer after primary therapy [20]. Continuous rising serum CA-125 levels precede the clinical detection of relapse in 56%–94% of cases, with a median lead time of 3–5 months [21]. However, CA-125 is not optimally sensitive for detecting small bowel tumors. In fact, up to 50% of patients who had normal levels of CA-125 after receiving chemotherapy were still found to have small volumes of persistent disease

during subsequent second-look surgical procedures [22]. The underlying reason for the fluctuations in CA-125 levels in cases of complete remission has not yet been clearly identified. However, considering the clinical presentation of the patient in this case, the fluctuation of CA-125 levels might be attributed to the presence of a solitary recurrent mass within the ileum. The rationale is that the enzymes from the intestine could potentially be interfering with the continuous elevation of CA-125 levels. This proposed theory has not been previously mentioned in the literature, and further study may be necessary to better understand the relationship between small bowel tumors and the dynamics of CA-125 measurement in such cases.

Given the pattern of ovarian cancer metastasis observed in this case, the tumor has invaded through the serosa, muscularis propria, submucosa, and mucosal layer, ultimately forming an intraluminal mass within the small bowel. This stepwise progression of invasion may mean that early imaging surveys may not be adequate to detect the lesion, as the invasion may still be confined to the serosa at that stage. In this scenario, an exploratory laparotomy or diagnostic laparoscopy would have a better chance of discovering such a lesion. Considering the high recurrence rate of ovarian cancer, we should carefully consider all available evidence and maintain a high index of suspicion to enable early detection of disease progression.

5. Conclusions

The recurrence of ovarian cancer represents an important challenge for gynecologic oncologists. Rare sites of tumor metastasis may be accompanied by non-specific symptoms that can be easily overlooked, even when using common surveillance tools like imaging and CA-125 testing. By presenting a case of ovarian cancer recurrence in the ileal lumen after a prolonged complete remission, this report highlights the notable relationship between gastrointestinal symptoms and bowel metastasis. In conclusion, when ovarian cancer patients present with unexplained gastrointestinal symptoms, the possibility of metastasis to less common sites, such as the intestinal lumen, should be carefully considered.

AVAILABILITY OF DATA AND MATERIALS

No new data were created or analyzed during this study. Data sharing is not applicable to this article.

AUTHOR CONTRIBUTIONS

THC and WJC—performed the surgery and provided clinical data with image finding. HMC—completed the pathology report, provided pathology findings and opinion form pathologist. YT—reviewed the articles. YT and THC—completed the manuscript. All authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The patient provided consent for the publication of all associated data and accompanying images. All consents obtained adhered to the ethical approval standards of Changhua Christian Hospital (Y_113_0264).

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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