



Gangrenous Appendicitis: A Rare Presentation of Pericecal Hernia; Case Report and Review of the Literature

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ABSTRACT

Intra-abdominal Hernias are rare conditions usually secondary to congenital defects, with pericecal hernias accounting for a minority of them. They can be difficult to diagnose due to non-specific presentations but may lead to strangulation and thus require early management. We herein report a rare case of pericecal hernia with gangrenous appendicitis in an 88 year-old lady presenting with features of acute intestinal obstruction and right iliac fossa lump, which on exploration was found to be a pericecal hernia with knotting, strangulation, and gangrenous changes of appendix. This case highlights the need of a high index of suspicion for internal hernias and that of prompt operative intervention to avoid enterectomies and to improve outcome.

Keywords: Pericecal hernia; Appendicitis; Internal hernia; Acute abdomen.

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Introduction

Internal hernia is defined as a protrusion of abdominal viscera, most commonly small bowel, into a normal or abnormal aperture within the abdominal and pelvic cavity [1,2]. It is a rare condition resulting from congenital mesenteric or peritoneal defects or due to malrotation of the midgut [3]. The incidence of the internal hernia varies between 0.2-0.9% according to the autopsy studies leading to small bowel obstructions in 0.6-5.8% of the individuals [4,5]. The internal herniation is classified into congenital (CIH) and acquired (AIH) based on the underlying pathophysiology. CIH is usually

caused by abnormal anatomic structural defects such as paraduodenal, transmesenteric, pericecal, transmesosigmoid, supra- or perivesical, Winslow's foramen, omental hernia, and rarely, hernia through the broad ligament, the mesoappendix, or the mesentery of a Meckel's diverticulum [6]. In contrast, the AIH mostly happens after surgical interventions such as gastric bypass [5] or Roux-en-Y anastomosis [4], leading to infection or inflammation of the abdominal structures.

The internal hernia is associated with significant mortality and morbidity making it an surgical emergency [6]. Thus early diagnosis and management of the condition is necessary for prevention of

complications. Usual presentations in all forms of internal hernia are similar [7,8]. We herein report a case of pericecal hernia with knotting and strangulation in an old lady presenting with acute abdomen.

Case Presentation

An 88 year-old lady presented to our emergency department with abdominal pain, distension, and multiple episodes of bilious, projectile vomiting for a period of 10 days and obstipation since 2 days prior to presentation. Pain was colicky in nature initially in the umbilical region and gradually spread to all abdominal regions. There was no history of fever, jaundice, major medical illness, tuberculosis, previous abdominal trauma and previous abdominal surgery. On physical examination abdomen was distended, with tenderness all over abdomen and an ill-defined tender lump in the right iliac fossa. upright abdominal radiography revealed multiple air-fluid levels (Figure 1) with dilated small bowel loops on supine view. Laboratory investigations revealed leukocytosis (18,700/ μ L). On nasogastric aspiration, around 500 mL of feculent fluid was aspirated. The patient was transferred to operating room immediately and underwent exploratory laparotomy. On laparotomy, there were enormously dilated small bowel loops with around 500 mL of serous peritoneal fluid. In the right iliac fossa, there was an internally herniated ileal loop through the ileo-colic mesentery as well as knotting of ileum and cecum with an intervening distended gangrenous

appendix (Figure 2). There was no mesenteric lymphadenopathy, tubercle, other abdominopelvic pathology. The hernia orifice was quite narrow to permit reduction, with the ileo-colic vessels winding

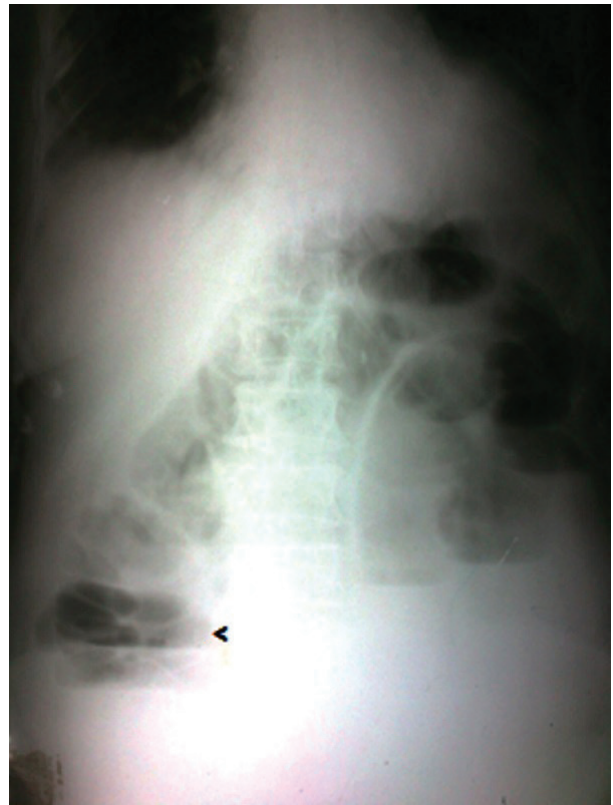


Fig. 1. Upright abdominal radiography revealing multiple air-fluid levels (arrow head showing air fluid level in the right iliac fossa).

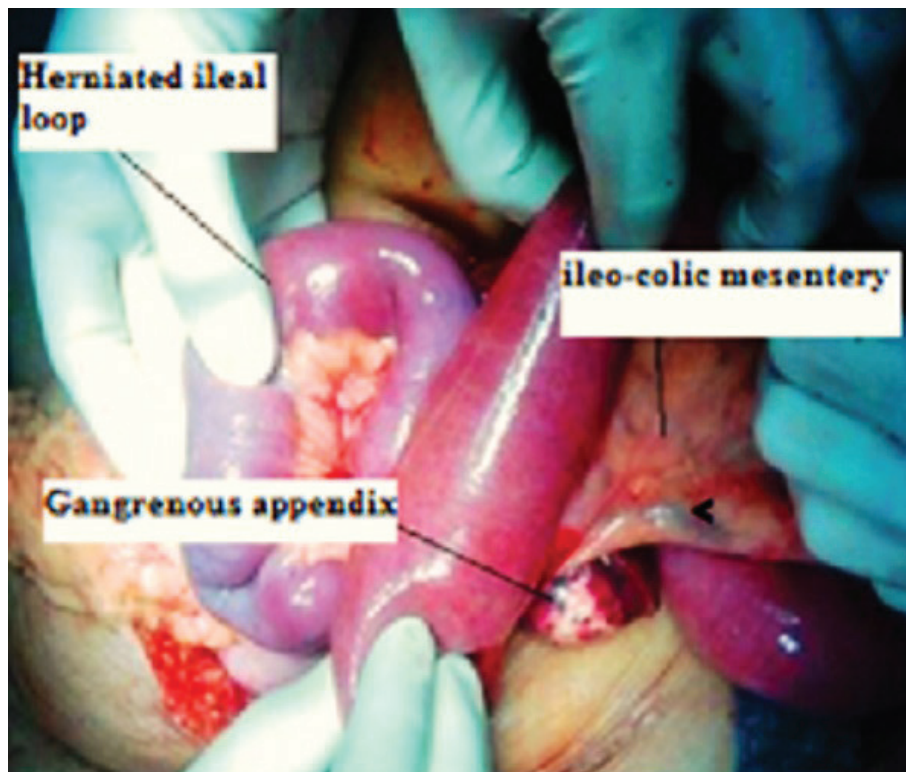


Fig. 2. Intraoperative view; arrow head indicates ileocolic vessels traversing neck of the hernia defect.

at the neck of the hernia and involved bowel was congested. Resection of the involved ileo-cecal segment was done with ileo-ascending anastomosis.

Gross examination of the resected specimen showed a cuff of mesentery around twisted ileal loops herniating through a defect in mesentery and forming a knot (Figure 3). Near the ileocecal junction, a reddish brown cystic structure measuring $4 \times 3.5 \text{ cm}^2$ attached to the cecum, which on histopathological sections showed cyst lined by simple cuboidal to columnar epithelium with no atypia and mitoses; wall being composed of fibro-collagenous tissue with part of muscle coat identified at one edge (suggesting mucocele of appendix) with foci of hemorrhagic infarction, calcification and extravasated mucin in the cyst wall. Intestinal mucosa had superficial erosion, inflammatory infiltrate, and vascular congestion. Post-operative period was uneventful and was discharged on 5th post-operative day with good tolerance of oral diet. In follow up visits patient was asymptomatic and was able to do her routine activities.

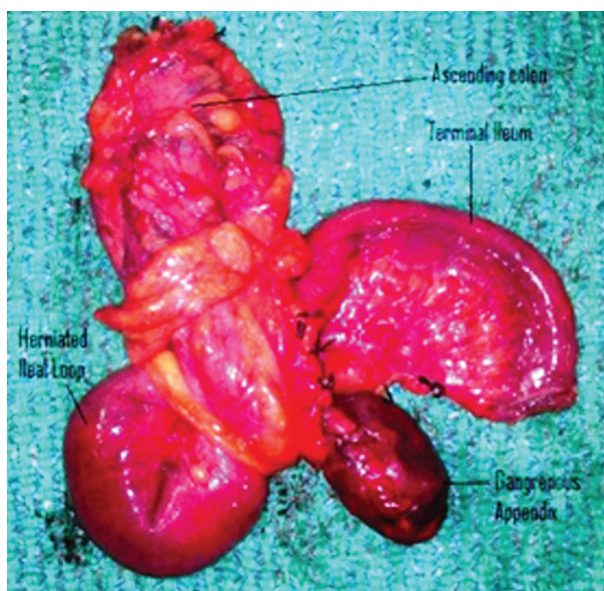


Fig. 3. Anteriorview of the resected pericecal hernia

Discussion

Internal abdominal hernia is the protrusion of viscera through acquired or congenital peritoneal or mesenteric defects into a compartment within the abdominal cavity and accounts for 0.5–5.8 % of all cases of intestinal obstruction [4,5]. The defects in mesentery and visceral peritoneum are mostly due to congenital, surgical, traumatic and inflammatory pathology. The incidence of acquired internal hernias is increasing especially in patients undergoing transmesenteric, transmesocolic, and retroanastomotic surgical procedures [7,9].

According to the classification by Ghahremani *et al.*, [10], internal abdominal hernia can be of six main groups: paraduodenal hernias, hernias

through the foramen of Winslow, transmesenteric hernias, pericecal hernias, intersigmoid hernias, and paravesical. Pericecal hernias account for only 6–13% of internal abdominal herniations. Pericecal hernia is often sub classified as--ileocolic, retrocecal, ileocecal, or paracecal hernia, however, the diagnostic features and surgical treatment of these sub-types are same [10,11].

The pericecal fossa is located just behind the cecum and ascending colon with the outer boundary formed by the parieto-cecal fold and the inner boundary formed by mesenterico-cecal fold. Most pericecal hernias involve protrusion of an ileal segment, through a defect in the cecal mesentery, into the pericecal fossa and extending toward the right paracolic gutter [3]. Meyer has described six peritoneal fosses in the ileocecal region, namely: paracecal sulci, cecal fossa, cecal recess, superior ileocecal recess, inferior ileocecal recess, and retrocecal recess [12,13]. In our case, herniation of terminal ileum occurred through superior ileocecal recess followed by probable twisting and resultant knotting (Figure 4).

Pericecal hernias usually present as recurrent episodes of intense lower abdominal pain which may be difficult to differentiate from appendiceal pain, but often with features of intestinal obstruction [6]. Correct preoperative diagnosis of pericecal hernia is usually difficult to make with regular work up and the diagnosis often made at laparotomy. A definite preoperative diagnosis can, however, be made with barium enema or CT examinations, where pericecal hernias appear as clustered fixed and dilated small-bowel loops postero-lateral to the normal cecum and possibly extending into the right paracolic gutter [9].

Pericecal Hernia is prone to strangulation mandating a prompt surgical treatment and a mortality rate of as high as 75% has been reported in cases of strangulation [14]. It is, therefore, suggested that closure of these defects be performed if incidentally found at laparotomy [15]. Laparoscopy can play a role in the diagnosis as well as treatment of internal hernia causing subacute intestinal obstruction when an obstructive lesion has been detected with decompression accomplished preoperatively [6]. Involvement of appendix as a pathology in pericecal hernia is rare and we are reporting a case where gangrenous appendicitis was a part of the pathology of the pericecal hernia and clinically presented as a tender right iliac fossa lump, masquerading as an appendicular lump [14]. The gangrenous appendicitis probably resulted from gradual strangulation of appendicular base at the hernianeck which led to mucocele formation and gangrenous wall changes.

In conclusion, we report a very rare presentation of pericecal hernia with strangulation and gangrenous appendicitis. The case highlights that a tender right iliac fossa lump with features of small bowel obstruction can be a diagnostic dilemma, and a delay



Fig. 4. Schematic diagram of pericecal hernia presenting as gangrenous appendicitis.

in diagnosing a strangulated pericecal hernia can lead to extensive bowel gangrene. So we recommend a high index of suspicion and early execution of laparotomy/ laparoscopy to avoid extensive

enterectomy and to improve outcome.

Conflict of Interest: None declared.

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