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Case Report

Peritoneal Recurrence of an Endometrial Carcinoma Complicated by Tumor-Bowel Fistula and Small Bowel Occlusion: A Rare Case Report

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Abstract

Tumor-bowel fistula (TBF) is a rare but serious complication of abdominal and pelvic malignancies, including endometrial cancer, and may, in rare instances, result in gastrointestinal obstruction. We present a case of a 65-year-old female with endometrial adenocarcinoma, initially treated with hysterectomy, bilateral salpingo-oophorectomy, and adjuvant therapy, who developed a peritoneal recurrence in July 2022. In January 2023, she presented with persistent vomiting. Contrast-enhanced computed tomography (CT) showed fistulous communication between the peritoneal mass and the terminal ileal loop, complicated by small bowel obstruction. The patient underwent emergency resection of the peritoneal mass and involved bowel. Postoperatively, she developed a surgical site infection and ultimately succumbed to septic shock. This case highlights the importance of CT in early TBF diagnosis and the management challenges associated with poor prognostic outcomes.

Keywords: *Endometrial Carcinoma; Peritoneal Recurrence; Tumor-Bowel Fistula; Small Bowel Obstruction; CT Imaging*

Introduction

Tumor-bowel fistula (TBF) is a rare and serious complication of abdominopelvic malignancies, characterized by an abnormal communication between a segment of the bowel and an extraluminal tumor mass. This tumor may represent a metastatic peritoneal lesion or a primary neoplasm with exophytic growth [1].

In the context of endometrial carcinoma, peritoneal recurrence occurs in approximately 28% of cases. Such recurrences may present as peritoneal masses capable of exerting mass effect, leading to bowel compression or direct invasion of the intestinal wall. In advanced stages, this invasion may result in fistulization between the tumor and the intestinal lumen, forming a tumor-bowel fistula [1,2].

Computed tomography (CT) is the imaging modality of choice for diagnosing TBF, assessing associated complications, and evaluating post-treatment outcomes. Management strategies are individualized and can range from conservative approaches to radical surgical resection, depending on the extent of disease and the patient's clinical condition [1].

Case Presentation

A 65-year-old female patient with a history of FIGO stage IIIc endometrial adenocarcinoma, diagnosed in 2020, was initially managed with total hysterectomy and bilateral salpingo-oophorectomy, followed by adjuvant radiotherapy and chemotherapy.

In July 2022, follow-up imaging revealed a peritoneal recurrence, presenting as a solitary necrotic intraperitoneal mass located in the right iliac fossa, in close contact with the terminal ileal loop, without radiological signs of bowel wall invasion (Figure 1). The case was discussed in a multidisciplinary tumor board, and a decision was made to initiate palliative chemotherapy.

Figure 1: *Initial CT scan: Axial contrast-enhanced CT scan in the portal phase showing an intraperitoneal mass (arrow) with central necrosis in contact with the terminal ileal loop (dashed arrow), without signs of invasion.*

On January 2023, the patient presented to the emergency department with persistent vomiting lasting for seven days. Laboratory investigations revealed a normal white blood cell count (7,000/µL), lymphopenia (900/µL), and markedly elevated C-reactive protein (191 mg/L). Contrast-enhanced abdominal CT demonstrated enlargement of the known peritoneal mass with evidence of a fistulous tract communicating with the terminal ileum, associated with focal bowel wall thickening, upstream ileal dilatation, and multiple air-fluid levels suggestive of small bowel obstruction (Figure 2).

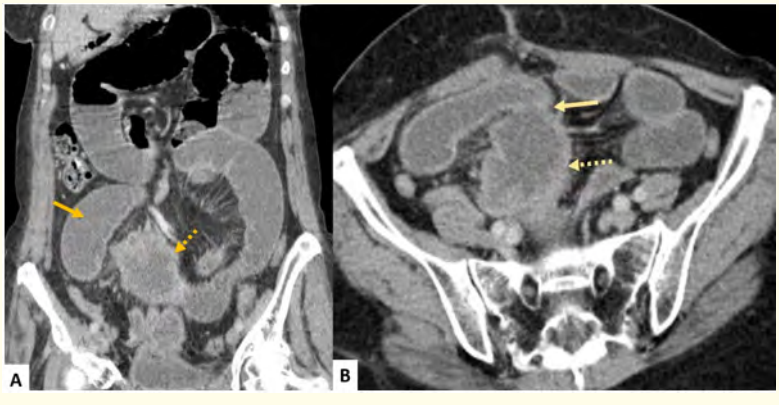

Figure 2: *(A) Coronal contrast-enhanced CT showing enlargement of the previous peritoneal mass (dashed arrow) with ileal dilatation (arrow) and the presence of air-fluid levels. (B) Axial contrast-enhanced CT demonstrating a fistulous communication between the mass and the ileal loop (arrow), resulting in parietal thickening with upstream ileal dilatation.*

The patient underwent emergency surgery, which included resection of the peritoneal mass, ileocecal resection, and partial ureterectomy involving the right pelvic ureter. Reconstruction was achieved via anastomosis over a JJ stent and creation of an ileocolostomy.

Ten days postoperatively, the patient developed a surgical site infection complicated by stoma retraction. She was reoperated for stoma revision and drainage of a localized collection. However, she experienced rapid clinical deterioration and succumbed to septic shock four days later, despite aggressive intensive care management, including vasoactive support and broad-spectrum antibiotics.

Discussion

Endometrial carcinoma is the most common gynecologic malignancy in high-income countries, with its incidence rising in low- and middle-income regions due to increasing rates of obesity and improved life expectancy. The prognosis is generally favorable in early-stage disease and in tumors with endometrioid histology. The primary treatment consists of surgical management, typically hysterectomy with bilateral salpingo-oophorectomy, often followed by adjuvant radiotherapy and/or chemotherapy depending on prognostic factors [3].

Despite adequate treatment, recurrence occurs in 20% to 35% of patients with poor prognostic features. The most frequent sites of recurrence are the lymph nodes, vagina, and peritoneum-the latter accounting for approximately 28% of relapses [4]. Peritoneal recurrence can manifest as large tumor masses, which may exert mass effect on adjacent bowel loops or directly erode the bowel wall, resulting in the formation of a tumor-bowel fistula (TBF) [1,2].

TBF is a rare but serious complication of abdominopelvic malignancies such as ovarian, cervical, colorectal, and retroperitoneal tumors [1,5]. Fistulization can occur spontaneously due to tumor progression or may be precipitated by oncologic therapies, particularly chemotherapy, radiotherapy, and molecular targeted treatments with antiangiogenic properties [1]. Clinically, TBF presents with nonspecific symptoms, including abdominal pain, vomiting, diarrhea, gastrointestinal bleeding, fever, and signs of sepsis. It may also be asymptomatic, especially in patients undergoing targeted therapy. When complicated by bowel obstruction, as in the present case, the clinical picture may include persistent vomiting and complete constipation [1,6].

TBF can be further complicated by abscess formation, tumor perforation with secondary peritonitis, or life-threatening hemorrhage in cases involving vascular invasion [1].

Computed tomography (CT) is the gold standard for diagnosing tumor-bowel fistulas and evaluating associated complications. It plays a central role both in the emergency and follow-up settings. CT should be performed with both intravenous contrast (in the portal venous phase) and oral contrast media to enhance diagnostic sensitivity. Diagnostic criteria for TBF include the presence of an extra-luminal tumor adjacent to a bowel loop, along with at least two of the following: intra-tumoral gas, oral contrast leakage into the tumor, or a clearly visible fistulous tract between the tumor and the bowel [7].

CT imaging also allows for the identification of TBF-related complications such as abscesses, perforation (evidenced by peritumoral fat stranding, peritoneal effusion, pneumoperitoneum, or contrast extravasation), and vascular involvement (e.g., pseudoaneurysm) [7]. In cases of bowel obstruction, CT is crucial for determining the level, severity, and underlying cause of the obstruction [8].

Magnetic resonance imaging (MRI) may serve as a complementary modality, particularly when CT is contraindicated or inconclusive. T2-weighted sequences and post-contrast T1-weighted sequences are particularly useful for characterizing fistulous tracts. Fluid-filled fistulas appear hyperintense on T2-weighted and fat-suppressed images, with associated enhancement, while gas-filled tracts exhibit low signal intensity on all sequences. Fibrotic tracts typically demonstrate low signal intensity without enhancement [9].

Currently, there is no standardized treatment protocol for TBF. In the absence of acute complications, conservative management may be considered, involving cessation of the offending anticancer therapy, antibiotic administration, and close radiological monitoring. However, definitive treatment often requires surgical resection of the tumor and the affected bowel segment [1]. Surgical intervention may be technically challenging due to tumor size, location, prior radiotherapy, and associated adhesions. In such cases, preoperative image-guided drainage of associated collections may be beneficial [10].

Conclusion

This case illustrates a rare complication of peritoneal recurrence in endometrial cancer, presenting as a tumor-bowel fistula associated with small bowel obstruction. CT imaging played a critical role in diagnosing the fistulous tract and guiding surgical management. Recognizing this entity is crucial for timely intervention, especially in patients with advanced or recurrent gynecologic malignancies.

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