Lesser Omental Internal Hernia with Strangulation: A Case Report

Seung Yon Baek, M.D., Hye Young Choi, M.D., Sun Wha Lee, M.D.

Internal hernia is an unusual cause of the intestinal obstruction. The advances of CT make the diagnosis more easier than in the past. We report one case of internal hernia with herniation of the ileum into the lesser omentum. The diagnosis could be made when abdominal radiographs showed fixed clustering of the small bowel loops in upper abdomen medial to the stomach. CT and ultrasound showed characteristic interposition of the ileum between the left hepatic lobe and the stomach.

Index Words: Hernia, Omentum, Abdomen, CT, Intestines, stenosis or obstruction

Internal hernia is an unusual cause of intestinal obstruction. Preoperative diagnosis of internal hernia has been very difficult. However, with the recent increasing use and advances of CT, detection of its presence becomes much easier than in the past (1, 2). We report a case of lesser omental internal hernia of the ileal loop occurring through the defect in the anterior layer of lesser omentum.

CASE REPORT

A 88-year-old female patient presented with 1 day history of colicky abdominal pain and vomiting. On physical examination, her abdomen was distended and tenderness was present in the epigastric and periumbilical regions. The bowel sound was increased on auscultation. Initial blood pressure was 80/50 mmHg with pulse rate of 93/minute. Initial laboratory findings were normal.

Erect abdominal radiograph (Fig. 1) on admission revealed that a small bowel loop was abnormally located in high position below the left hemidiaphragm and medial to the gas-filled gastric fundus. Another small bowel loops distended with gas were seen at right abdomen and pelvic cavity as well as the evidence of fullness in the upper abdomen. The colon was not distended with gas. These findings were suggestive of mechanical obstruction of distal small bowel loop secondary to the internal hernia.

Emergent abdominal ultrasonogram (Fig. 2) was performed and revealed a single fluid-filled bowel loop in the upper abdomen just posterior to the left lobe of liver. The bowel wall appeared to be slightly thickened.

Retrograde filling of small bowel on barium enema (Fig. 3) showed unusual course of the ileum and marked dilatation of the jejunum in combination with abnormal high position of a segment of ileum.

Abdominal CT scan (Fig. 4) showed a fluid-distended small bowel loop in the region of lesser omentum, displacing the stomach posteriorly. The mesenteric vessels were also engorged with mesenteric edema.

At surgery, ileal loop of approximately 20 cm in length was herniated into the lesser omentum through a 2 cm defect in the anterior-inferior portion of the lesser omentum. Gangrenous change was noted in the herniated bowel segment. Segmental bowel resection was underwent with closure of the defect in the lesser omentum. On 26th postoperative day, she succumbed to acute respiratory distress syndrome and heart failure.

DISCUSSION

Internal abdominal hernia is defined as the protrusion of the viscera via a normal or abnormal aper-
Fig. 1. Erect plain abdominal radiograph shows that gas-filled small bowel loop (arrows) is abnormally located in high position below the left hemidiaphragm and medial to gastric fundus. Jejunal loops are distended with gas seen at right abdomen.

Fig. 2. Transeverse ultrasound of the upper abdomen shows tubular anechoic lesion (arrows) filled with fluid is seen in the posterior aspect of left hepatic lobe.

Fig. 3. Retrograde filling of small bowels on barium enema shows unusual course of the ileum and marked dilatation of the jejunum in combination with abnormally high position of a segment of ileum (arrows).

The autopsy incidence of internal hernia has been reported to be between 0.2 and 0.9% (3). Para-duodenal hernia is the most common form among all internal hernia (4).

Lesser omentum is the fold of peritoneum which extends to the liver from the lesser curvature of the stomach and the commencement of duodenum (5). It is continuous with two layers covering anterior-superior and posterior-inferior surface of the stomach and about first 2 cm of the duodenum. Right and left gastric arteries, veins, gastric nerve branches, and lymph nodes lie between the two layers of lesser omentum (5).

The defect in the lesser omentum, through which herniation occurs, can be either congenital anomalies of intestinal rotation or peritoneal attachment or acquired ones (3, 6). Of the acquired types, both surgical and blunt abdominal trauma have been implicated (4). The lesser omentum is normally shielded by the liver in hepatorenal fossa. The access of the viscous to hepatorenal fossa is facilitated when the greater omentum is atrophic and the loops of intestine are rendered...
Fig. 4. a. Abdominal CT shows fluid-distended ileum in the region of lesser omentum, displacing the stomach posteriorly, with preservation of lesser omnetal fat plane (arrowheads).
b. The mesenteric vessels are abnormally directed to the upper abdomen with vascular engorgement.

mobile due to abnormal long mesentery. It is possible that alteration in intra-abdominal pressure including parturition, vomiting, or straining may provoke the onset of internal herniation in those patients with an anatomical predisposition(7). Lesser omental defect in our case was probably congenital since there was no previous history of any abdominal trauma nor operation and the margin of the defect was smooth and well formed with no adhesion in the periphery at the time of surgery.

The radiographic appearance of the lesser omental herniation was characteristic. Plain abdominal radiograph showed a gas-filled bowel loop high in the abdomen and medial to the stomach, in association with diffusely dilated small bowel loops due to mechanical obstruction.

Small bowel follow-through study would be useful to demonstrate the cause and the site of the obstruction. However, in cases of distal obstruction, barium enema with retrograde filling of small bowel loops is also a safe and fast method for the diagnosis, as demonstrated in our case(8).

CT is excellent in delineation of the structures forming the boundaries of the lesser omentum(4) and is useful in the evaluation of the intestinal obstruction including its cause and site(9, 10). CT is also helpful in determining the nature of the gas collection in the lesser omentum, when the plain radiographic findings are equivocal(4) and in differentiating true hernia from the other condition such as abscess and perforated viscus(4). Unusual location of dilated bowel loop in the area of lesser sac on CT was the characteristic finding of lesser omental herniation in our case.

CT findings of bowel wall thickening, mesenteric edema and engorgement at the site of small bowel obstruction indicate the presence of bowel strangulation. Therefore, close observation of the mesenteric vessels and their courses are very important in dealing with patients having bowel obstruction(9, 11).

Intestinal hernia through the foramen of Winslow should be differentiated from hernia through the lesser omentum. In case with foramen Winslow hernia, CT reveals gas-filled bowel loops high in abdomen medial and posterior to the stomach(2, 3, 12) in contrast to our case of lesser omental hernia which was located anterior and medial to the stomach.

In conclusion, gas-distended bowel loop interposed between the left lobe of the liver and stomach suggests the presence of lesser omental internal hernia.

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감돈을 동반한 회장의 소망내 탈장: 1예 보고

백승연·최혜영·이선화

내부탈장은 장폐쇄를 일으킬 수 있는 드문 질환으로 수술전 진단이 매우 어려우나 전산화단층촬영의 발달과 증가에 따라 수술전 진단이 용이하게 되었다.

저자들은 현재까지 보고되지 않았던, 소망 전면의 손상을 통해 회장이 소망내로 탈장되어 감돈을 일으켰던 일례를 문헌고찰과 함께 보고하는 바이다. 단순복부촬영상 확장된 소장이 상복부 중앙과 위저 내측에 있고, 복부초음파와 CT상 좌측간의 후부와 위사이, 즉 소망으로 생각되는 부위에 확장된 회장이 끼어있고, 장간막내의 비후된 지방과 털기된 혈관들이 위를 향하여 비정상적으로 배열되어 있는 경우 소망내로의 회장 탈장이 감돈을 동반한 경우를 의심할 수 있었다.