Case in Point

Colonic Dyspnea and the Morgagni Hernia: A Rare Adult Diagnosis

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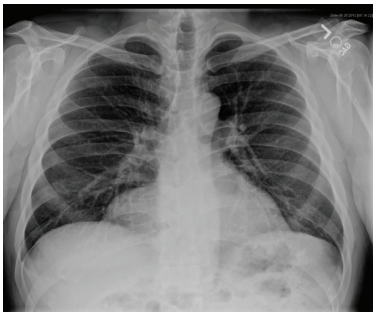
When confronted by vague pulmonary and abdominal symptoms, health care providers should be aware of rare and potentially life-threatening congenital diaphragmatic hernias.

Congenital diaphragmatic hernias (CDHs) occur from a disruption in the muscular formation of the diaphragm, resulting in herniation of abdominal contents into the thoracic cavity. A rare diagnosis, most cases are identified in the pediatric and neonatal populations with an overall historical 50% mortality related to the diagnosis.[1] More recent data published in the U.S. and Japan cite an overall survival rate of 67% to 80% secondary to improved understanding of the pathophysiology and subsequent enhancement of neonatal cardiopulmonary support adjuncts.[2,3]

Bochladek hernias (posterolateral space) are the most common presentation of CDH, accounting for > 90% of cases. First described by the Giovanni Batista Morgagni in *On the Seats and Causes of Disease Investigated by Anatomy*, the anteromedial sternocostal location is far less common and accounts for only 2% to 3% of cases.[4,5] More commonly found on the right side of the diaphragm, despite protection from the liver, the right-sided space has been traditionally referred to as the Morgagni space. A left-sided defect is occasionally called the Larrey gap or space, after Napoleon's surgeon who described the space as a potential location for pericardial drainage of tamponade.[6,7]

There are a few congenital conditions, such as trisomy 21, Turner syndrome, Prader Willi syndrome, dextrocardia, and Tetralogy of Fallot, that have been associated with Morgagni hernias.[7] Pulmonary hypertension and respiratory distress are the most common symptoms for neonatal patients; chest pain, sensations of tightness/fullness, reflux, and transient obstructive symptoms constitute the typical symptoms of adult patients with CDH. In this case study, the authors present a case of adult-onset Morgagni hernia as well as a review of the relevant literature.

Figure 1. Anteroposterior Chest X-ray



Demonstration of abnormal contour of the cardiomediastinal border at the right costocardiac angle. There is bowel gas within this area.

CASE REPORT

The patient was a 48-year-old man on active-duty who presented to the Naval Medical Center Portsmouth

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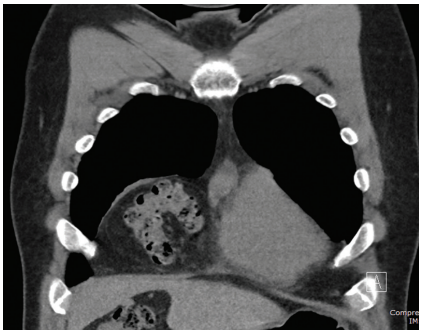
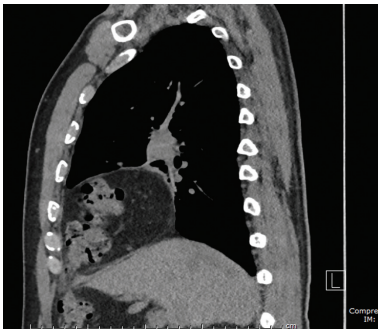
Figure 2. Coronal View Computed Tomography



Demonstration of the diaphragmatic defect at the right cardiophrenic angle containing intraperitoneal fat and a loop of transverse colon consistent with Morgagni hernia.

Figure 3. Sagittal View Computed Tomography



Demonstration of the diaphragmatic defect at the right cardiophrenic angle containing intraperitoneal fat and a loop of transverse colon consistent with Morgagni hernia.

General Surgery clinic in Virginia with a 4-year history of gastroesophageal reflux-related symptoms. Specifically, he reported epigastric fullness, pyrosis, and discomfort that radiated toward his bilateral lower ribs for the previous 4 years. This discomfort was typically associated with the intake of solid food and was followed a few hours later by a loose bowel movement.

The patient was initially treated with antacids and proton pump inhibitors by his primary care physician, with only minimal relief. He also reported several months of chronic cough as well as intermittent episodes of "gasping air hunger" for about 6 years, which had been incidentally brought up during his separation physical examination. A chest X-ray performed during the workup revealed findings suggesting a right diaphragmatic hernia vs a bronchogenic cyst (Figure 1). A computed tomography (CT) of the thorax demonstrated a 3 x 8-cm hernia through the foramen of Morgagni containing a portion of the transverse colon along with intraperitoneal fat (Figures 2 and 3).

The patient underwent repair of this right Morgagni hernia via a laparoscopic approach. Intraoperative findings confirmed preoperative radiologic studies demonstrating colonic and omental contents within an easily reducible hernia sac (Figures 4 and 5). The hernia sac was left in vivo, and a combined direct hernia repair with mesh reinforcement was performed using Surgimesh XB (BG Medical, Barrington, IL) (Figure 6). The patient remained in the hospital for overnight observation and was discharged on postoperative day 1. The patient has since been seen in follow-up and is doing quite well with complete resolution of his reflux and pulmonary symptoms.

DISCUSSION

A recent review of surgical literature revealed that over a 57-year period, 298 cases of Morgagni hernias have been described in adults.[7] Although previous studies have postulated that a majority of adult patients are asymptomatic, more recent retrospective studies have found about a 70% symptomatic rate of patients with Morgagni hernias.[7] The natural history of adult presentations lends itself to pulmonary (most common) or chronic upper gastrointestinal symptoms, although an acute presentation with potential volvulus and strangulation of the herniated contents has been described.[7]

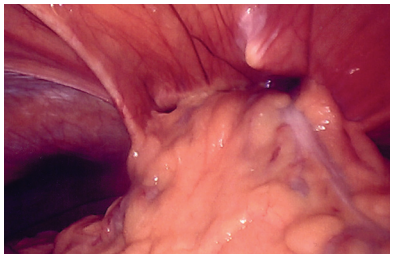
Diagnosis is typically confirmed with a chest X-ray, although the CT scan has become more popular in the era of multimodal imaging.[4,7] Multiple methods of repair have been described; however, thoracotomy has been the most widely used approach, and laparoscopy has gained popularity since the early 1990s.[7] Mesh has been described in more than 60% of cases, and a laparoscopic repair has proven to have a low (< 5%) complication rate and short hospital stay.[8,9] In particular, it has been suggested that a hernia defect larger than 20 to 30 cm^2 should be repaired with a prosthetic adjunct, such as polypropylene, polytetrafluoroethylene, and bovine pericardium with a 1.5- to 2.5-cm mesh overlap.[7,8]

There is some controversy about the management of the hernia sac, with about 69% of surgeons choosing not to excise the sac due to concerns of intrathoracic or pericardial injury.[7] In a separate study, 36 patients were evaluated retrospectively, and the hernia sac was not resected in any of the patients, with long-term follow-up revealing no evidence of recurrence.[6]

CONCLUSION

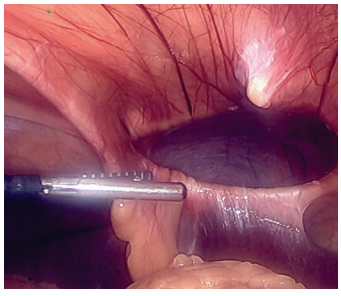
To allow for early intervention and avoidance of potentially life-threatening volvulus/strangulation, the medical practitioner has to be aware of this rare diagnosis when performing a workup for vague pulmonary and abdominal symptoms as described here. Disagreement exists over the method of repair and management of the hernia sac as well as the need for mesh buttressing of

Figure 4. Intraoperative Photo of Anterior Diaphragmatic Hernia With Omentum



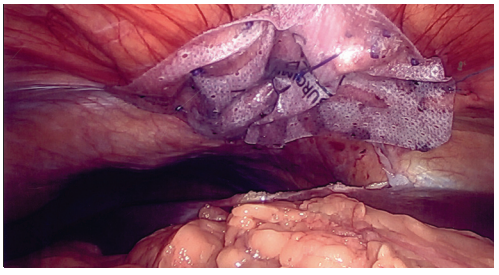
Portion of the transverse colon is herniating into the chest.

Figure 5. Intraoperative Photo of Postreduction of Hernia Contents



The defect was 3 x 8 cm.

Figure 6. Intraoperative Photo Demonstrating the Final Repair Product



The hernia sac was left in place and the defect reapproximated primarily. Mesh was added to buttress the repair.

the defect. A well-planned surgical approach individualized to the patient's anatomy, surgeon's expertise, and hernia defect size will provide the best possible outcome with a low operative morbidity. ●

Author disclosures

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