Laparoscopic Repair of an Intrapericardial Diaphragmatic Hernia

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An isolated intrapericardial diaphragmatic hernia is very rare. Only 15 cases have been reported, 2 of which are in adults. The defect in the anterior diaphragm allows abdominal contents to enter the pericardial cavity. We report the 16th case—the third in an adult—and its laparoscopic repair.

(Congenital diaphragmatic defects and hernias are uncommon and are estimated to occur once in every 2,200 births. Eighty percent involve a posterolateral defect. One percent to 6% of congenital diaphragmatic hernias involve the anterior diaphragm and usually present in the neonatal period [1, 2]. An isolated, anterior diaphragmatic hernia in an otherwise healthy adult has been reported only twice previously. We report the third case in an adult.

A 36-year-old healthy male police officer presented to the emergency department with a 5-week history of epigastric discomfort, treated as gastritis. The pain intensified and persisted in the 24 hours before evaluation. Physical examination revealed epigastric guarding, and laboratory tests were normal. An anterior diaphragmatic hernia containing omentum and transverse colon was reported on computed tomography scan (Fig 1). A presumed diagnosis of a Morgagni hernia was made and surgery advised. At laparoscopy, a 4 x 6 cm central diaphragmatic defect open to the pericardium, containing omentum and transverse colon without hernia sac, was encountered. The colon was easily reduced, and the omentum was freed with a harmonic scalpel (Ethicon Endo-Surgery, a subsidiary of Johnson & Johnson, Somerville, NJ [Fig 2]). The defect was closed with a 10 x 15 cm Gore-Tex (WL Gore & Assoc, Flagstaff, AZ) mesh (Fig 3) and fixed with a spiral tacker. The postoperative chest radiograph had no pneumomediastinum or pneumothorax. There were no postoperative complications, and the patient was discharged 2 days later. He remains asymptomatic at

Fig 1. Coronal computed tomography image displaying the transverse colon in the thorax.

Fig 2. Diaphragmatic defect with abdominal contents reduced. Myocardium of the heart is visible through the defect.

References


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follow-up, and computed tomography done at 11 months postoperatively showed an intact repair.

Comment

The diaphragm is formed by fusion of four structures: the pleuroperitoneal membranes; the septum transversum; the dorsal mesentery of the esophagus; and the lateral body walls [5]. Eighty percent of congenital defects involve the posterolateral diaphragm (Bochdalek gap). One percent to 6% of congenital defects are anterior and caused by failure of fusion of the septum transversum to form the pars sternalis portion of the diaphragm [3]. This specific entity has been described in Cantrell’s pentalogy of defects of the sternum, abdominal wall, pericardium, anterior diaphragm, and congenital heart disease (most commonly as tetralogy of Fallot) [2, 4]. Most hernias are discovered during maternal sonography or in the neonatal period owing to cardiorespiratory distress, often as a result of coexisting malformations. That explains the neonatal mortality rate of 40% to 50% [1–3, 6]. Our case is the 16th report of an isolated intrapericardial diaphragmatic hernia, and the third in an adult. Both open and laparoscopic techniques have been utilized in treatment but today the laparoscopic approach is preferred. For large defects, mesh repair that covers 2.5 cm to 3 cm beyond the defect should be effective.

The lessons to be learned are anterior congenital diaphragmatic hernias (1) result from failed development of the septum transversum of the pars sternalis of the anterior diaphragm; (2) may be initially asymptomatic and not present until later in life owing to incarceration; and (3) should be approached laparoscopically.

References


Diffuse Pulmonary Neuroendocrine Cell Hyperplasia Involving the Chest Wall

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Diffuse pulmonary neuroendocrine cell hyperplasia (DIPNECH) is characterized by a diffuse hypertrophy of neuroendocrine cells along the distal bronchioles. This condition is characterized by obstructive lung physiology and the development of small carcinoid tumors. We present a case of DIPNECH in a patient undergoing surgery for a primary lung adenocarcinoma. Interestingly, the chest wall also demonstrated involvement of DIPNECH indicated by the presence of small carcinoid tumors. The absence of any lung carcinoid tumor greater than 5 mm and the absence of lymph node metastases render the chest wall involvement unlikely to represent metastatic disease.


Pulmonary carcinoid tumors represent 1% to 2% of all lung malignancies and are pathologically classified as typical or atypical, depending on the degree of mitotic activity and the presence or absence of tumor necrosis. A recently described condition on the same spectrum of disease is diffuse idiopathic pulmonary neuroendocrine cell hyperplasia (DIPNECH), which principally involves the distal Airways and frequently is associated with numerous tiny carcinoid tumorlets, which are defined as lesions less than 5 mm.

We present a case of a patient who underwent surgical resection of a primary lung adenocarcinoma who was incidentally found to have DIPNECH. Interestingly, the