

Case Report

Richter Hernia: A Deceptive clinical Entity.

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Abstract

Richter hernia is the entrapment of a part of the circumference of the anti-mesenteric border of intestine through a small rigid fascial defect. It is a rare clinical entity with misleading clinical features, notoriously associated with rapid onset of gangrene, and possess considerable morbidity and mortality. This case report highlights the illusive nature of Richter hernia with literature review.

Key words: *Richter hernia, ileus, strangulation, gangrene, perforation.*

Introduction

Richter hernia is the herniation of small anti-mesenteric part of bowel through a fascial defect. The involve segment may rapidly progress to gangrene, all though the features of full-blown intestinal obstruction are often missing¹. This phenomenon exactly explains the basis of its misleading clinical features and delay in diagnosis. Richter hernia is an uncommon member of hernia family and accounts of 10% of all types of hernia². Women are more frequently affected and femoral ring is the frequent site of entrapment. On the other hand, with the advent of minimal access surgery, the incidence of Richter hernia is escalating³. Operative treatment of Richter hernia depends on the viability of the affected bowel and may require segmental resection in addition to the repair of fascial defect.

Case report

A 62 years old obese lady, admitted in the hospital with 2 days history of severe abdominal pain, nausea and vomiting. Clinically patient was stable but having a hot, red, tense, and tender a central abdominal swelling with absence of visible and palpable cough impulse, clinically consistent with parietal abscess (Fig. 1). Her bowel habit was relatively normal. Patient was diabetic and hypertensive and underwent laparoscopic cholecystectomy 2 years back. Laboratory investigation revealed mild anemia, neutrophilic leukocytosis with raised CRP. Standing radiograph of abdomen documented no acute catastrophes. Contrast enhanced tomography (CT abdomen) demonstrated a musculo-aponeurotic defect in left para-umbilical region and having a large mixed density area containing fluid and air in the parties and inflammatory changes at

infra-umbilical anterior abdominal wall (Fig. 2). Operation was carried out through midline incision and revealed a perforated gangrenous transverse colon at its anti-mesenteric border (Fig. 3). Segmental resection and anastomosis of transverse colon was done. A protective colostomy was not attempted due to low fecal load. After closer of the linea alba, skin wound kept open for local sepsis control. Post operative period was eventful and the patient developed a wound dehiscence on 5th post operative day. After a series of dressing, mass closure of the wound done using tension suture. Patient recover smoothly after words and discharged home. Wound healed adequately having no discharge or bulge. She has been under regular vigilance for early detection of incisional hernia.

Discussion

German surgeon, Fabricious Hildanus reported the first ever case of Richter hernia in 1558. Later, another country man, August Gottlieb Richter documented the scientific details of this rare entity and the hernia adopted his eponym thereafter⁴ Richter hernia occurs when anti-mesenteric wall of intestine herniates through small defect, large enough to trap part of a bowel. This type of hernia mostly diagnosed in patient in 6th to 7th decades of life. Although cases happened reported in infants⁵.

Common sites of Richter hernia are the femoral ring (36%-88%), followed by the inguinal ring (12-36%), abdominal wall (4-25%). Rare sites includes: umbilical, spigelian, supra-vesical, sacral foramen, triangle of Petit, retro-sternal (Morgagni) and diaphragmatic hernia^{2,6}.

There has been an increased incidence (5%-15%) of laparoscopic port site entrapment of intestine with the increasing popularity of minimal access surgery, globally. 10-20 mm size ports are mostly vulnerable (2.3-3.5) % if not closed adequately. Even smaller ports of 5mm happen reported to be associated with Richter hernia^{3,7}.

Geographic distribution is a proven influencing factor. Incidence of Richter hernia is much higher among African people. A flabby, elastic bowel from poor

nourishment, seems to be entrapped more in this tropical group⁸. In addition, Richer hernia has also been reported as a complication of tenchkoof catheter, used for continuous ambulatory peritoneal dialysis (CAPD)⁹.

In Richter hernia, the partially involved segment rapidly progresses to gangrene while the bowel lumen remains patent^{7,10}. Here, the hernial orifice is small enough to accommodate a portion of the bowel while the greater portion of the bowel circumference remains uninterrupted^{8,11}. Distal ileum is the most commonly entrapped segment. However, any part of gastrointestinal tract from stomach to colon may become incarcerated¹². Antonio Scarpa, in his cadaveric experiment, documented the mechanism of such obstruction. He stated that constriction of 2/3rd or more of the bowel is necessary for total obstruction. On the other hand, occlusion of 1/3rd of the lumen only evokes incomplete obstruction, mimicking the features of Richter hernia, violating the paradigm of full-blown intestinal obstruction^{8,10,12}.

King Worth and Le Blank¹³, considered Richter hernia to be a progressive disease from partial involvement of the bowel without obstruction, to subacute obstruction, to complete obstruction. (Fig. 4)

Botsford¹⁴, argued that a smaller portion of circumference of intestine could be sufficient enough for a significant twist or kink to produce obstruction. In Richer hernia the obstructed segment rapidly progresses to segmental ischemia and necrosis. Inadequate intramural vascular anastomosis at the anti-mesenteric border makes bowel vulnerable to become gangrenous if diagnosis is delayed¹⁵, logically explains the basis of high incidence of inceration in Richter hernia.

Richter hernia presents with a wide range of symptoms, initially mild but exacerbated over a short span of time. Symptoms may be either systemic (Fever, malaise), abdominal (cramp, intense pain, nausea, vomiting) or localized (painful mass in parities). In delayed cases, an abscess may be formed and ended up to enterocutaneous fistula¹⁶. One report described a case where Richter hernia was miss identified as a groin abscess and upon exploration, feculent material started to drain out from the abscess cavity^{16,17}.

Investigation

Various imaging modalities, including conventional radiography, ultrasonography (USG) and CT scan can be used. Conventional radiography detects the features of intestinal obstruction with bowel distention, intra-mural and air-fluid levels. USG plays a crucial role in evaluating the complications like strangulation or incarceration¹⁸. CT scan, on the other hand, is more favorable than others. It provides an accurate and panoramic view of abdomen, particularly helpful in the diagnosis of abdominal wall hernias and differentiation from other abdominal masses. This may, however, give a false negative result as the partial circumference of the bowel is involved in Richter hernia^{15,18,19}.

The inclusion of laboratory data like complete blood count and basic metabolic panel to evaluate for leukocytosis, thrombocytopenia, or electrolyte derangements is required to aid diagnosis. PT-INR ratio and a PTT should also be included in embedding sepsis²⁰.

Treatment

Treatment of Richter hernia depends on multiple factors including the location of hernia, the clinical status of patient and surgeons' preference. Stable patient with reducible hernia should undergo repair in elective setting. On the other hand, when strangulated, immediate operative exploration is required. Simultaneous resuscitation and treatment of sepsis should also be carried out with I/V fluid and parenteral antibiotics. Open surgical procedure is best suited in patient with hemodynamic instability, obstruction or strangulation. On the other hand, minimal excess technique either laparoscopy or use of robot are most conducive to hemodynamically stable patients without obstruction or strangulation²¹. Mesh placement is controversial and not recommended in the background of local sepsis²².

Manual reduction attempts of the hernial content should be postponed before direct inspection and checking the viability of the entrapped bowel. If the segment is viable, no further action is required but to repair the defect. However, in doubtful cases, segmental resection and anastomosis must be attempted²³. If the

50% of the circumference of the entrapped segment become nonviable, the simplest but safe method is invagination of the affected area and approximation of the viable margin by using suture even in limited facilities²⁴. In localized sepsis with gross bacterial contamination, after resection of gangrenous bowel and closure of hernial defect, wound closure has to be delayed to minimize post operative wound infection²⁵.

Conclusion

Richter hernia is a deceptive clinical scenario with significant rates of morbidity and mortality. The innocuous initial symptoms, sparse clinical scenario remains as a pitfall in early diagnosis of Richter's Hernia. Patients present with unexplained features of intestinal obstruction and a history of laparoscopic surgery, Richter's hernia should come up early as a differential diagnosis. Early operative intervention is of pivotal importance to get control over the disease and obtain a better outcome.

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Fig-1: Inflammatory swelling at central anterior abdominal wall.

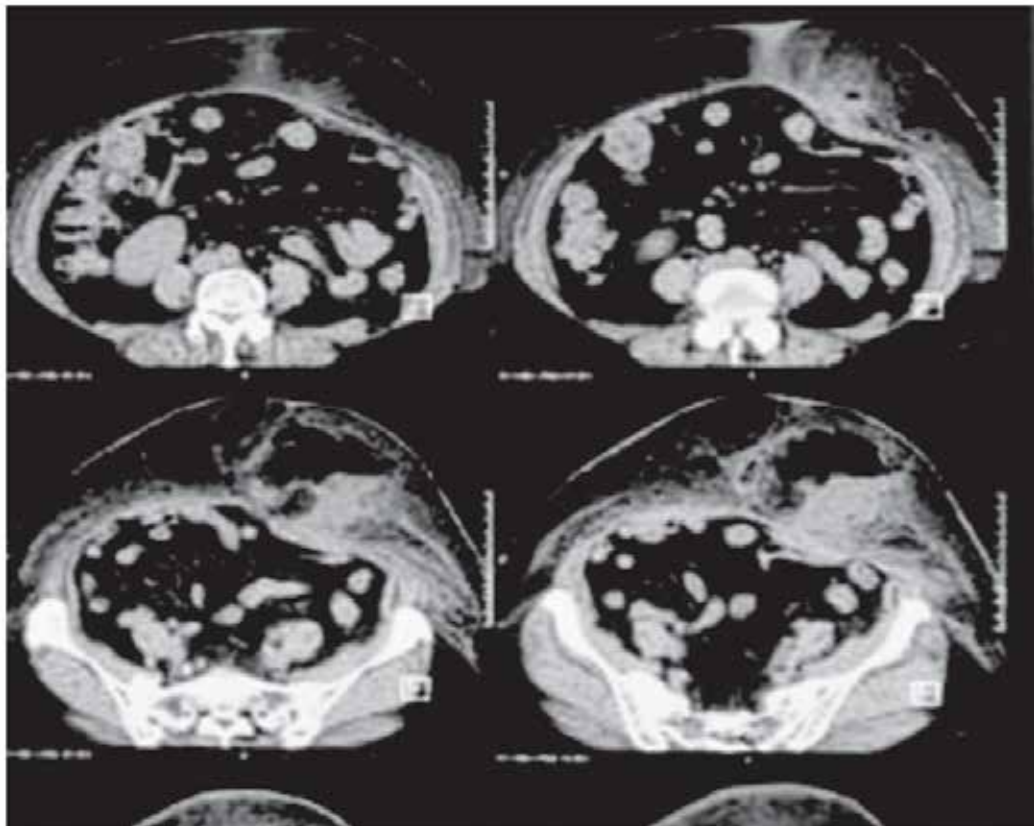


Fig-2: Left para-umbilical hernia with large mixed density lesion containing fat, fluid and air in the parties.



Fig-3: Perforated gangrenous transverse colon at the antimesenteric border.

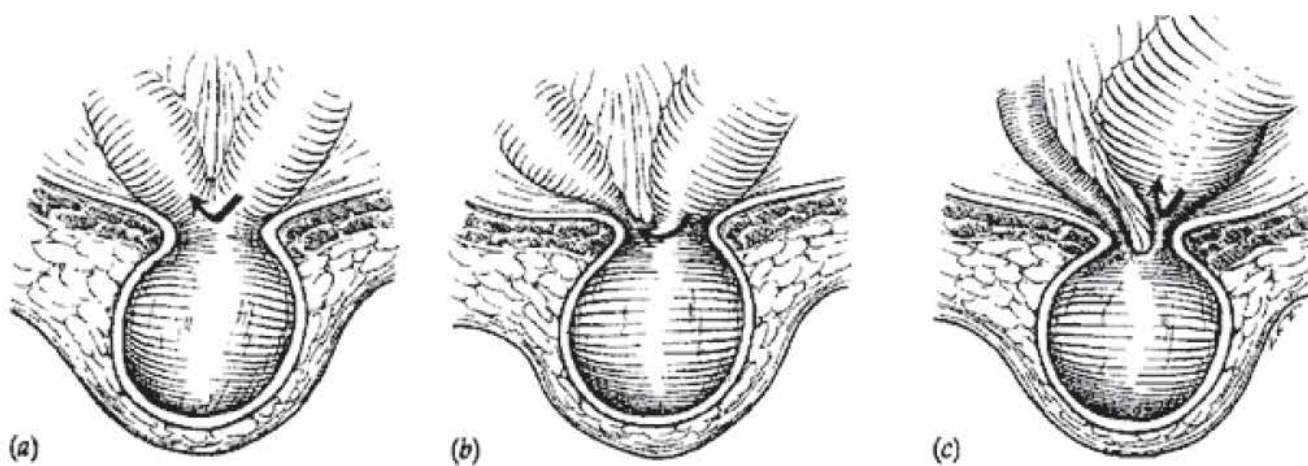


Fig-4: Schematic representation of the process of intestinal obstruction in Richter's hernia.(a)Partial involvement of the bowel circumference without obstruction.(b) Subacute obstruction (c) complete obstruction and strangulation of the incarcerated bowel.