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Images in Clinical Medicine

An unusual cause of intestinal obstruction in an elderly woman: "The sign of the cane" in Morgagni hernia

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A 79-year-old woman with hypertension was referred to our hospital because of intermittent periumbilical cramping pain lasting for one week. She had visited a local clinic, but her symptoms continued. Her abdominal distention progressed and she developed nausea and vomiting. In addition, she had no stool passage for 1 week. She had no history of abdominal surgery or abdominal trauma. Physical examination showed severe abdominal distention with diffuse tenderness. Hyperactive bowel sounds with a metallic gushing sound were found over the right upper quadrant. Laboratory studies revealed leukocytosis (white blood cell count 12.1×10^9/L; normal: $3.8–9.8 \times 10^9$/L), hyponatremia (sodium: 131 mmol/L; normal: 136–145 mmol/L), and hypokalemia (potassium: 2.6 mmol/L; normal: 3.5–5.1 mmol/L). Preoperative chest radiography (Fig. 1A) and abdominal computed tomographic scan (Fig. 1B) were carried out. A radiological sign of Morgagni hernia (MH), the "sign of the cane" was seen in the reformatted sagittal computed tomographic scan (Fig. 1C, arrows). A laparotomy was performed and a 2 cm diaphragmatic defect over the anteromedial aspect of the retrosternal region with one segment of incarcerated transverse colon and omentum was noted (Fig. 1D, arrows). The diagnosis of MH was confirmed. We reduced the hernia and repaired the defect with composite mesh. The postoperative course was uneventful.

MH is a very rare type of diaphragmatic hernia, which accounts for 3% of all diaphragmatic hernias [1]. It is a congenial defect in the anteromedial aspect of the diaphragm caused by failed closure of the pleuroperitoneal canal in a developing embryo. The majority of MHs involve the right side and are generally asymptomatic. The contents of the hernia are usually transverse colon with omentum; more rarely, stomach, small bowel, or liver may be found. MH is usually considered a pediatric disease and sometimes can be a life-threatening problem in newborns because of pulmonary hypoplasia and pulmonary hypertension. In adults, MH is a rare clinical entity and presentations can be confusing, especially in elderly patients. The most common symptoms are pulmonary complaints [2]. Radiographic examinations of the chest and gastrointestinal tract with contrast medium, computerized tomography, and magnetic resonance imaging can be useful, especially when the "sign of the cane" is present [3]. Surgical repair should be attempted in most patients, even those who are asymptomatic. A delay in diagnosis and treatment may lead to death in patients with strangulated obstruction.

In our case, the preoperative abdominal computed tomographic scan showed clearly the radiological sign, leading to an accurate diagnosis. Although it is an extremely rare cause of intestinal obstruction in the elderly, physicians should be aware of this congenital disorder.

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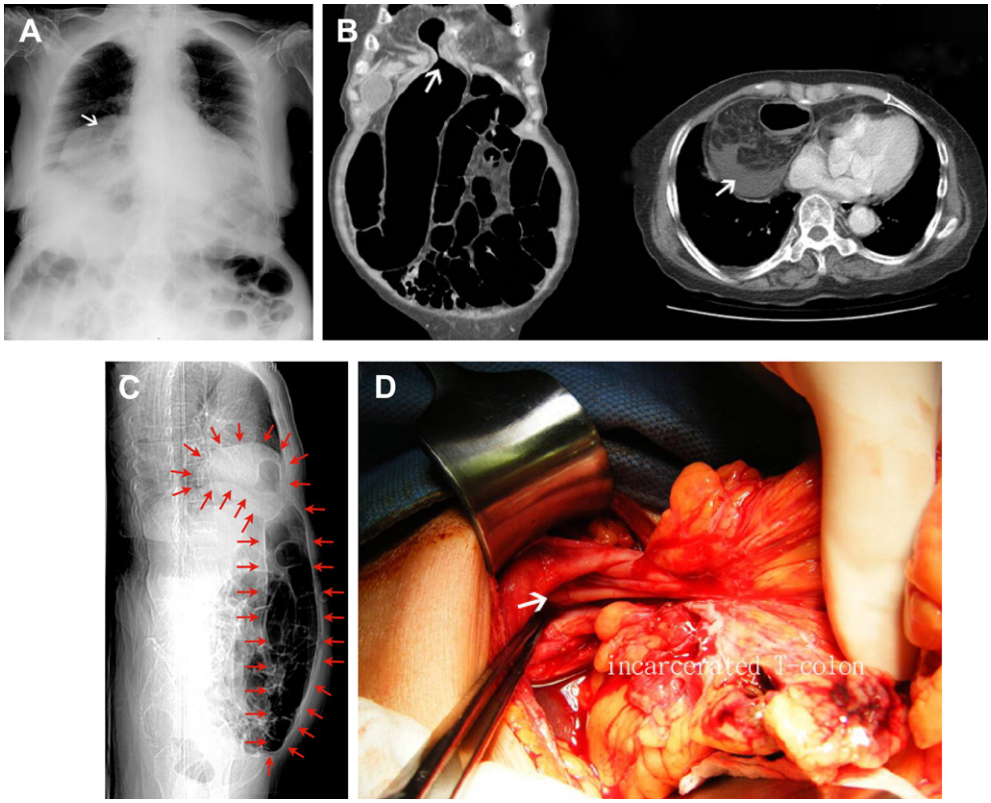

Fig. 1. (A) Chest radiographic study reveals a large radiolucent mass over the right lower hemithorax (arrow); (B) axial and coronal reformatted computed tomographic images of the abdomen show a right anteromedial diaphragmatic defect with incarceration of the transverse colon and part of the omentum, causing dilatation of the proximal colon and collapse of a distal loop (arrows); (C) the "sign of the cane" is illustrated in the reformatted sagittal computed tomographic scan (arrows); (D) a diaphragmatic defect with one segment of incarcerated transverse colon and omentum is noted during laparotomy.

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