

Morgagni Hernia: An Adult with a Congenital Anomaly

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Abstract

Although Morgagni hernia is the rarest type of congenital diaphragmatic hernia, it is clinically important due to the potential for delayed diagnosis and associated complications. Its bimodal age distribution underscores the importance of recognizing this condition in both pediatric and adult populations, where symptoms can range from asymptomatic findings to severe pulmonary or gastrointestinal issues. Accurate diagnosis depends on imaging, with lateral chest x-rays often identifying initial signs, while advanced modalities like CT or MRI may provide definitive confirmation.

Keywords: gastrointestinal, stomach, adult with a congenital anomaly

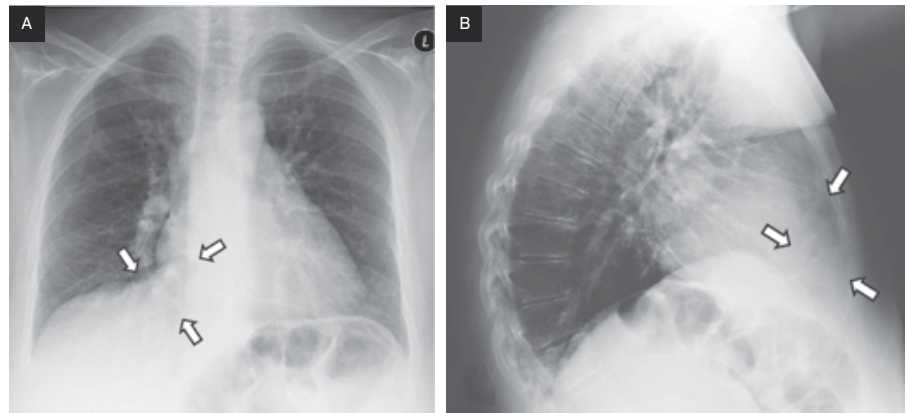
Case Summary

A 40-year-old woman presented with shortness of breath and chest pain.

Imaging Findings

In retrospect, a chest radiograph at initial presentation (Figure 1) and subsequent chest CT (Figure 2) showed a small anterior diaphragmatic hernia containing only omental fat. She continued to experience recurrent chest pain, shortness of breath, and abdominal symptoms without a definitive diagnosis. Comorbidities in this patient included severe degenerative disk disease, asthma, and partially reversible anteroseptal cardiac ischemia. Nine years later, a chest radiograph obtained for difficulty breathing and chest pain demonstrated an enlarged anterior diaphragmatic hernia misdiagnosed as a hiatal hernia at the time. Six months later, she reported

Figure 1. (A) A posteroanterior chest radiograph demonstrating very subtle fat-attenuation tissue herniating into the mediastinum just to the right of midline (arrows). (B) The lateral view shows the same tissue (arrows) in the anterior mediastinum.



worsening chest and back pain, nausea, vomiting, and diarrhea. Retrospective review of an abdominal US from this period showed herniating omental fat in the anterior thorax that was not recognized. Ten years from her initial presentation, after a 60-pound weight loss and recurring symptoms, the patient was

admitted to the hospital. A chest x-ray confirmed an enlarging Morgagni hernia (Figure 3). Abdominopelvic CT on the same date (Figure 4) demonstrated the anterior Morgagni hernia and posteriorly a large paraesophageal hernia. Concurrent chest CT imaging (Figure 5) showed the intrathoracic extent of the hernias.

Diagnosis

Morgagni hernia.

Differential diagnosis includes hiatal hernia, cardiophrenic fat pad, pericardial cyst, diaphragmatic eventration,

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Figure 2. (A) An axial CT section through the lower chest, obtained 3 years after Figure 1, demonstrating omental fat (asterisk) that has herniated into the anterior mediastinum. (B) A mid-sagittal section from the same study showing the omental fat herniating through the anterior defect in the diaphragm (arrowheads) that defines a Morgagni hernia.

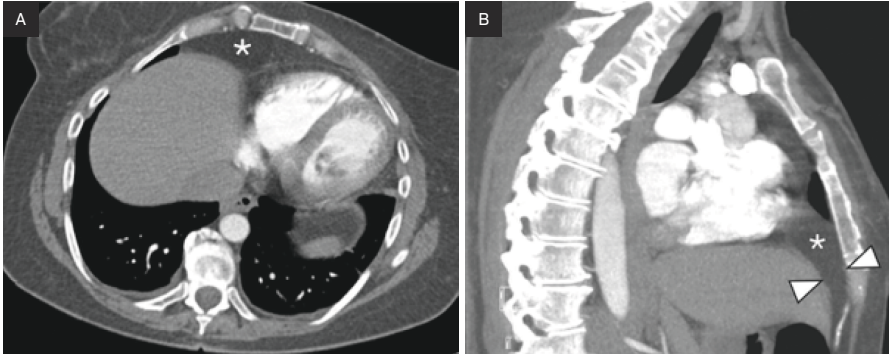


Figure 3. Posteroanterior (A) and lateral (B) chest radiographs obtained 10 years after Figure 1 showing the significant interval increase in the size of the Morgagni hernia (arrows), now containing transverse colon and loops of small bowel in addition to omental fat.

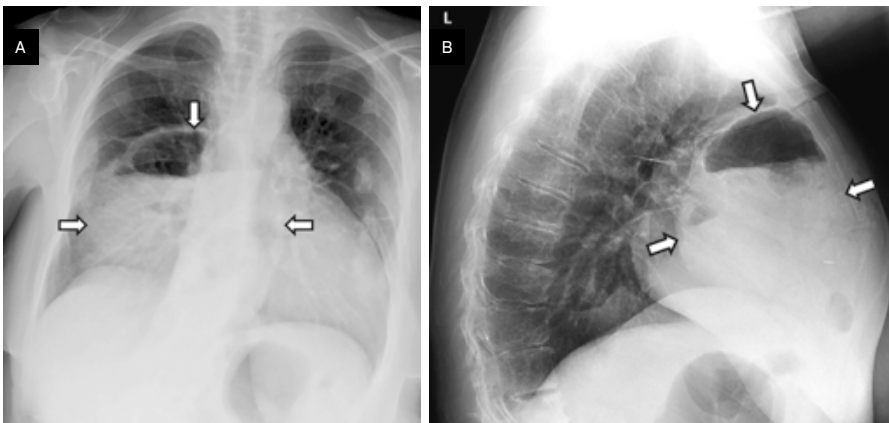
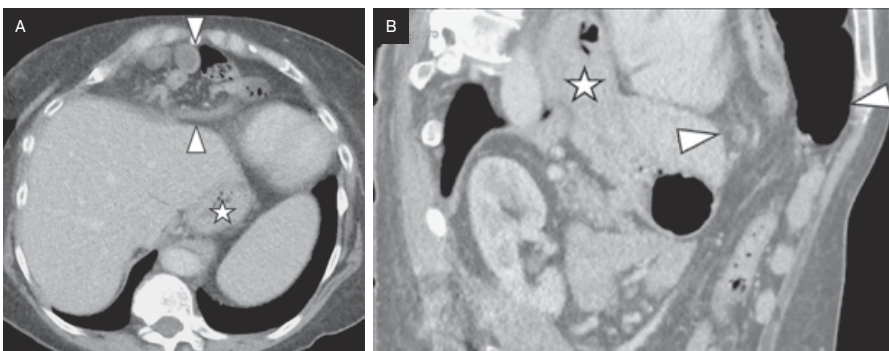


Figure 4. Axial (A) and mid-sagittal (B) abdominopelvic CT sections obtained 10 years after Figure 1 showing the significant interval increase in size of the Morgagni hernia (outlined by arrowheads), located in the right anterior mediastinum, through the expanding sub-costosternal diaphragmatic defect. Note is made of a coexisting paraesophageal hernia (star), with approximately 40% of the stomach within the thoracic cavity.



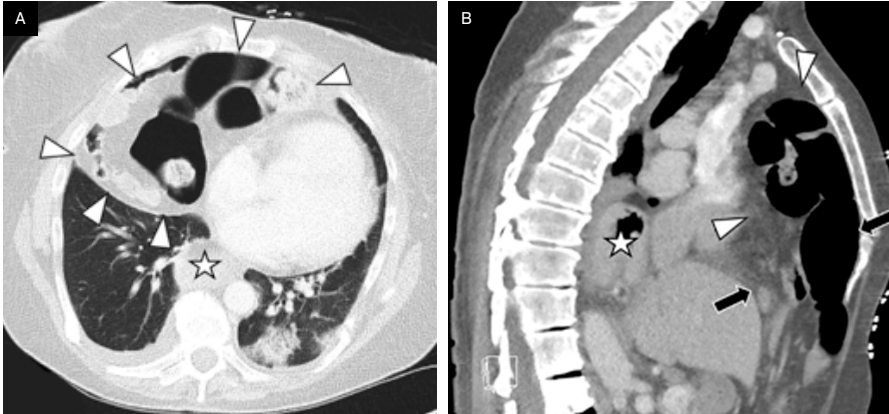
loculated pneumothorax, lower lobe lung collapse or consolidation, lymphoma, or thymic tumor.

Discussion

A Morgagni hernia is the rarest subtype of congenital diaphragmatic hernia (CDH), representing 2-4% of all cases.¹ It results from an anteromedial sub-costosternal diaphragmatic defect defined by the failure of the pars tendinalis of the costochondral arches to fuse with the pars sternalis during embryonic development. Morgagni hernia exhibits a bimodal age distribution, typically presenting in infants and young children, predominantly males, within the first year of life. The estimated incidence is between 1 in 2000 and 1 in 5000 live births. In children, it is often asymptomatic but may present with nonspecific findings such as respiratory distress, failure to thrive, recurrent pulmonary infections, poor feeding, or choking during feeding. In pediatric patients, it is often associated with other congenital abnormalities such as cardiac anomalies and Trisomy 21.¹ In general, those presenting after 8 weeks of life in the pediatric population have a benign course and respond well to surgical repair.² In rare cases, Morgagni hernia may present in adulthood, with a mean age at diagnosis of 57 years and a higher prevalence observed in females.³ Presentation in adults is often (72%) symptomatic, most commonly with pulmonary symptoms.⁴ Acute complications, such as intestinal ischemia due to bowel strangulation or gastric volvulus, may also occur.⁵

These hernias are most frequently located on the right side and are characterized by the herniation of abdominal contents into the thoracic cavity.⁴ While they most commonly contain omental fat, herniation of the transverse colon, small bowel, stomach, or liver can also occur. Differential considerations on plain chest x-ray include

Figure 5. Axial (A) and mid-sagittal (B) chest CT sections obtained 1 month after Figure 4 demonstrating the intrathoracic extent of the Morgagni hernia (arrowheads) containing loops of colon and small bowel and extending through the developmental defect (black arrows) between the pars tendinalis and the pars sternalis of the diaphragm.



cardiophrenic fat pad, diaphragmatic eventration, pericardial cyst, loculated pneumothorax, lower lobe lung collapse or consolidation, lymphoma, or thymic tumor. Diagnosis is often made incidentally on lateral chest x-ray, especially when bowel is visible anteriorly within the thoracic cavity.¹ If suspected, the diagnosis may be confirmed when abdominal CT or MRI demonstrates intrathoracic herniation of omental fat or air-filled viscera anteriorly,⁶ with loss of continuity between the diaphragm and the lower sternum, especially on a sagittal view. A barium study or US may support the diagnosis.⁷

Conclusion

Although Morgagni hernia is the rarest type of CDH, it is clinically important due to the potential for delayed diagnosis and associated complications. Its bimodal age distribution underscores the importance of recognizing this condition in both pediatric and adult populations, where symptoms can range from asymptomatic findings to severe pulmonary or gastrointestinal issues. Accurate diagnosis depends on imaging, with lateral chest x-rays often identifying

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