

Strangulated Inguinal Hernia Caused by Obstructive Sigmoid Colon Carcinoma: A Case Report

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Abstract

Background:

Inguinal hernias are common in the general population and typically contain omentum or small bowel. However, there have also been reports of unusual contents within the hernia sac. We present a rare case of a strangulated left inguinal hernia containing an obstructing sigmoid colon carcinoma.

Case Presentation:

A 69-year-old male presented with a several-day history of abdominal pain, distension, vomiting, and bilateral groin swelling. Physical examination revealed a tense abdomen and bilateral inguinal hernias, with the left side being non-reducible. An abdominal CT scan demonstrated herniation of the sigmoid colon into the left inguinal canal, marked colonic dilatation, and air-fluid levels. Emergency surgery was performed through a left inguinal incision, revealing a strangulated segment of the sigmoid colon with a completely obstructing intraluminal mass. To ensure oncologic adequacy, a laparotomy and Hartmann's procedure were carried out. Due to contamination, the posterior wall of the inguinal canal was repaired without the use of mesh. The patient was discharged on postoperative day 7.

Conclusion:

Surgeons should consider the possibility of underlying colorectal malignancy when operating on inguinal hernias, particularly in cases of incarceration, and should ensure appropriate oncologic resection and lymphadenectomy when indicated.

Keywords: Inguinal hernia, incarcerated hernia, sigmoid colon carcinoma, bowel obstruction, colorectal cancer



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1 | Introduction

An inguinal hernia is a protrusion of intra-abdominal organs through a defect in the abdominal wall into the inguinal canal. Inguinal hernias are the most common type of abdominal wall hernia (73%), primarily due to the weak muscular anatomy of the inguinal region and the presence of natural weaknesses such as the deep ring and cord structures. Indirect hernias are more common than direct hernias¹.

Inguinal hernias are usually asymptomatic and reducible. But require repair because of the potential for acute complications such as incarceration/strangulation. Incarcerate hernia is an irreducible hernia, but the blood supply to the contained part is intact, and there is no ischemia. Strangulation hernias are described in which the blood supply to the contained part has been impeded or cut off, and in which case, ischemia occurs².

Hernia repair is one of the most frequently performed surgical interventions; However, depending on the hernia content, hernia repair may present difficulties. Common contents of a hernia sac include omentum and small bowel, but rare entities such as the urinary bladder, appendix, and colon have also been described³. Malignant tumors are rare in inguinal hernias; most intrasaccular tumors are colonic, and within these, the most

common site is the sigmoid colon, usually the left inguinal hernia⁴.

Here, we report a rare case of a strangulated inguinal hernia secondary to an undiagnosed obstructive sigmoid colon carcinoma.

2 | Case Report

A 69-year-old male with a known history of bilateral inguinal hernias for approximately two years presented to the emergency department with a several-day history of abdominal pain, distension, vomiting, and bilateral groin swelling. On physical examination, the abdomen was distended without rebound tenderness. Bilateral inguinal hernias were evident, with the left side being significantly larger and irreducible.

Laboratory investigations revealed leukocytosis (WBC: $17.65 \times 10^9/L$) and elevated C-reactive protein (CRP: 97.77 mg/L). Contrast-enhanced abdominal computed tomography (CT) showed herniation of the sigmoid colon into the left inguinal canal (Figure 1), significant colonic dilatation and air-fluid levels within the bowel loops (Figure 2).





Figure 1: Contrast-enhanced abdominal computed tomography demonstrating herniation of the sigmoid colon into the left inguinal canal.

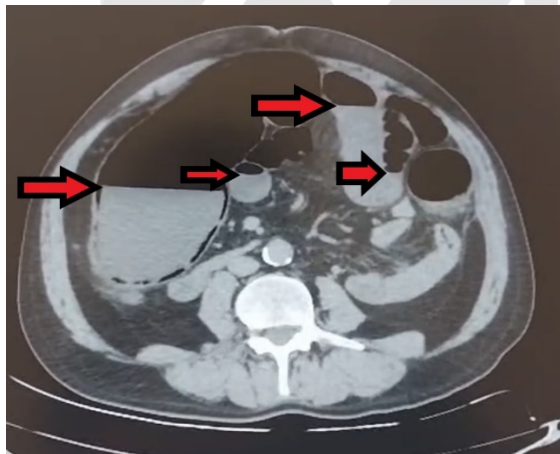


Figure 2: Contrast-enhanced abdominal computed tomography demonstrating significant colonic dilatation and multiple air-fluid levels within the bowel loops.

The patient was taken to the operating room for emergency surgery. Through a left inguinal incision, the inguinal canal was explored, revealing a segment of the sigmoid

colon within the hernia sac. Upon opening the hernia sac, a firm intraluminal mass completely obstructing the sigmoid colon was identified (Figure 3). Although contrast-enhanced abdominal CT had suggested that the intestinal obstruction was caused by the left incarcerated inguinal hernia, intraoperative findings revealed that the primary cause of the obstruction was the intraluminal colonic mass. The mass also accounted for the clinically irreducible nature of the hernia, as it prevented reduction of the sigmoid colon through the hernia defect.

Due to the suspicion of malignancy and the necessity for oncologically appropriate resection and lymphadenectomy, the procedure was converted to a formal laparotomy. A Hartmann's procedure was performed. Given the risk of contamination related to the manipulation and resection of the obstructed sigmoid colon, the posterior wall of the inguinal canal was repaired with primary sutures (posterior wall plication), and mesh was not utilized.

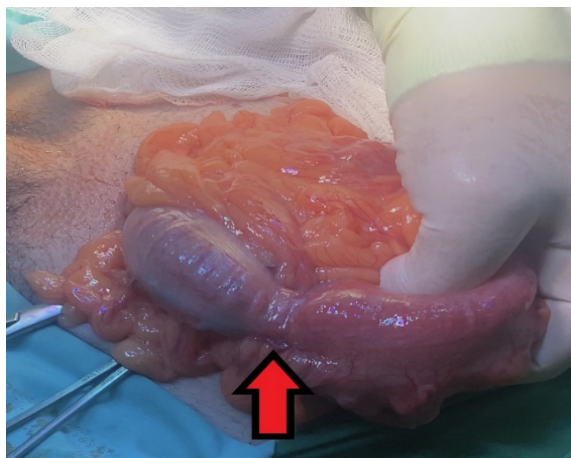


Figure 3: Intraoperative view of the intraluminal sigmoid colon mass causing complete bowel obstruction.

Histopathological examination of the resected specimen revealed a $3 \times 2.5 \times 1$ cm ulcerovegetative solid mass causing complete luminal obstruction. The proximal and distal resection margins measured 13 cm and 12 cm, respectively. Microscopically, the tumor was a moderately differentiated adenocarcinoma (G2), extending through the muscularis propria into the pericolic adipose tissue, with no lymph node metastases (0/12 nodes). Perineural and lymphovascular invasion were noted. The final pathological staging was pT3N0M0.

Given the pathological stage and the presence of adverse histopathological features, particularly LVI and PNI, the patient was considered to have an increased risk of disease recurrence despite the absence of lymph node metastases. Following

multidisciplinary evaluation, adjuvant systemic chemotherapy was therefore recommended to reduce the risk of occult micrometastatic disease and subsequent recurrence.

The patient received 12 cycles of adjuvant FOLFOX chemotherapy, consisting of oxaliplatin, leucovorin (folinic acid), and 5-fluorouracil (5-FU). An oxaliplatin-based fluoropyrimidine regimen was selected because FOLFOX is an established adjuvant chemotherapy regimen for resected colorectal adenocarcinoma, particularly in patients with pathological features associated with an increased risk of recurrence. The patient completed all 12 planned cycles with regular clinical and laboratory monitoring.

At the 1-year postoperative follow-up, the patient underwent a comprehensive clinical evaluation, including physical examination, contrast-enhanced abdominal computed tomography (CT), and colonoscopy. No evidence of local or systemic oncological recurrence was identified. Colonoscopy showed no evidence of recurrent intraluminal disease, and no clinical or radiological evidence of recurrent inguinal hernia was observed. The patient remained clinically well, with no evidence of either oncological or hernia recurrence during the follow-up period.



3 | Discussion

The coexistence of an obstructing sigmoid colon carcinoma and an incarcerated or irreducible inguinal hernia represents an uncommon clinical scenario. Although inguinal hernias are frequently encountered in surgical practice and colorectal cancer is a common gastrointestinal malignancy, their simultaneous presentation with acute intestinal obstruction creates a rare and diagnostically challenging situation. In the present case, the sigmoid colon was found within the left inguinal hernia sac, while an intraluminal sigmoid tumor caused complete luminal obstruction. This unusual combination resulted in a clinical presentation initially suggestive of mechanical obstruction secondary to the incarcerated hernia, whereas the underlying malignancy was the primary cause of the intestinal obstruction. Such cases highlight the importance of considering an underlying intraluminal pathology when evaluating an irreducible inguinal hernia associated with bowel obstruction.

Inguinal hernias occur in approximately 5%–10% of the general population and are typically asymptomatic and reducible⁵. The diagnosis is usually made clinically, without requiring imaging. However, in unclear cases or when complications such as incarceration, strangulation, bowel obstruction, sepsis, or peritonitis are suspected, radiologic imaging

may be necessary. Ultrasound or CT imaging can be useful in such complex situations⁶. In our case, due to the acute abdominal presentation, contrast-enhanced abdominal CT was the initial diagnostic modality. Although the scan revealed sigmoid colon herniation, the radiologist reported no wall thickening or mass indicative of malignancy preoperatively. Inguinal hernia sacs most commonly contain omentum or small bowel. However, rare contents such as an inflamed appendix, urinary bladder, ovary, colon, and occasionally malignant lesions have also been described^{7,8}.

Colorectal cancer (CRC) typically presents with abdominal pain, altered bowel habits, melena, or other systemic manifestations of malignancy⁹. In rare instances—estimated at approximately 1 in 200 cases of CRC—the tumor may extend through a preexisting inguinal wall defect, presenting as a hernia. The sigmoid colon is the most frequently involved segment in such rare presentations¹⁰.

Failure to identify an obstructive colonic tumor preoperatively may lead to suboptimal surgical planning and delays in initiating adjuvant therapy¹¹. In our patient, the initial choice of a left inguinal incision was likely suboptimal due to the preoperative underestimation of the pathology. Upon discovering a completely obstructing intraluminal mass within the sigmoid colon



during exploration, the procedure was converted to a formal laparotomy to ensure oncologic adequacy. A Hartmann's procedure with appropriate lymphadenectomy was performed.

Given the risk of contamination related to the manipulation and resection of the obstructed sigmoid colon, the posterior wall of the inguinal canal was primarily repaired without mesh. This approach avoided the placement of foreign material in a potentially contaminated operative field and allowed simultaneous management of both the obstructing colonic pathology and the irreducible inguinal hernia. In non-perforated cases where bowel integrity is preserved, the risk of infection is lower, allowing mesh repair to be safely performed and reducing recurrence¹². However, in cases of perforation or severe contamination, the use of prosthetic mesh should be avoided.

Oncologic colonic resections, including sigmoidectomy, should follow standard principles such as adequate proximal and distal resection margins, high ligation of feeding vessels, and the removal of at least 12 lymph nodes. Histological evaluation should confirm negative margins, ideally with a distance of ≥ 5 cm proximally and ≥ 1 –2 cm distally, clear of malignant cells^{13–15}.

This case highlights an important diagnostic consideration in patients presenting with an

irreducible inguinal hernia and features of intestinal obstruction. Although an incarcerated hernia may initially appear to provide an adequate explanation for the clinical and radiological findings, the presence of an underlying intraluminal lesion should also be considered, particularly when the degree of obstruction appears disproportionate to the hernia findings or when the clinical course is atypical. In our patient, preoperative contrast-enhanced CT demonstrated herniation of the sigmoid colon into the left inguinal canal and suggested that the hernia was responsible for the intestinal obstruction. However, intraoperative exploration revealed that the sigmoid colon contained a firm intraluminal mass producing complete luminal obstruction, while there was no evidence of bowel ischemia or strangulation. The inability to reduce the hernia was subsequently understood to be related to the obstructing tumor rather than to strangulation of the herniated bowel.

This observation has practical implications for both preoperative assessment and intraoperative decision-making. In patients with an irreducible inguinal hernia accompanied by bowel obstruction, particularly in older patients or in those with radiological findings suggesting colonic obstruction or marked bowel dilatation, an underlying colorectal malignancy should remain within the differential diagnosis. Careful review of cross-sectional imaging for



an intraluminal mass, abnormal mural thickening, proximal bowel dilatation, and other features suggestive of colorectal malignancy may help identify the underlying pathology before surgery. Nevertheless, in an acute obstructive setting, the diagnosis may remain challenging, and definitive identification of the cause may only be possible during surgical exploration.

The present case also emphasizes the importance of adapting the operative strategy to the intraoperative findings rather than attributing the entire clinical presentation to the apparent incarcerated hernia. Once the obstructing sigmoid tumor was identified, the surgical approach was directed toward definitive management of the malignant obstruction while simultaneously addressing the inguinal hernia. The decision to perform primary repair of the posterior wall without mesh was influenced by the potential contamination associated with colorectal resection. At one-year follow-up, the patient demonstrated no clinical, radiological, or endoscopic evidence of oncological recurrence or recurrent inguinal hernia. Taken together, this case underscores that an irreducible inguinal hernia with acute bowel obstruction may occasionally represent a manifestation of an underlying colorectal malignancy, and that maintaining a broad differential diagnosis and performing thorough intraoperative exploration are essential for appropriate management.

4 | Conclusion

Colorectal cancer presenting as a strangulated inguinal hernia is exceedingly rare. In this case, an undiagnosed obstructing sigmoid carcinoma was the underlying cause. Surgeons should stay alert for underlying malignancy during emergency hernia operations and be ready to adjust the surgical plan to ensure adequate oncologic resection and timely adjuvant therapy.

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