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Case Report

Laparoscopic mesh repair of Morgagni hernia in an octogenarian patient

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Case report

An eighty-years-old patient was admitted under gastroenterology medicine (GE) with chief complaints of heart burn (10 days), post meal vomiting (2 days) and pain upper central abdomen (2 days). There was no history of lump abdomen, hematemesis, malaena or jaundice. In the past history patient was a known case of coronary artery disease (CAD) and cerebro-vascular disease and was on regular follow up. General physical examination was normal. On abdominal examination there was fullness and deep tenderness in the epigastrium; but no signs of peritoneal irritation were present. The rest of abdominal examination was essentially normal. The respiratory system examination revealed reduced air entry in the right basal area and occasional crepts bilaterally. Routine blood tests; including liver function tests were within normal range. In the chest radiograph there was blunting of right cardio-phrenic (CP) angle and areas of increased density with multiple air lucencies were seen along right hemidiaphragm outline (Fig. 1a). Ultrasonography (USG) abdomen showed dilated stomach and pylorus with abrupt cut off at the junction of pylorus with first part of duodenum (D1). Contrast enhanced computed tomography (CECT) abdomen revealed distended stomach and a large defect in right hemidiaphragm. The body of stomach, pylorus and transverse colon along with omentum were found herniating into right hemithorax (Fig. 1b–d). Evaluation with upper gastrointestinal endoscopy

Introduction

The estimated incidence of congenital diaphragmatic hernia (CDH) is 1 in 2000–5000 live births. They are the rarest of CDH, making up 2–3% of all the diaphragmatic hernia cases.¹ The aetiology of CDH is unknown, however, 2% of cases have been noted to be familial and another 15% of patients have associated chromosomal abnormalities. Presentation may vary from non-specific gastrointestinal symptoms to bowel obstruction and strangulation.² More than half of patients can be diagnosed incidentally while investigating unrelated problems and most symptomatic cases tend to present acutely.³ We are reporting an eighty years old male patient with Morgagni hernia, who presented with features of GOO and underwent successful laparoscopic reduction of hernia followed by mesh and

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Fig. 1 – (a) Radiograph chest – blunting of right CP angle (yellow arrow); obscuration of cardiac silhouette on right side; right dome of diaphragm is poorly delineated with areas of increased density and multiple air lucencies (red arrow head). (b) Post contrast axial image, grossly distended stomach with air fluid level (red arrow) herniating to right hemithorax along with colon (blue arrow) and omentum. (c) & (d) Herniation of stomach through large retrosternal diaphragmatic defect (foramen of Morgagni) in coronal and Saggital reformatted images respectively (yellow arrow).

showed stasis oesophagitis, food residue in the stomach, scope could not be negotiated beyond pylorus.

A surgical review was requested and he was planned for surgery on next day. In the pre anaesthetic checkup there was mild restriction of pulmonary function and echocardiography was suggestive of early diastolic dysfunction. Considering the advanced age of patient, multiple comorbidities and morbidity of large sub costal incision; patient was considered for laparoscopic reduction and mesh repair. Intra operatively there

was large Morgagni hernia anterior to right lobe of liver and the defect measuring 10×8 cm in size was present (Fig. 2a). Distal part of stomach, transverse colon and the omentum were found herniating through the defect. Laparoscopic reduction of the contents was done. The margins of hernia sac were dissected and defined; the sac was not removed.

As primary closure was not possible, 15×12 cm dual mesh (Prolene+PTFE) was placed over the hernia defect and secured to the margins with 5 mm and 10 mm tackers. Intracorporeal silk 2-

Fig. 2 – Intra op (a) 10×8 cm sized defect clearly visible after reduction of the hernial contents. (b) Anchoring of dual mesh (PTFE side towards the abdomen); intracorporeal suturing with silk 2-0 in progress, tackers already in place on lateral side.

0 sutures on medial side were taken because of close proximity to the pericardium and heart; tackers were avoided on this side (Fig. 2b). Post operative recovery was uneventful. Patient was started on oral diet on first post operative day (POD) and was discharged on second POD. Patient is asymptomatic and there is no evidence of recurrence after six months of follow up.

Discussion

Diaphragmatic hernias of Morgagni were first described in 1769 as anatomical defects in the anterior diaphragm that allow herniation of abdominal viscera into the thorax by Giovanni Battista Morgagni, an Italian anatomist and pathologist.

Pathophysiology of diaphragmatic hernias is not clear. Patients reported to have previous normal radiographs suggest that these hernias may be acquired through a congenital defect in the diaphragm.⁴ The sequence of events is probably herniation of abdominal viscera through a pre-existing diaphragmatic defect. It can occur on either side of the sternum through a muscle-free triangular space of Larrey, it is more common on the right side. The reason for the more infrequent occurrence on the left side was suggested to stem from the enhancement of the diaphragm by the heart and pericardium. Rarely Morgagni hernia occurs on left side or bilaterally.⁵

Most hernias of Morgagni are diagnosed late because patients can be asymptomatic or present with vague gastrointestinal and respiratory symptoms and signs. Our patient presented with acute symptoms of GOO. It is noteworthy that patient was a known case of CAD and cerebro-vascular disease and hernia was never suspected in repeated chest radiographs in past. This can be explained by the fact that chest X-ray has low sensitivity and specificity and diagnosis is suspected when patients become symptomatic with bowel incarceration or obstruction.⁶ Contrast examination—for example, barium enemas carried out for gastrointestinal symptoms can also be absolutely normal.⁶

USG has been shown to be useful in assessing diaphragmatic hernias but CT is the most sensitive as it gives excellent anatomical detail on the contents of the hernia and its complications such as strangulation.⁵ But in case of intermittent symptoms due to bowel sliding in and out of the defect, CT may fail to clinch the diagnosis.⁷ This might make diagnosis difficult or confusing. Other investigations such as magnetic resonance imaging (MRI) and radio nucleotide liver scan may help with diagnosis.

Once diagnosed, the requirement for surgery is largely dependent upon the presentation.³ Repair avoids further complications but it is the timing which is important. Emergency intervention is not always necessary unless there is evidence of strangulation.^{3,4} The first laparoscopic repair was reported by Kuster et al in 1992.⁸ Laparoscopy is an excellent way to confirm diagnosis and to repair non-complicated hernia of Morgagni. The hernia sac can be easily viewed through the laparoscope. The hernia contents can then be easily reduced once the peritoneum at the perimeter of the defect is incised. The sac is usually not removed; as this may result in massive pneumomediastinum with potential respiratory and circulatory complications.⁸

We could find only two case reports of laparoscopic repair of Morgagni hernia on literature review in octogenarian patients. Vinard et al reported an eighty four year old male patient who underwent primary closure of the defect.⁹ Other case was reported by Hyoung-Ran Kim et al in an eighty-eight-years-old lady, who was treated with laparoscopic mesh repair.¹⁰

Conclusion

We have reported a large Morgagni hernia in an octogenarian patient with multiple comorbidities. After laparoscopic mesh repair patient had excellent recovery and patient is asymptomatic after six months of follow up. We want to highlight that laparoscopic repair is safe, reliable and an excellent way to confirm diagnosis and repair non-complicated hernia of Morgagni. Further, we wish to bring to attention the unusual presentation and different modalities of diagnosis for Morgagni hernia. Laparoscopic repair should be the first choice in children and adults as well being a useful diagnostic tool in cases of inconclusive imaging. The review of literature and our experience indicates that the therapeutic and rehabilitative advantages that are well proven for other video-laparoscopic procedures can be safely extended to patients with hernia of foramen of Morgagni as well.

Conflicts of interest

All authors have none to declare.

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