

A Morgagni Diaphragmatic Hernia Found after Removal of Mediastinal Tumor

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Morgagni hernia is a disease in which the abdominal contents herniate into the thoracic cavity through a congenital parasternal defect of the diaphragm resulting from an increased intra-abdominal pressure. Obesity, pregnancy, and a history of trauma are considered predisposing factors of Morgagni hernia. However, there is slight evidence that trauma has been the factor. Moreover, Morgagni hernia related to an operation has been rarely reported. We report a case of a female patient, whose mediastinal tumor had been removed 6 months prior to her being diagnosed with postoperative Morgagni hernia. There was a satisfactory result after the repair by an upper abdominal incision. (Ann Thorac Cardiovasc Surg 2008; 14: 175–177)

Key words: hernia, diaphragm, mediastinal tumor

Introduction

Postoperative Morgagni diaphragmatic hernia is a rare disease. We report a case of postoperative Morgagni diaphragmatic hernia developed 6 months after mediastinal tumor resection with a satisfactory result.

Case

A 65-year-old female with Morgagni hernia was admitted to our hospital for an operation. Epigastric and chest pains were developed suddenly a day before the admission. She had had an operation using video-assisted thoracic surgery (VATS) at another hospital located in Gyeonggi-Do, Korea, 6 months earlier resulting from a

mediastinal pericardial tumor (Fig. 1). On her chest radiograph, half of the right chest appeared to be consumed by a contour of air-containing viscus, and similarly on her chest computed tomography (CT), a shadow of distended air-containing viscus as a result of a partial obstruction had protruded into the thoracic cavity at the anteromedial area of right diaphragm (Fig. 2).

The operation was performed with the patient in a supine position. A skin incision, approximately 7 cm, was made on the upper abdomen, and the upward traction of the xiphoid process followed. By a meticulous dissection with fingers, a distended transverse colon content could be retracted into the abdomen through the diaphragmatic defect after the colon was deaired into the proximal and distal parts. An 11 × 6 cm thick, oval-shaped opening of the diaphragmatic defect was discovered at the right-lateral side from the median line, which was a true hernia sac with its internal side covered with the visceral peritoneum. The herniated colon was in good condition with hardly any adhesions to the hernia sac. However, two ties with 3-0 black silk and cauterizations to stanch the bleeding were used because of little bleeding in the omentum. The opening of the Morgagni foramen was sutured with 5 interrupted mattress sutures using 2-0 polypropylene with pledgets and reinforced with double continuous over-

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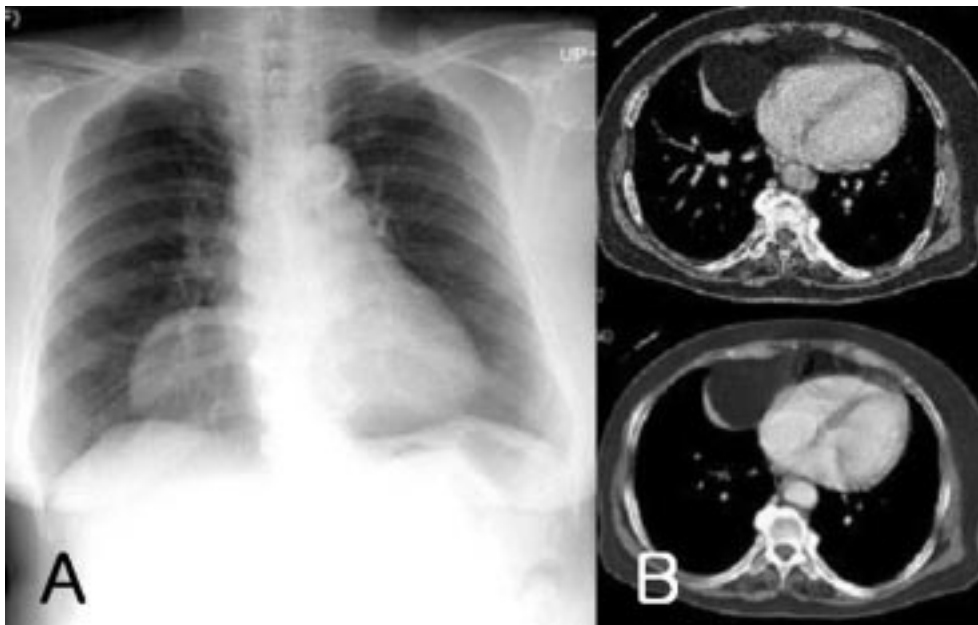


Fig. 1. Initial chest radiograph (A) and computed tomography (CT) scan (B) of the right pericardial cyst (6 months before admission). A well-defined homogeneous cystic lesion, measuring about 6 x 4.5 x 11 cm, is seen at the lower anterior mediastinum.

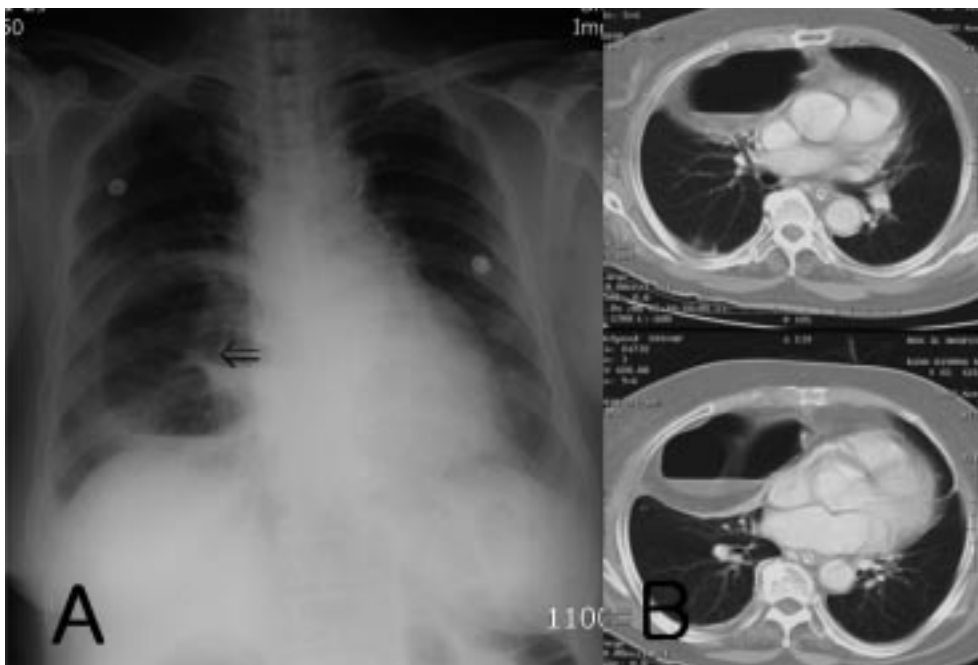


Fig. 2. Preoperative chest radiograph (A) and computed tomography (CT) scan (B). A huge air-containing cystic lesion is present at the right lower anterior mediastinum showing an obliteration of the right cardiac border, smooth inner margin, a small amount of air-fluid level, and septum-like structure (arrow).

and-over running sutures with 2-0 polypropylene. After three years of follow-up, we found that the Morgagni diaphragmatic hernia had not recurred and the patient was generally in good condition.

Discussion

The parasternal or retrosternal diaphragmatic hernia is an uncommon form of congenital diaphragmatic hernia of 1%–6% incidence rate.¹⁾ It is considered to be caused by the embryologic defect, which Giovanni Morgagni first described from an autopsy in 1769, and Dominique-Jean Larrey devised the operation method in 1828. Therefore it is often referred to as the Morgagni-Larrey hernia.

Morgagni hernia mostly occurs to 50-year-old or older female patients and is uncommon for young patients. But Morgagni hernia is sometimes diagnosed during the first decade of life. Moreover, Morgagni hernia occurs in fraternal and identical twins; it is suggested that genetic factors play a role in diaphragm development.^{2,3)} Half of Morgagni hernia patients show no specific symptom other than mild respiratory discomfort and vague gastrointestinal manifestations,⁴⁾ such as shortness of breath, postprandial vomiting or gastric-esophageal regurgitation, intermittent nausea/vomiting, abdominal distention, dysphagia, and others. In severe cases, the intestinal incarceration of the herniated contents may develop into a dangerous situation; however, that would be very rare.

Morgagni hernias occur mostly on the right retrosternal side of the anterior part of the diaphragm; the occurrence on the left side is rare because of the protection by the pericardial sac. But in a very few cases, bilateral hernias have been reported.^{5,6)} Most cases of this herniation through the foramen of Morgagni have true hernia sacs that are covered with visceral peritoneum. Moreover, the colon, omentum, and stomach are the usual organs herniating into the thoracic cavity. According to the 1966 Mayo Clinic report,⁶⁾ 90% of cases were right-sided herniation, and 92% of cases were with a hernia sac. In about half of the cases, omentum was herniated with the colon, but in the remaining 25% of cases, the stomach, rarely the small intestine, was herniated. Herniation of the abdominal contents is caused by an increased intra-abdominal pressure

secondary to trauma, pregnancy, or obesity; however, there is no clear evidence⁶⁾ to consider trauma as a predisposing factor. A case of Morgagni hernia that might be confused with a traumatic diaphragmatic hernia after a traffic accident⁷⁾ was reported, and cases of postoperative Morgagni herniation after the mediastinal tumor removal has been rarely reported.

The foramen of a Morgagni hernia is frequently repaired from an abdominal approach. Both laparoscopic⁸⁾ and thoroscopic⁹⁾ repairs have been described. In general, the foramen of Morgagni is closed directly using a heavy nonabsorbable suture. The hernia may rarely require a patch if it cannot be closed without tension or has a larger defect.

We had satisfactory results after the repair of a postoperative Morgagni hernia. We report a case of postoperative Morgagni diaphragmatic hernia developed 6 months after mediastinal tumor resection with literature reviews.

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