

Gastric Outlet Obstruction As A Consequence Of An Incarcerated Morgagni Hernia

J Rose, H Villar

Citation

J Rose, H Villar. *Gastric Outlet Obstruction As A Consequence Of An Incarcerated Morgagni Hernia*. The Internet Journal of Surgery. 2012 Volume 28 Number 4.

Abstract

Foramen of Morgagni hernias are rare diaphragmatic defects that are typically found on routine imaging examinations. However, in rare cases, they may cause symptoms, including chest pain, abdominal pain, bloating, and obstruction. Even more rarely do they cause gastric outlet obstruction. We describe a 65-year-old man with an incarcerated Morgagni hernia causing gastric outlet obstruction.

INTRODUCTION

In 1769, thanks to his study of autopsy specimens, the Italian anatomist and pathologist Giovanni Battista Morgagni was the first to describe herniation of abdominal contents into the retrosternal space. (1,2) Named after him, the foramen of Morgagni is a diaphragmatic hernia in the posterolateral sternal area. Frequently a congenital defect, it allows abdominal contents to enter the thoracic cavity. The defect involves failure of fusion of the septum transversus, the diaphragm, and the costal arches. (2) Even though the resulting space is often congenital, predisposing conditions include pregnancy, trauma, chronic cough, obesity, and constipation, all of which may increase intraabdominal pressure. (3, 4)

Most commonly, Morgagni hernias occur on the patient's right side (91%), but they can occur on the left (5%), or bilaterally (4%); they usually contain a hernia sac. (5, 3) Of all surgically treated hernias, 3% are Morgagni hernias. They typically contain omentum, transverse colon, and stomach. Usually asymptomatic, patients may have such symptoms as abdominal discomfort, bloating, vomiting, and bowel obstruction. (1) Morgagni hernias are an uncommon cause of gastric outlet obstruction, though such reports have been published in the literature. (6)

CASE

Our patient, a 65-year-old man, came to our institution after being "found down" by the emergency medical service (EMS). At that time, he stated that he had experienced decreased energy for several days, then fell and was unable

to get up, so called 911. He said he had not had an appetite for a few days and did not eat anything. We admitted him to the hospital.

His past medical history was significant for chronic obstructive pulmonary disease (COPD), hypertension, alcoholism, anxiety, and depression. Previous operations included a cystoscopy and multiple cataract surgeries on both eyes. His home medications included albuterol, fluoxetine, ipratropium, mometasone, and multiple eye drops. He stated that he smokes, and drinks alcohol, daily.

He lives alone. His family history is significant for a mother who died of brain cancer.

On his admission to the hospital, our review of systems was significant for anorexia and occasional diarrhea for the preceding month. Otherwise, he said he had no abdominal pain, no nausea, no vomiting, and no melena. He was not aware of any weight changes or constitutional symptoms. On physical examination, he was afebrile with stable vital signs. He appeared to be well-developed. His abdomen was soft, nontender, and nondistended, with normal bowel sounds. Laboratory test results were significant for hyponatremia (sodium level, 114 mEq) and hypokalemia (1.8 mEq). After his admission to the medical service for definitive care, we aggressively replaced his electrolytes. For his exacerbated COPD, we prescribed azithromycin; to prevent any symptoms of alcohol withdrawal, we prescribed benzodiazepines. He was started on a diet, but began having intermittent nausea, vomiting, and diarrhea. We diagnosed a *Clostridium difficile* infection and treated him with oral

vancomycin. On his 11th hospital day, he underwent computed tomography (CT), in order to determine the cause of his symptoms: we found gastric outlet obstruction; part of the stomach herniated through a defect in the diaphragm. After further examination by our surgical service the patient began having intermittent episodes of nausea and vomiting; we inserted a nasogastric tube, which produced daily outputs of 2 liters. We reviewed the CT scan, which appeared to show a foramen of Morgagni hernia with stomach inside (Figures 1, 2). To further elucidate the anatomy of the defect, we obtained an upper gastrointestinal (GI) series, which showed the hernia with the stomach and pylorus in the chest, causing gastric outlet obstruction (Figure 3). He was then scheduled for operative repair.

Figure 1

Figure 1: An axial computed tomography (CT) scan shows a visible foramen of Morgagni hernia. Notice the stomach, anterior to the heart, in the right chest.

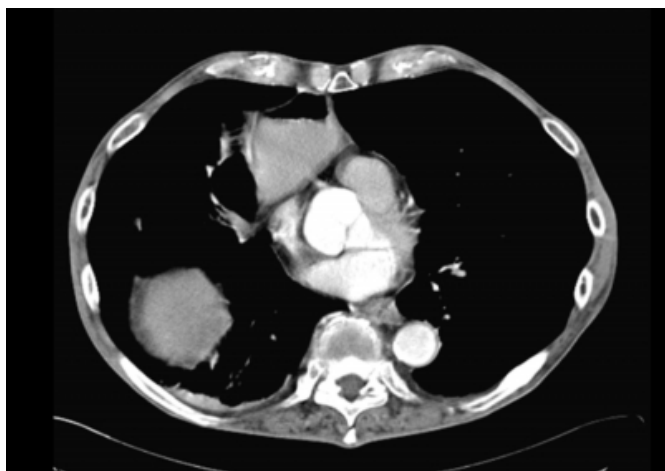


Figure 2

Figure 2: A sagittal computed tomography (CT) scan shows a lateral view of a Morgagni hernia.

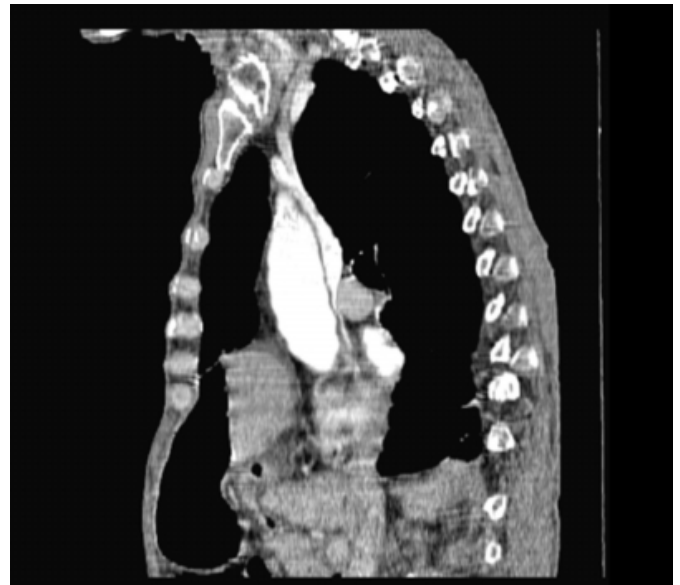
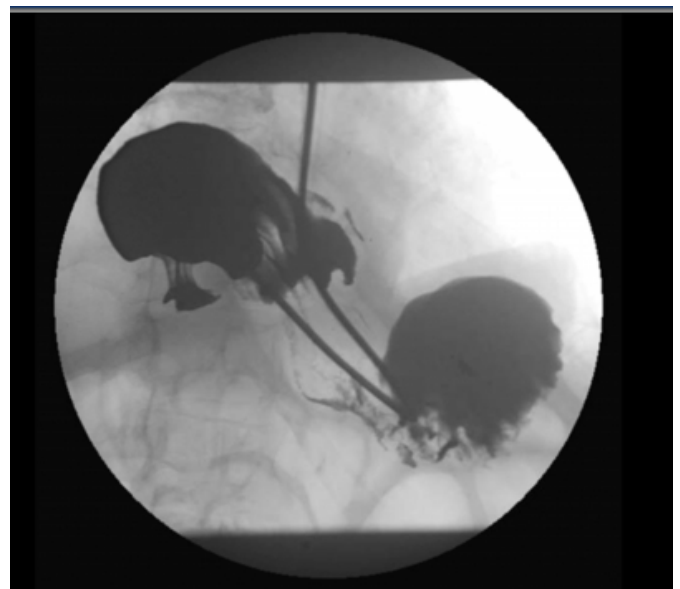


Figure 3

Figure 3: An upper gastrointestinal (GI) series of barium studies shows stomach and pylorus in a Morgagni hernia.



The patient underwent an elective diaphragmatic hernia repair. To enter the abdomen, we made a transverse abdominal incision. The hernia was immediately obvious, with the stomach and pylorus as well as some small intestine contained in the hernia sac (Figures 4, 5, 6). We reduced the contents of the hernia sac and obliterated the hernia sac by placing pursestring sutures around it. Then, we used the hernia sac, plicated on itself, as a plug to primarily repair the hernia defect in 3 layers (Figure 7).

Figure 4

Figure 4: An intraoperative photograph shows foramen of Morgagni hernia, with stomach and pylorus visible in the sac.

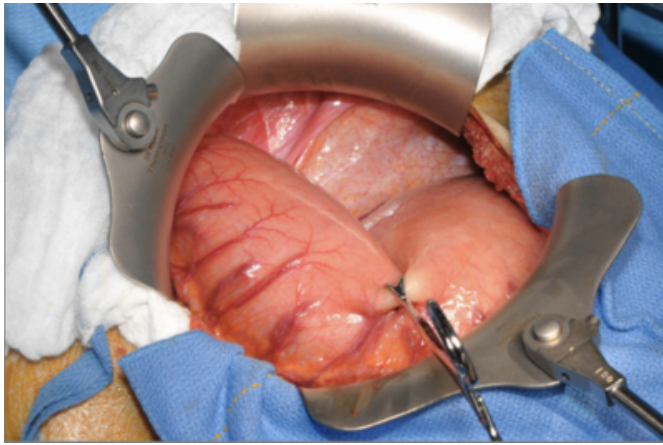


Figure 5

Figure 5: An intraoperative photograph shows stomach reduced from the Morgagni hernia sac, but small bowel is still in the sac.

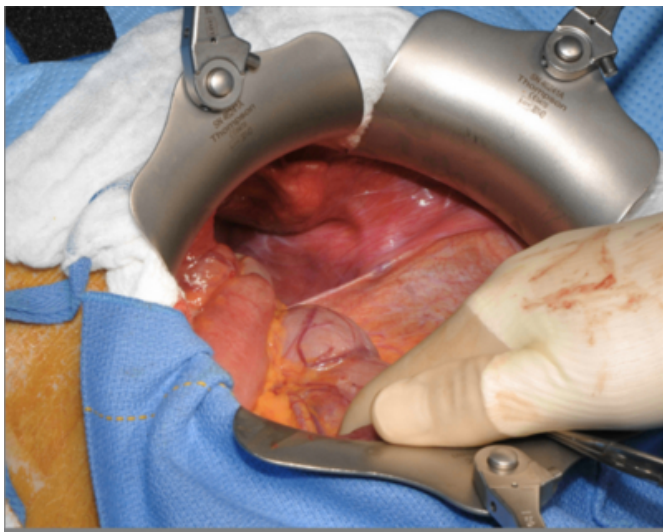


Figure 6

Figure 6: An intraoperative photograph shows a Morgagni hernia sac, with all contents reduced.

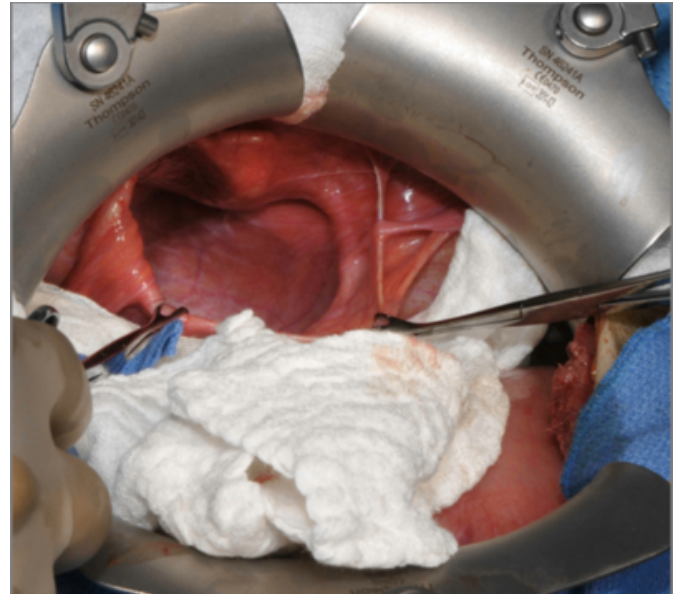
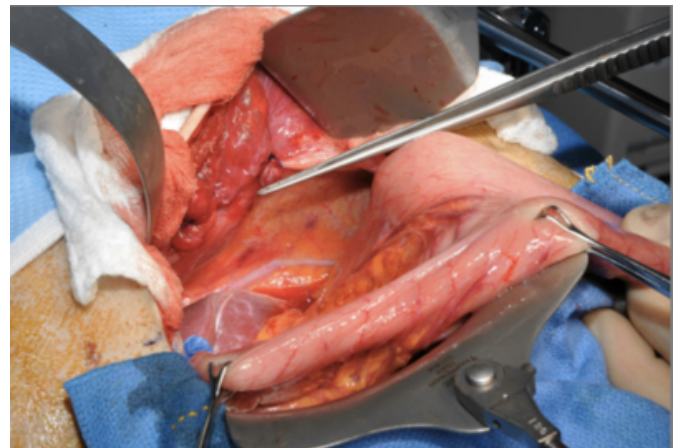


Figure 7

Figure 7: An intraoperative photograph shows complete repair of a Morgagni hernia.



The patient did well postoperatively and was discharged in stable condition. His gastric outlet obstruction completely resolved.

DISCUSSION

Morgagni hernias, though usually classified as congenital, are typically discovered later in life, often as incidental findings on imaging exams. When symptoms are present, they can include pain, symptoms of obstruction, and chest tightness. (4) Generally asymptomatic and relatively uncommon, foramen of Morgagni hernias should be repaired to prevent complications, including obstruction and

strangulation. (2)

Diagnosis is usually via imaging. Morgagni hernias are frequently seen on plain films, especially lateral chest x-rays. However, when only omentum is in the hernia sac, diagnosis is more difficult. If seen on x-rays, such hernias look like the handle of a cane (hence, the term “sign of the cane”). (5, 3) The defect can also be seen on barium studies (performed with an enema for a herniated colon and with an upper GI series for the stomach). (5) Frequently, CT scans of the chest and abdomen are also obtained; they can show contrast-filled viscera in the foramen of Morgagni, or a solid mass (omentum) in this space. Some clinicians also recommend magnetic resonance imaging (MRI) to evaluate these lesions. If the lesion appears close to the heart, echocardiography can be performed. (3)

Surgery is typically indicated. However, surgery is not necessary when hernias are very small, are asymptomatic, or contain only omentum. (2) Of the many options for surgical repair, the abdominal approach is typically favored. That approach makes it easier to reduce the hernia contents, to simultaneously treat any intraabdominal pathology, and, if the hernia contents do not fit in the abdominal cavity, the abdomen can be temporarily left open. (3)

Some clinicians recommend the thoracic approach, which makes it easier to dissect the hernia sac off the pleural and

mediastinal structures. However, with that approach, missed bilateral hernias have been reported. (3)

Depending on the skill set of the surgeon, repair is also possible laparoscopically or thoracoscopically. (3) Some surgeons advocate performing a primary repair, whereas others prefer mesh with both open and minimally invasive surgery. But with minimally invasive surgery, mesh is almost always used routinely; intracorporeal suturing has also been described. (6, 7)

References

1. Minneci PC, Deans KJ, Kim P, Mathisen DJ: Foramen of Morgagni hernia: changes in diagnosis and treatment. *Ann Thorac Surg*; 2004; 77: 1956-1959.
2. Loong TPF, Kocher HM: Clinical presentation and operative repair of hernia of Morgagni. *Postgrad Med J*; 2005; 81: 41-44.
3. Horton JD, Hofmann LJ, Hetz SP: Presentation and management of Morgagni hernias in adults: a review of 298 cases. *Surg Endosc*; 2008; 22:1413-1420.
4. Lev-Chelouche D, Ravid A, Michowitz M, Klausner JM, Kluger Y: Morgagni hernia: unique presentations in elderly patients. *J Clin Gastroenterol*; 1999; 28: 81-82.
5. Paris F, Terazona V, Casillas M, Blasco E, Canto A, Pastor J, Acosta A: Hernia of Morgagni. *Thorax*; 1973; 28: 631-636.
6. Pallati PK, Puri V, Mittal SK: Gastric outlet obstruction secondary to Morgagni hernia: a case report. *Hernia* 2008; 12: 209-212.
7. Angrisani L, Lorenzo M, Santoro T, Sodano A, Tesaro B: Hernia of foramen of Morgagni in adult: case report of laparoscopic repair. *JSLs*; 2000; 4:177-181.

Author Information

Jessica Rose, DO

Department of Surgery, Southern Arizona Veterans Affairs (VA) Health Care System and the University of Arizona

Hugo V. Villar, MD, FACS

Department of Surgery, Southern Arizona Veterans Affairs (VA) Health Care System and the University of Arizona