

The Chilaiditi Syndrome and Associated Volvulus of the Transverse Colon An Indication for Surgical Therapy

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Hepatodiaphragmatic interposition of the colon is a rare anomaly described by Chilaiditi in 1910. Usually this syndrome presents as an asymptomatic roentgen finding, although occasionally it is associated with a broad range of gastrointestinal symptoms. The hallmark of therapy is conservative, and rarely has surgical intervention been indicated. This is the only case report of the Chilaiditi syndrome associated with colonic volvulus. It also illustrates the rare progression of colonic interposition from mild abdominal discomfort to intermittent bowel obstruction requiring surgical intervention. [Key words: Chilaiditi syndrome; Colonic interposition; Volvulus of the transverse colon; Subtotal colectomy]

HEPATODIAPHRAGMATIC INTERPOSITION of the colon (Chilaiditi's syndrome) is a rare anomaly.¹ The incidence of interposition varies with the population being studied. The incidence in the general population ranges from 0.025 to 0.28 percent.²⁻⁴ The sex ratio is 4:1, men to women.³ Two forms of interposition have been described—temporary and permanent. The anatomic anomaly is usually the interposition of the hepatic flexure or transverse colon. Most commonly, interposition is an asymptomatic roentgen finding.²⁻⁴

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Less commonly, interposition has been associated with symptoms ranging from mild abdominal pain to acute intermittent bowel obstruction.^{2,5} The differential diagnosis is subdiaphragmatic abscess and pneumoperitoneum. The hallmark of therapy is conservative—nasogastric decompression and bedrest. Rarely has surgical intervention been indicated. This is the first case report of Chilaiditi's syndrome in combination with intermittent volvulus of the transverse colon.

Report of a Case

A 35-year-old man was admitted to the Cleveland Clinic Foundation in January 1985, for an elective subtotal colectomy for hepatodiaphragmatic interposition of the colon. He had had an appendectomy in 1979. In 1978 he presented to his physician with intermittent right pleuritic chest and abdominal pain. These symptoms progressed to severe stabbing right upper quadrant and epigastric pain in 1981, necessitating hospitalization. The pain was precipitated by bending and torsional type body movements, but subsided with bedrest and analgesics.

An extensive biliary, urologic, and gastrointestinal workup was remarkable for hepatodiaphragmatic interposition of the colon. In 1981 and 1982 several more hospitalizations were required for this pain. In 1983 the patient was admitted because of an episode of large bowel obstruction, which responded to nasogastric decompression, bed rest, and intravenous hydration. A chest radiograph and plain abdominal radiographs showed hepatodiaphragmatic interposition of the colon and megacolon (Figs. 1 and 2).

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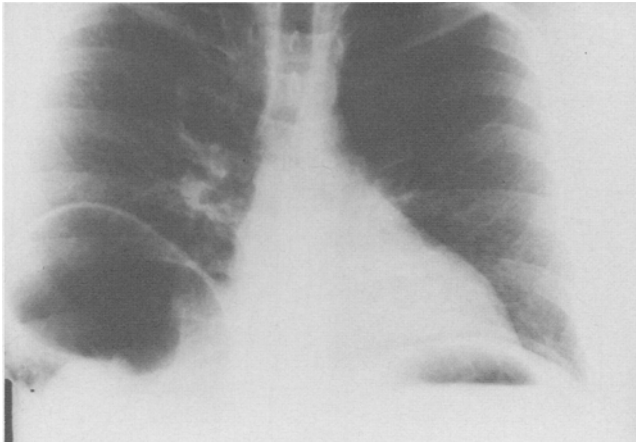


FIG. 1. Chest radiograph shows three characteristic radiologic features of symptomatic interposition: 1) elevation of right hemidiaphragm; 2) distended, fixed interposed hepatic flexure; and 3) downward displacement of the liver.⁶

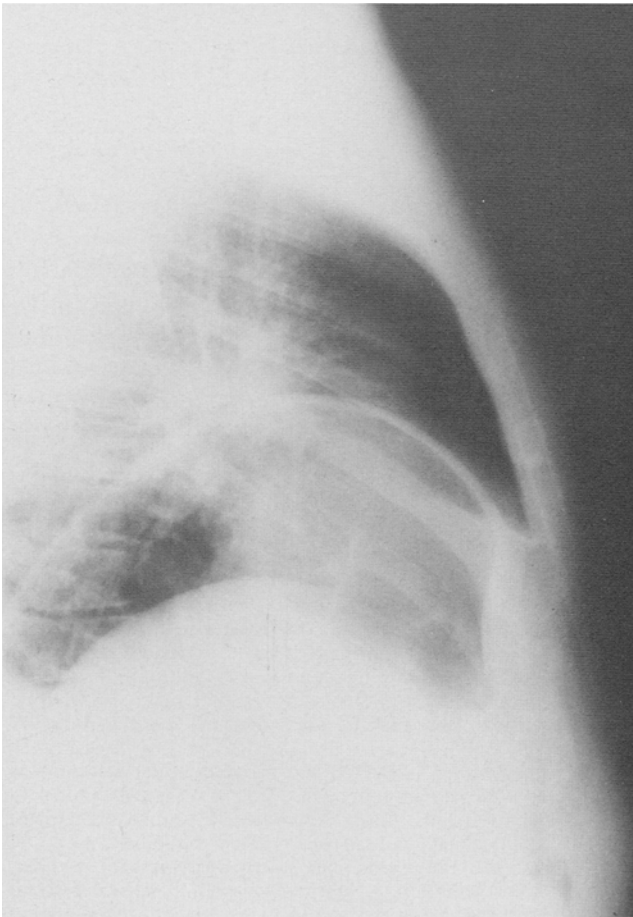


FIG. 2. Lateral chest radiograph reveals haustral markings in the interposed colon.

During 1983 and 1984 multiple hospitalizations were required for acute intermittent bowel obstruction. On admission, physical examination and laboratory values were normal. An elective subtotal colectomy and ileosigmoid anastomosis was advised. At laparotomy, a volvulus of the transverse colon was delivered from the suprahepatic space (Figs. 3 and 4). After reduction of the transverse colon volvulus, the hepatic flexure was found to be fixed by adhesions to the diaphragm. The hepatic flexure was dissected sharply and then mobilized from its abnormal position, leaving a large subdiaphragmatic space. The entire colon was redundant and dilated with a long, mobile, and floppy mesocolon. The suspensory ligaments of the liver were elongated and lax. The liver was easily mobilized to the midepigastrium.

A subtotal colectomy and ileosigmoid anastomosis was performed using an ILS #33® stapler. His postoperative course was uncomplicated and he was discharged on the eighth day. He was followed for one year, and remained asymptomatic, with one or two bowel movements per day.

Discussion

Chilaiditi's syndrome is a well-defined clinical entity. Its main features are abdominal pain and distention with radiologic evidence of interposition of the colon between the diaphragm and liver in the erect position. Intestinal, hepatic, and diaphragmatic factors have been implicated in the etiology of this syndrome.^{4,7} The anatomic anomalies illustrated by this case are relaxation of the hepatic suspensory ligaments and a redundant, dilated colon with a long mesentery. This patient had a combined form of interposition—a permanent and a temporary component.⁴ With the patient in the erect position, the "fixed" hepatic flexure facilitated migration and volvulus of the transverse colon. The liver easily accommodated interposition of the transverse colon by migrating to the midline. The proximal transverse colon would become "trapped" in the suprahepatic space. The transverse colon then would dilate and rotate on its mesocolon and obstruct (Fig. 5). The patient would be relieved by nasogastric decompression and bedrest. With the increasing frequency of this cycle of interposition, dilatation, and volvulus, the patient's lifestyle became compromised. Vascular compromise to the bowel was a possible or even likely result in the long term.

This case illustrates the importance of abnormal colonic mobility and dilatation in the etiology of Chilaiditi's syndrome. The significance of this abnormal mobility has been discussed by other authors.^{4,7-9}

There are only three reported cases of surgical therapy for Chilaiditi's syndrome.⁹⁻¹¹ Rogers¹⁰ freed the adherent colon from its abnormal position and then fixed it to the parietal peritoneum at the level of the umbilicus. A hepatopexy has been used for this condition, by suturing the divided falciform ligament to the right costal border.⁹ Other authors have performed similar procedures.

This case is the only colonic interposition associated with volvulus. Torgersen found a negative correlation between suprahepatic interposition of the colon and cecal volvulus.² With the anatomic anomalies described in this patient, and because of the rapid progression of his symp-

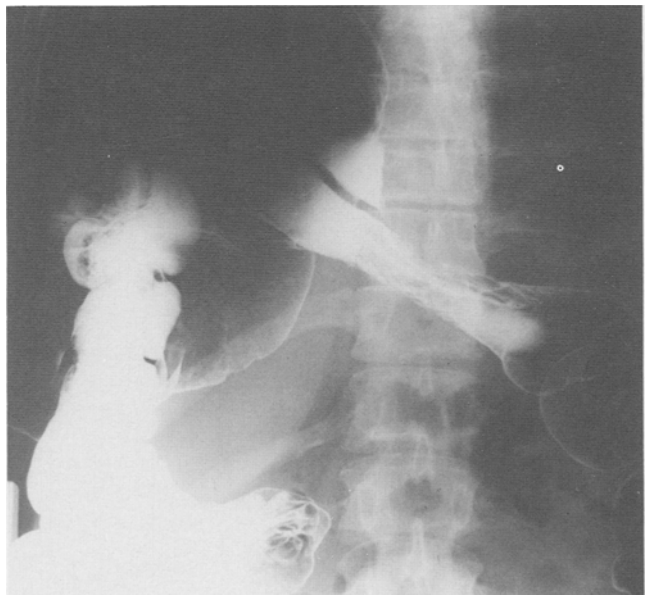


FIG. 3. Transverse colon before reduction of volvulus.



FIG. 4. After reduction of the transverse colon volvulus. The colon is massively dilated with a long, floppy mesocolon.

FIG. 5. Barium enema illustrates entrapment and dilatation of the proximal transverse colon.



toms, a subtotal colectomy and ileosigmoid anastomosis were performed. There was no associated hepatopexy performed. The patient remained asymptomatic one year after surgery.

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