



Case report

Morgagni hernia in adult: A case report

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ABSTRACT

Introduction and importance: Morgagni Hernia is a congenital diaphragmatic hernia but can rarely present in adults. It occurs due to a congenital defect in the development of the diaphragm. Here we present a case of symptomatic Morgagni hernia diagnosed in a 53 years' female.

Case presentation: A 53 years' female presented with recurrent chest symptoms and was found to have bowel contents herniated into the right hemithorax on chest X-ray and CECT. Reduction of hernia was done laparoscopically and the hernia was repaired with non-absorbable suture in an interrupted manner.

Clinical discussion: Morgagni hernias are mostly diagnosed incidentally on a chest radiograph or can present with cardiorespiratory or abdominal symptoms. Our case was an adult who was diagnosed to have Morgagni hernia presenting with chest symptoms. The investigation of choice to diagnose and evaluate this condition is CECT of chest and repair of hernia without the use mesh is advised in asymptomatic cases also due to feared complications like strangulation and incarceration.

Conclusion: The treatment of Morgagni Hernia is primary surgical repair which can be done either trans-thoracically or transabdominally. It is advised that surgical repair should be done even in asymptomatic cases.

1. Introduction

Diaphragm is a muscular structure developed from multiple embryonic sources namely, the septum transversum, the pleuroperitoneal folds, and the somites [1]. If the anterior pleuroperitoneal membrane fails to fuse with the sternum and costal cartilages, it results in an anatomical defect in the costosternal trigone which is known as foramina of Morgagni [2,3]. Abdominal contents can herniate through this anterior defect resulting in the hernia known as the Morgagni hernia. It is one of the four possible congenital diaphragmatic herniae (CDH) accounting for 1–9% of them. The four types of CDH include Bochdalek hernia, Morgagni hernia, diaphragm eventration, and central tendon defects of the diaphragm [4,5]. CDH can be symptomatic or be diagnosed incidentally. The symptoms of CDH include nonspecific respiratory or gastrointestinal signs and symptoms [2]. Except for some rare cases, Morgagni hernia usually presents in childhood. Here in this case report, we present a case of a 53 years' female who had angina-like symptoms and later diagnosed to have Morgagni hernia. This case has been reported in line with the SCARE 2020 criteria [6].

2. Case report

A 53 years' nonsmoker hypertensive female was admitted to our hospital to evaluate chest pain. Her chest pain was insidious in onset, localized to right side which was intermittent, pricking type, with no radiation, and aggravated on lying down. She had no history of cough, shortness of breath and orthopnea. She had no history of abdominal pain, altered bowel habit and abdominal trauma. She was evaluated four years back and diagnosed to have stable angina for which relevant treatment was done. But the symptoms recurred and this time, in chest X-ray there were bowel loops in the thoracic cavity (Fig. 1). To further evaluate the case, a contrast-enhanced Computed Tomography (CECT) scan of the chest was done which showed a defect in the anterior aspect of right hemi diaphragm through which the ascending colon, hepatic flexure and right portion of the transverse colon along with omental fat were herniating into the right hemithorax, thus the diagnosis of Morgagni hernia was made (Fig. 2).

She was evaluated and laparoscopic repair of the defect was done using three ports (10 mm port at infraumbilicus for camera, two 5 mm ports at midclavicular line 3 cm above the umbilicus on each side).

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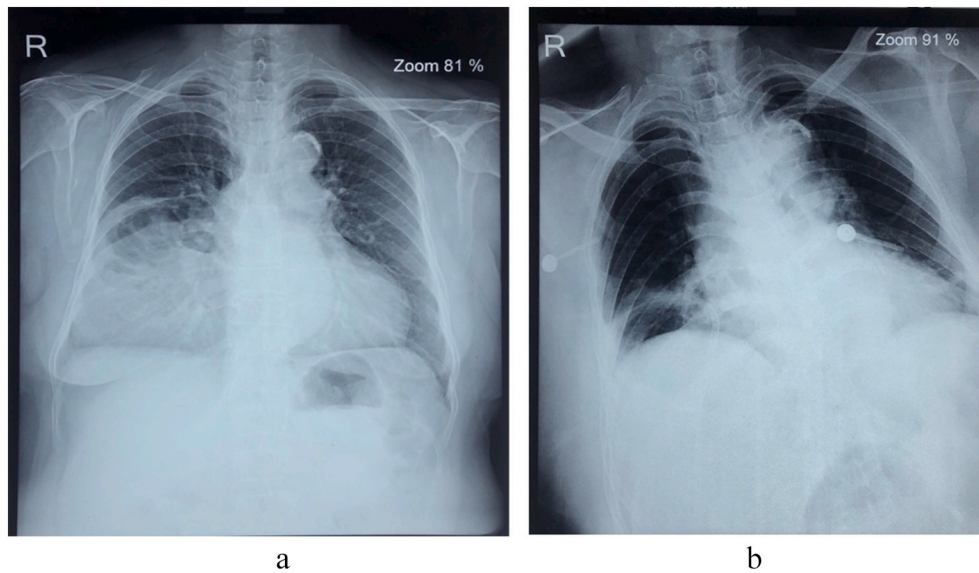


Fig. 1. Preoperative (a) chest X-ray posteroanterior view showing herniated bowel loops in the right thoracic cavity and postoperative (b) chest X-ray anteroposterior view showing expansion of lung field.

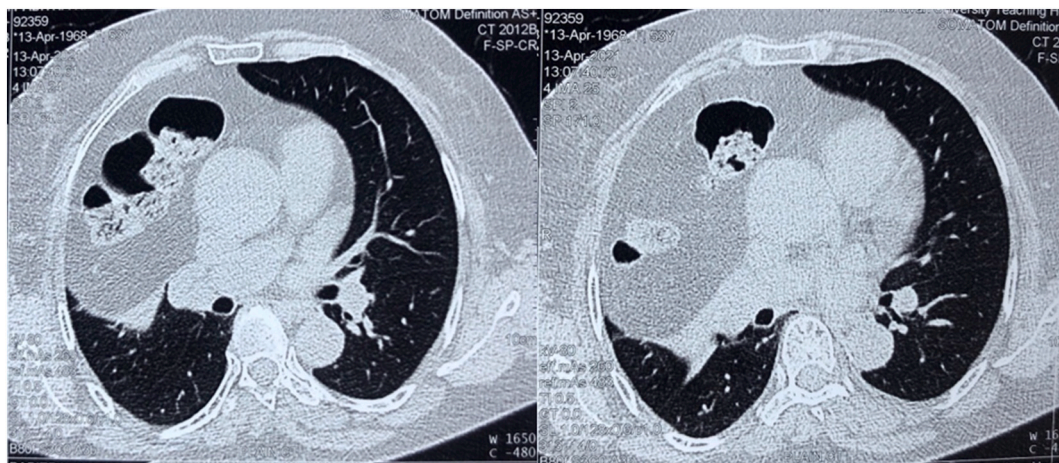


Fig. 2. Transverse section of CECT scan of chest showing herniated bowel loops in the right thoracic cavity.

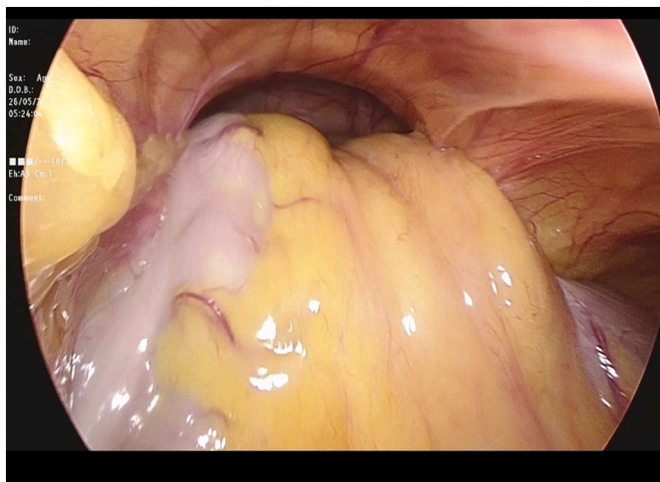


Fig. 3. Laparoscopic view of abdomen showing herniation of abdominal content through foramen Morgagni.

During the laparoscopic repair, transverse colon and omentum were seen to be herniated in the foramen Morgagni of approximately 3 cm size, thus confirming the pre-operative diagnosis of Morgagni Hernia (Fig. 3). The hernia contents were reduced under direct vision, and foramen closed with a non-absorbable suture (polyester no.1) in an interrupted manner (Fig. 4). The sac was not excised. A close suction drain of 10 Fr. size was inserted through the epigastric port into the hernia cavity. The drain was kept in negative suction and removed on the third postoperative day. A post-operative X-ray was done which showed expansion of lung field and reduction of hernia contents into the abdomen (Fig. 1). The patient had asymptomatic hypoxia (SPO₂ = 84 to 88% in room air) for 5 days postoperatively, which was treated with oxygen support via nasal cannula at two liters per minute, chest physiotherapy and oral mucolytic (Bromhexine). Imaging and physical examinations during this period revealed no abnormalities. On the 6th day, she had complete resolution of symptoms and was discharged on the seventh postoperative day.

3. Discussion

Morgagni hernia is the rarest of all CDH, presenting mostly in

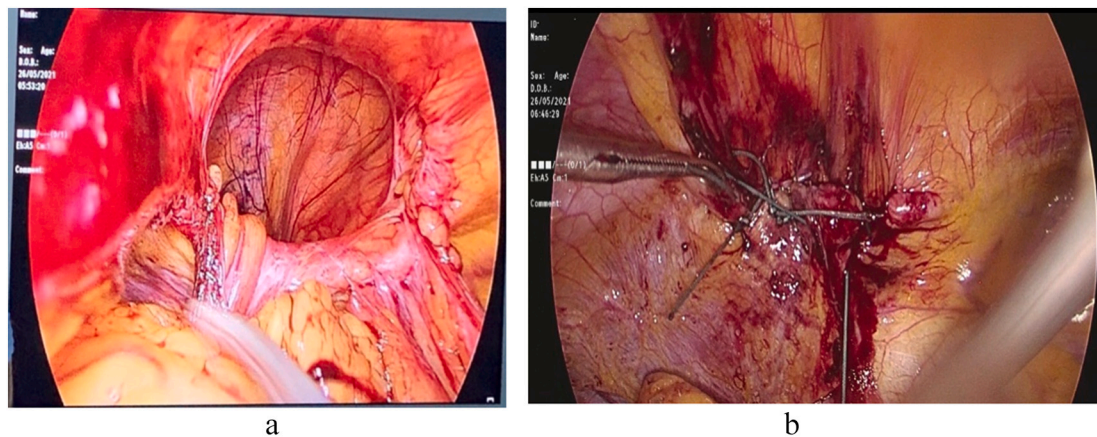


Fig. 4. Laparoscopic view of hernia orifice after reduction of hernia (a) and after its repair (b).

childhood [4,5]. There are some reports documenting its presentation in adulthood [7–10]. The present case, a 53 years' female was diagnosed as having CDH after developing cardiovascular and respiratory symptoms repeatedly. CDH was suspected due to visualization of bowel loops in the right side of the thoracic cavity on chest X-ray and was confirmed by CECT scan of the chest which showed herniating bowel loops along with omental. The defect was closed laparoscopically using nonabsorbable suture as the size of the defect was small (approximately 3 cm).

Most of the cases of Morgagni hernia are diagnosed incidentally on a chest radiograph and they are mostly right-sided. They are seen as homogenous mass along with (if hollow viscus is herniated) or without air-fluid level. If symptomatic, symptoms can mimic respiratory or cardiovascular diseases. Abdominal pain is seen in cases where the viscera get strangulated or incarcerated. Most commonly the herniated mass comprises of omentum followed by the colon and small intestine. However, stomach is the most common herniated part in left-sided Morgagni hernia [11,12].

The investigation of choice for cases like this is CECT scan of the chest. It is preferred as it can provide the anatomical details of the hernia, its contents and its complications if any. If there is presence of a retrosternal mass of fat density or a combination of omentum and a hollow viscus organ, then the diagnosis is established [13]. In cases of diagnostic difficulty, magnetic resonance imaging (MRI) has been reported to be used to differentiate CDH from other mediastinal masses [14]. Complication of Morgagni hernia can be strangulation; thus surgical repair of the defect is advised even in asymptomatic cases [15]. Morgagni hernia can be repaired via abdominal approach (laparotomy or laparoscopically) or transthoracic approach [11,16]. There is no common consensus on which approach is better, however abdominal approach via laparotomy is preferred in cases of suspected strangulation or dense adhesions. The hernia orifice can be repaired using Mesh or simply by non-absorbable sutures. Mesh or no mesh depends on hernia size and the possibility of achieving a tension-free repair without a prosthesis. It is reported by a case series of 36 patients that there can be successful repair of the defect without using Mesh and have no recurrence [17]. There is no strong recommendation on the cutoff size of the hernia defect to advise use of mesh. Mesh can be considered in cases where there is marked tissue loss of the diaphragm and primary repair is not possible [10,18]. Although removal of sac has many advantages like reduction of tissue trauma, low risk of fluid collection and low recurrence, it is advised that the sac not be removed due to the feared complication of massive pneumo-mediastinum [19,20]. Drain was used in our case to minimize the risk of fluid collection in the dead space created by the reduction of hernia sac but there is no strong evidence for use of drain in laparoscopic repair of Morgagni hernia.

4. Conclusion

Morgagni hernia is a rare type of CDH which is usually identified in childhood but occasionally in adult. It can present with acute chest symptoms or can be asymptomatic. Diagnosis of this condition is done by CECT chest and treatment is primary surgical repair without Mesh wherever possible. This can be done either transthoracically or trans-abdominally. It is advised that surgical repair should be done even in asymptomatic cases.

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Ethical approval

Case reports do not require ethical approval by our institution.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

All authors contributed to the manuscript preparation including data acquisition, literature review and writing. NM, BPK and PJL were involved in the performing the procedure.

Research registration

Not applicable.

Guarantor

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Declaration of competing interest

None declared.

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