Evaluation of Acquired Pericecal Hernia Using Computed Tomography: a case report

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ABSTRACT

Internal abdominal herniation is infrequent, accounting for approximately 4.1% of small bowel obstructions. Pericecal herniation, which constitutes 10-15% of all internal abdominal herniations, may be congenital, because of herniation of a segment of the small bowel loop through one of the several pericecal recesses, or acquired, because of an adhesion band. A 70-year-old woman experienced severe right upper abdominal pain and vomiting for 1 day. Tenderness was noted in the right upper abdomen. Results of blood and urine analyses were normal. She had undergone an appendectomy 30 years previously. On the basis of computed tomography (CT) findings, a preoperative diagnosis of pericecal hernia was obtained. Immediate surgical exploration revealed an adhesion band between the appendiceal stump and the omentum; a 70-cm-long portion of the jejunum had herniated through the acquired defect. Preoperative recognition of the specific CT signs of pericecal hernia may prompt immediate surgery to reduce patient mortality and morbidity rates.

CASE REPORT

A 70-year-old woman experienced severe right upper abdominal pain and vomiting 3 times the night before admission to the emergency department. Tenderness was noted in the right upper abdomen. Results of blood and urine analyses were normal; no leukocytosis was found. The patient had undergone an appendectomy 30 years previously.

A series of imaging studies was obtained. Kidney, ureter, and bladder imaging (not shown) revealed medial displacement of the ascending colon air pattern. Contrast-enhanced multi-detector row computed tomography (MDCT; Brilliance CT 64-channel, Philips Medical Systems, Haifa, Israel) showed a cluster of fluid-filled and dilated small bowel loops in the right paracolic gutter; this cluster was located lateral to the anteromedially displaced cecum and ascending colon. MDCT also showed a beaking appearance and tethering of the proximal small bowel loop at the transition zone just inferior to the cecum, a collapsed distal small bowel loop, and a twisted appearance of the superior mesenteric vessels converging in the transition zone to the mesentery.

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zone (Fig. 1). These findings led to a preoperative CT diagnosis of pericecal hernia. Immediate surgical exploration revealed an adhesion band between the appendiceal stump and the omentum, and a 70-cm-long portion of the jejunum had herniated through the acquired defect. Enterolysis was performed; reduction of the jejunum revealed no ischemia. The patient had an uneventful 4-day hospitalization.

DISCUSSION

Internal hernia is a protrusion of intraabdominal viscera into a hiatus caused by a congenital or acquired defect [1-2]. It can be either congenital because of preexisting peritoneal defects, or acquired from conditions that increase the intraabdominal pressure (e.g., obesity, coughing, and straining), a traumatic event, or surgical procedure [1-2, 6]. It is a rare condition, accounting for 0.5-5.8% of all small bowel obstructions [1-4], and has a reported autopsy incidence of 0.2-0.9% [5].

Pericecal herniation constitutes 6-13% of all internal abdominal herniations [7-9]. Other terms (ileocolic, retrocecal, ileocecal, or paracecal hernias) are used interchangeably for pericecal herniation [7]. From the embryological viewpoint, completion of the midgut migration, fixation of the cecum in the right colic fossa, and resorption

Figure 1. Multi-detector row computed tomography with axial (a. to c. superior to inferior), reformatted coronal (d. and e. anterior to posterior), and sagittal f. images showing a cluster of fluid-filled and dilated small bowel loops (S) in the right paracolic gutter and located laterally to the anteromedially displaced cecum and ascending colon (C), a beaking appearance and tethering of the proximal small bowel loop (open arrow) in the transition zone just inferior to the cecum, a segment of collapsed distal small bowel loop (thin arrow), and a twisted appearance of the superior mesenteric vessels converging to the transition zone (curved arrow). An aperture is noted on the axial and sagittal images (between the open and thin arrows).
of the peritoneal surfaces occur in the fifth fetal month in a sequential order [1, 2, 9-10]. Four main pericecal recesses are formed by fusion and resorption of the peritoneal surfaces: superior ileocecal recess, inferior ileocecal recess, retrocecal recess, and paracolic sulci. Pericecal herniation may be congenital, because of a segment of the small bowel loop herniating through one of the aforementioned pericecal recesses into the pericecal fossa and extending to the right paracolic gutter. This condition may also be acquired because of an adhesion band (such as that caused by appendectomy, as in the present case) through which a segment of the small bowel is incarcerated in the right paracolic gutter.

The clinical symptoms of internal abdominal hernias are nonspecific and include abdominal discomfort, recurrent episodes of intense abdominal pain and vomiting, acute small bowel obstruction with strangulation, or intermittent partial obstruction in chronic incarceration [1, 7, 9]. The symptoms caused by pericecal hernia may be difficult to differentiate from appendiceal pain [7]; therefore, diagnosis is often difficult.

A precise and quick preoperative imaging diagnosis of internal abdominal hernias is mandatory because strangulation of the bowel loop may lead to ischemia and even gangrene in a short amount of time, thus increasing patient mortality rates. Delayed radiographs from a small bowel series or barium enema examination may reveal the obstruction site, but the procedures are time-consuming and cause further abdominal discomfort from the oral or anal insufflation of barium contrast medium [9].

CT is now considered the imaging modality of choice for the preoperative diagnosis of internal abdominal hernias [7, 9]. CT, especially MDCT, along with reformatted multiplanar coronal and sagittal images can be used for precise visualization of the abdominal anatomy, detection of the obstruction site, diagnosis of the cause of obstruction, and observation of the pathological conditions of the bowel wall, mesentery, and peritoneal cavity [1, 5]. Pericecal hernia can be diagnosed with high certainty using contrast-enhanced CT [1, 3-5, 9]. The CT appearances of the congenital and acquired types of pericecal hernias are similar and very specific: a cluster of encapsulated and fluid-filled dilated or edematous small bowel loops seen lateral to the anteromedially displaced cecum and ascending colon, displaced mesenteric vessels within the hernial sac, a beaking appearance at the entrance of the hernia, and a dilated afferent small bowel loop and collapsed efferent loop in the transition zone. The first CT sign was present in all reported cases to date [1, 3-5, 9], and all of these signs were present in our case.

Early surgical intervention is mandatory in these cases because treatment delays may result in bowel ischemia or even necrosis, leading to high patient morbidity and mortality rates [1, 5].

In conclusion, pericecal hernia is a relatively rare form of internal hernia. Early preoperative recognition and specific CT signs of the pericecal hernia may prompt immediate surgical operation to reduce patient mortality and morbidity rates.

REFERENCES