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Case Report

Laparoscopic repair of a symptomatic right congenital morgagni hernia in an elderly patient: a rare case report

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ABSTRACT

Morgagni hernia is a rare form of congenital diaphragmatic defect on the anterior part of the diaphragm with a prevalence of 2-3%. We report a case of a 70-year-old female who presented with burning chest pain, intermittent and colicky upper abdominal pain occasionally associated with nausea and vomiting, and constipation for 4 months. Imaging studies, including X-ray, ultrasound, CT scan, and MRI, were suggestive of a right-sided congenital Morgagni hernia. Late diagnosis of this condition in adults is extremely rare, and in the elderly, it is even rarer. The patient underwent successful laparoscopic diaphragmatic hernia repair with prosthetic mesh placement. The postoperative period was uneventful, and the patient was discharged on the fifth postoperative day. Minimally invasive surgical techniques provide definitive treatment for patients with uncomplicated Morgagni hernia cases, offering a shorter recovery time and a low complication rate.

Keywords: Laparoscopic repair, Morgagni hernia, Congenital diaphragmatic defect, Minimally invasive surgery, Prosthetic mesh, Right-sided hernia, Thoracic imaging, Surgical correction

INTRODUCTION

The Italian anatomist Giovanni Battista Morgagni first reported Morgagni hernia (MH) in 1769 as a diaphragmatic hernia located in the costosternal trigones, a triangular area between the muscles from the xiphisternum and the diaphragm's costal margin, protruding into the central tendon.[1] It is uncommon, making up just 2% of diaphragmatic hernias, with a higher occurrence on the right side (91%), but possible on the left side (5%) or on both sides (4%).[2,3] Most commonly seen in infants and young infants, rarely in grown-ups. Adults typically present at the age of 53 on average. Females are more likely to experience it, while males exhibit symptoms at an earlier age than females. The majority of cases do not show symptoms. The most frequent symptoms in cases with symptoms are cough and difficulty breathing.[3] Computer tomography (CT) is considered the best way to suggest a diagnosis through imaging exploration. The therapy involves repairing the defect with or without a prosthesis, using either an abdominal or thoracic method, and can be done through open or minimally invasive surgery.[4]

CASE REPORT

A 70-year-old female presented with complaints of burning chest pain for 4 months, intermittent and colicky upper abdominal pain occasionally associated with nausea and vomiting for 4 months, and constipation for 2 to 3 months. There was no history of trauma, previous surgery, or extreme physical exertion. On examination, the abdomen was soft, but mild tenderness was present in the right hypochondriac region, and there was an absence

of breath sounds in the right lower chest. X-ray of the chest showed a suspected bowel in the right lower zone. (Figure 1).

Figure 1: X-ray chest PA view.

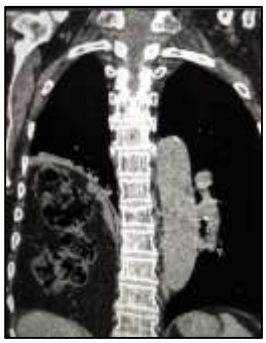

Figure 2: CT chest.

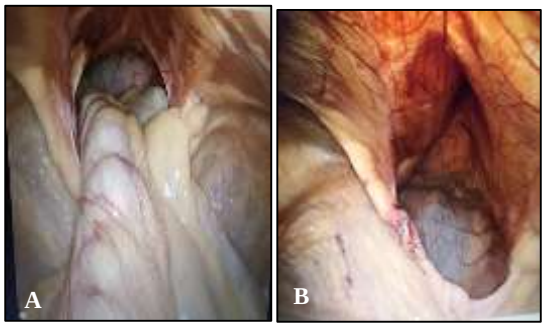

Figure 3 (A & B): Right diaphragmatic hernia with herning bowel loop, and right diaphragmatic defect.

Figure 5: Dual layer mash hernioplasty fixed with trackers.

DISCUSSION

Morgagni hernia is a rare congenital anteromedial diaphragmatic defect, accounting for only 2% of all diaphragmatic hernias.[5] It occurs on the right side of the sternum in 91% of patients, on the left side in only 5% of patients, and only 4% of the reported cases are bilateral. The defect results from a fusion failure of the diaphragm with the costal arches, possibly due to the presence of the liver on the right side.[2,4-6] The average length of the diaphragmatic defect in the greatest dimension is 7.5 cm.[7]

Most patients are asymptomatic, and only a few rare symptomatic adult cases have been described. In adults, MH can be misdiagnosed because it presents with nonspecific gastrointestinal and respiratory signs and symptoms. Respiratory symptoms, including cough, dyspnea, and chest pain, are the most common presenting complaints, comprising about 34% of symptomatic cases. New-onset respiratory complaints in a formerly asymptomatic individual may be an early indication of the progression of MH. Abdominal pain can be due to incarceration or strangulation of the viscera. Pregnancy, trauma, obesity, chronic constipation, and chronic cough are common predisposing conditions. Exercise and other types of exertion may also result in symptoms. The most common abdominal organs found in the hernia sac are the colon and omentum, and less frequently the small bowel, stomach, and liver.[5] The presence of a hernia sac is associated with better outcomes, whereas thoracic herniation of the liver is associated with worse outcomes.

Although it can be suspected based on a chest X-ray for workup of unexplained respiratory symptoms, CT of the chest and abdomen remains the modality of choice to confirm the diagnosis. CT is the most sensitive diagnostic tool because it provides anatomical details of the hernia contents and its complications.[4]

The most feared complication of MH is strangulation. No statistical data are available related to complications. Even if a patient is asymptomatic, surgical repair of MH is always indicated because of the risk of strangulation of the hernia contents.[2] The surgical techniques currently available include open abdominal approaches via laparotomy; open thoracic approaches via thoracotomy; and minimally invasive techniques, including laparoscopy and thoracoscopy.[7] Laparotomy is the most common approach for MH repair and is often used in emergent cases, especially when a patient presents with respiratory insufficiency or bowel obstruction. A transthoracic approach is used for large right-sided MH. It enables easier dissection of the hernia sac off the pleural and mediastinal structures with good visualization of the operative field. This approach includes thoracotomy.[8] Minimally invasive surgery via laparoscopy carries the shortest recovery time, offering an almost immediate return to normal activities by 3 days in a majority of cases and with a complication rate as low as 5%, which makes it the most favored approach in

uncomplicated cases. The postsurgical recurrence rate of MH is very low, and the results are excellent.[9,10] The use of mesh for MH repair is not indicated for all patients. Mesh repair should be considered when there has been considerable tissue loss or notable thinning of the diaphragm or when primary tissue repair is not possible. Complications that can arise from mesh fixation include intrathoracic adhesions to the heart, lungs, or diaphragm, as well as possible diaphragmatic rupture. However, the risks of postoperative complications related to mesh repair have been reduced in the era of composite covered mesh materials.[11]

CONCLUSION

Symptomatic congenital Morgagni hernia in the elderly is extremely rare. Primary management for both symptomatic and asymptomatic cases is surgical correction, preferably with minimally invasive techniques in uncomplicated cases because of the shorter recovery time and lower complication rate.

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