CORRESPONDENCE

Small bowel volvulus presenting with diaphragmatic hernia after minimal invasive esophagectomy

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A 54-year-old man presented with severe epigastralgia after dinner. He was sent to the Emergency Department. He had a past history of hypertension and had undergone an operation for esophageal adenocarcinoma 9 months prior to this presentation. Esophagectomy was performed using a minimally invasive method, along with laparoscopic gastric tube mobilization and esophagogastric anastomosis. His postoperative progress was excellent. However, he experienced severe epigastric discomfort after eating dinner, which was accompanied by severe nausea and vomiting. On examination, his vital signs were within normal limits and he did not have respiratory distress: blood pressure, 144/90 mmHg; temperature, 36.1°C; pulse rate, 82 beats/min; respiratory rate, 20 breaths/min; and oxygen (O2) saturation, 99%. His pain was persistent and could be relieved by bending forward. The vomitus comprised food content without bile, blood, or coffee ground substances. Physical examination showed hyperactive bowel sounds and epigastric tenderness. There was no muscle guarding or rebound pain. Laboratory data showed elevated lactic acid level (4.32 mmol/L). Chest plain film showed prominent bowel loops in the left chest cavity without subphrenic free air (Fig. 1A). Noncontrast computed tomography (CT) showed hiatal hernia and small bowel volvulus (Fig. 1B and 1C).

The patient underwent an emergency exploratory laparotomy. Colon and small bowel herniation to the left chest cavity with moderate ischemic change was encountered during the operation. Small bowel twisting with minimal ascites was also documented. The patient received hiatal hernia reduction and repair and small bowel twisting reduction. Postoperative chest plain film showed no bowel loop over the left chest cavity (Fig. 1D). After 10 days of the admission course, the patient was discharged with no complications.

Hiatal hernia is an unusual complication after esophagectomy. During the operation, widening of the hiatus is usually required for the conduit to pass freely into the chest cavity and to prevent conduit obstruction. However, widening of the hiatus increases the risk of hernia. Progressive hiatal dilatation, increased intra-abdominal pressure, and a suction effect by the negative intra-thoracic pressure are regarded as the cause of a hiatal hernia.1

Most hiatal hernias are asymptomatic and the reported symptoms are variable, and range from respiratory distress, intestinal obstruction, chest pain, abdominal pain, lower gastrointestinal bleeding, fever, jaundice, and liver congestion.2,3 Minimal invasive esophagectomy (MIE) has been increasingly adopted as the surgical approach to patients with benign or malignant esophageal disease. Minimal invasive esophagectomy has the equivalent oncologic outcome as the traditional open esophagectomy and results in fewer wound infections, anastomotic site leakage, and a lower in-hospital mortality rate. Several studies have compared the hiatal hernia rate between an open approach and the MIE approach. There is a significantly higher hernia

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incidence rate after MIE, compared to the open procedure. The incidence ranges 3–20 months postoperatively for MIE. The exact reason for the possibly higher hiatal hernia rate of MIE, compared to open approach, is unknown. However, it is reasonable that it is more difficult to secure the diaphragm during the repair in MIE than in open procedures. No strict guidelines exist regarding the repair of asymptomatic hernias after esophagectomy; however, it has been suggested that early repair is needed to prevent the risk of strangulation or obstruction.

In our patient, the small bowel volvulus increased the intra-abdominal pressure, and thus increased the pressure on the abdominal contents, which herniated into the thoracic cavity through the widened esophageal hiatus. Severe abdominal tenderness and vomiting indicates bowel loop obstruction, and elevated lactate hints at an ischemic change. Emergent laparotomy is strongly indicated.

In conclusion, hiatal hernias after esophagectomy are rare but may be more common after a minimally invasive esophagectomy. Most patients are asymptomatic but still have substantial risks of incarceration and strangulation. Surgical repair of hiatal hernia is recommended, except for patients with very small asymptomatic hernias and patients with significant comorbidities or a short life expectancy. Hiatal hernia should always be considered for patients who undergo esophagectomy.

References