

Richter's Hernia as a Cause of Acute Abdomen: An Unusual Case

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ABSTRACT

Richter's hernia is a rare entity, accounting for approximately 10–15% of strangulated hernias. It is characterized by the incarceration of only the antimesenteric portion of the small intestine through a narrow defect in the abdominal wall. Unlike other hernias, it usually does not cause complete intestinal obstruction, which makes early diagnosis difficult and may delay treatment. In up to 60% of cases, it can rapidly progress to ischemia and intestinal perforation if not managed promptly, with reported mortality rates of up to 17%.

Although it can occur in various anatomical locations, it is most commonly found in the femoral canal (up to 88% of cases), followed by the inguinal region (12–24%) and the umbilical region, which accounts for approximately 6–10% of cases. It can also appear in incisional or port sites following laparoscopic procedures. Clinical diagnosis is challenging due to the atypical presentation; however, high-resolution ultrasound is useful for identifying the hernia defect and assessing bowel viability, while computed tomography offers higher diagnostic sensitivity in ambiguous cases.

Treatment is surgical and should be performed urgently. When there is irreversible ischemia of the bowel segment, resection and primary anastomosis are required. In contaminated settings, the use of prosthetic mesh is contraindicated. Prognosis is directly related to the time from symptom onset to surgical intervention.

In conclusion, although uncommon, Richter's hernia should be considered in the differential diagnosis of localized acute abdomen without signs of complete obstruction. Early recognition through imaging and timely surgical management are key to avoiding serious complications and improving patient outcomes.

KEYWORDS: Richter's hernia, Acute abdomen, Intestinal strangulation, Differential diagnosis, Intestinal ischemia, Abdominal hernias, Hernia complications.

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INTRODUCTION

Richter's hernia is an uncommon form of abdominal wall hernia, characterized by the incarceration or strangulation of

only part of the intestinal wall circumference—usually the antimesenteric border of the ileum. Unlike other hernias involving full bowel loops, Richter's hernia does not typically

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result in complete intestinal obstruction, which hinders early clinical diagnosis. This anatomical peculiarity allows partial continuation of intestinal transit, masking classical obstructive symptoms and delaying therapeutic intervention. Although it accounts for only 10–15% of all strangulated hernias, its clinical course may be rapid and potentially fatal due to the risk of ischemia and bowel perforation without evident signs of obstruction. It is most commonly associated with femoral hernias, but may also appear in umbilical, inguinal, or previous surgical incision sites.

This article presents the clinical case of a patient with nonspecific abdominal pain in whom Richter's hernia was identified as the underlying cause of acute abdomen. Clinical, imaging, and surgical findings are discussed, as well as diagnostic and therapeutic considerations, to highlight the importance of including this entity in the differential diagnosis of acute abdomen, particularly in patients with risk factors or a history of hernia.

CLINICAL CASE

A 35-year-old previously healthy male presented with a 24-hour history of localized abdominal pain in the right

infraumbilical region. The pain was progressive, sharp, and moderate to severe in intensity, accompanied by nausea but no vomiting, fever, or changes in bowel habits. He denied any history of previous surgery, trauma, or unusual physical exertion.

On physical examination, he was afebrile with stable vital signs. The abdomen was soft, mildly distended, and tender to deep palpation in the right infraumbilical area. A small bulge and localized tenderness were noted along the midline, just below the umbilicus. There were no clear signs of peritoneal irritation or palpable mass. Rebound tenderness was mildly positive in the painful area.

An abdominal and lower abdominal wall ultrasound was requested, using a high-frequency linear transducer. The study revealed a fascial defect approximately 10 mm in diameter in the midline infraumbilical region, suggesting an umbilical hernia with signs of incarceration (**Figure 1**).

Based on the clinical presentation and imaging findings, a diagnosis of incarcerated infraumbilical hernia was made. Due to the risk of ischemia and perforation, urgent surgical intervention was performed via a supra- and infraumbilical approach.



Figure 1: Abdominal ultrasound showing an infraumbilical hernia.

Intraoperatively, a hernia sac measuring approximately 9 × 11 mm was identified in the midline infraumbilical area, containing the antimesenteric border of the small intestine, specifically the ileum, about 140 cm proximal to the ileocecal

valve. The involved segment appeared ischemic and failed to regain color or peristalsis after warm saline application and repositioning maneuvers. Due to the irreversible vascular compromise, segmental resection was performed (**Figure 2**).



Figure 2: Richter's hernia with vascular compromise of the intestine.

A segmental small bowel resection with appropriate margins was carried out, followed by a hand-sewn, two-layer, end-to-end extramucosal anastomosis. The inner layer (mucosa and submucosa) was sutured with continuous absorbable polyglactin 910 3-0, and the outer seromuscular layer with interrupted 3-0 silk sutures. The abdominal cavity was irrigated with warm saline, and the hernia defect was closed in anatomical layers. The skin was closed conventionally.

The patient had a stable postoperative course with progressive recovery of bowel function and no signs of infection or wound complications.

DISCUSSION

Richter's hernia is a rare but clinically significant variant of strangulated abdominal hernia, characterized by protrusion and vascular compromise of only the antimesenteric wall of the small bowel. Because bowel continuity is maintained, typical features of obstruction are often absent, making diagnosis challenging and delaying treatment. Although it accounts for only 10–15% of strangulated hernias, the risk of rapid progression to ischemia, perforation, and peritonitis underscores the need for timely recognition and intervention. The case discussed involves a young adult male with no prior surgical history who presented with localized abdominal pain without classical obstructive signs. The absence of a palpable mass and subtle clinical findings illustrate the diagnostic difficulty. Differential diagnoses include incarcerated inguinal or femoral hernias, acute appendicitis, right-sided diverticulitis, inflammatory bowel disease, abdominal wall abscesses, and mesenteric lymphadenitis, among other causes of localized acute abdomen.

This case emphasizes the importance of maintaining a high index of suspicion in patients with focal abdominal pain without clear signs of obstruction or hernia. Ultrasound played a key role in early detection, while prompt surgical management prevented further complications. A multidisciplinary approach and awareness of this rare presentation are essential to improve outcomes in similar clinical scenarios.

CONCLUSION

Richter's hernia is an uncommon but critical condition within the spectrum of abdominal wall hernias, accounting for approximately 10–15% of strangulated cases. Its clinical relevance lies in its atypical presentation, as it involves only a partial circumference of the bowel wall, often without causing complete intestinal obstruction. This makes diagnosis difficult and may lead to treatment delays, increasing the risk of severe complications such as ischemia, necrosis, and perforation with subsequent peritonitis.

From an epidemiological standpoint, Richter's hernia can affect patients of any age, although it is more frequently seen in young to middle-aged adults. It tends to occur in areas of anatomical weakness such as the femoral, inguinal, umbilical, or infraumbilical regions. Predisposing factors include congenital or acquired defects of the abdominal wall, sudden increases in intra-abdominal pressure, and prior abdominal surgery. Given the lack of classic obstructive signs, it must be considered in the differential diagnosis of localized acute abdomen, particularly in cases with focal pain and no palpable mass.

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Early diagnosis relies on imaging tools such as high-resolution ultrasound with linear transducer, which is effective in detecting wall defects and protruded bowel with compromised perfusion. In more complex cases, computed tomography provides valuable additional information.

Definitive treatment is surgical and should be performed urgently when strangulation is suspected to avoid progression to bowel necrosis and perforation. Surgical approach depends on the viability of the bowel segment. If necrosis is present, segmental resection followed by end-to-end anastomosis is indicated. The choice of closure technique must consider field contamination, and mesh use should be avoided in infected scenarios to prevent postoperative complications.

In summary, Richter's hernia is a surgical emergency that requires high clinical suspicion and appropriate imaging to ensure early diagnosis. Timely surgical management is crucial to reduce morbidity and mortality. The correct selection of surgical technique and postoperative care are essential for favorable recovery and to prevent recurrence. Knowledge and awareness of this condition are vital for improving clinical outcomes in patients presenting with acute abdomen of uncertain origin.

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