Chilaiditi's syndrome with interposed sigmoid colon mimicking traumatic pneumoperitoneum

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CASE PRESENTATION

A 61-year-old man experienced a contusion on the right hypochondrium in a traffic accident. He was immediately taken to the emergency department and presented with severe pain over the contusion site. His surgical history was unremarkable. On arrival, physical examination revealed decreased breathing sounds in the right lower lung area on auscultation. Distention, hypertympanic percussion and local tenderness over the right upper quadrant of abdomen were also observed. A posteroanterior chest radiograph revealed elevation of the right hemidiaphragm with concerning features for subphrenic free air as well as fracture of right fifth to eighth ribs (Figure 1A). A computed tomography scan of the abdomen with coronal reconstruction revealed hepatodiaphragmatic interposition of the dilated sigmoid colon (Figure 1B). No evidence of pneumoperitoneum was identified. Conservative treatment with oxygenation, chest care and pain control was performed. After the medical therapy, the patient was discharged uneventfully.

DISCUSSION

Chilaiditi's sign, first described by Demetrius Chilaiditi in 1910, is a rare and asymptomatic manifestation of the hepatodiaphragmatic interposition of the bowel, involving especially the transverse colon (1). Only seven patients with interposed sigmoid colon have been reported (2,3). Previous literature had suggested that Chilaiditi's sign was attributed to anatomical variations, including absence of the

suspensory ligaments of the transverse colon and falciform ligament of the liver, redundant colon, right diaphragmatic paralysis and enlargement of the thorax leaving extra space for potential colon migration (4). The differential diagnosis of the right subphrenic airspace included Chilaiditi's sign, pneumoperitoneum, diaphragmatic hernia and subdiaphragmatic abscess. A computed tomography scan with coronal reconstruction yielded a definite diagnosis before treatment. Unlike pneumoperitoneum, invasive management of Chilaiditi's sign was unnecessary (5). Surgical intervention was only indicated if a symptomatic complication, such as colonic volvulus or bowel obstruction associated Chilaiditi's sign, developed.

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Figure 1 A Posteroanterior chest radiograph showing elevation of the right hemidiaphragm with fracture of right ribs five to eight and suspected subphrenic free air. B Abdominal computed tomography scan with coronal reconstruction showing hepatodiaphragmatic interposition of the sigmoid colon (white arrows) without pneumoperitoneum

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