CASE REPORT

Malignant sigmoid colon tumour causing a large bowel obstruction in a morgagni hernia: an unusual presentation in an elderly lady

G. M. Caunter
Hospital Kajang, Malaysia

Keywords: Morgagni hernia; elderly; congenital diaphragmatic hernia; colon cancer; large bowel obstruction

Introduction

A Morgagni hernia is a congenital defect and is found in the anterior and medial portion of the diaphragm, allowing herniation of contents of the abdominal cavity into the thorax. [1-3]. It rarely presents in childhood and is often diagnosed incidentally or due to symptoms in adulthood[1-3]. Reports of symptoms appearing in the elderly population are scarce[2-3]. Colonic tumours, however, are frequently the cause of large bowel obstruction in older patients [4]. Surgery is the definitive treatment for both a Morgagni hernia and an obstructing colonic tumour[2-5].

Case study

A female, 83 years old, presented as an emergency to our hospital. She was suffering from vomiting, pain at the epigastrium and abdominal distension for 2 days. In the preceding 3 months, she had noticed some constipation with loss of appetite and weight. Her past medical history included Type II Diabetes Mellitus and Hypertension. She had never undergone any surgeries in the past. On physical examination, her abdomen was distended with hyperactive bowel sounds, and her upper abdomen was tender.

A chest radiograph showed loops of bowel within the right hemithorax. (Figure 1). There was dilatation of large bowel loops seen on an Abdominal X-Ray. A contrasted CT scan of her chest and abdomen showed an irregular enhancing mass at the sigmoid colon (Figure 2), with surrounding fat streakiness and enlarged pericolic lymph nodes. This mass was causing proximal bowel dilatation. There was also evidence of herniation of dilated large bowel loops into the thoracic cavity via a defect at the medial aspect of the right hemi diaphragm, consistent with a Morgagni hernia (Figure 3). There was thickening of bowel wall and fluid seen within the hernia sac, concerning features for bowel strangulation. The imaging

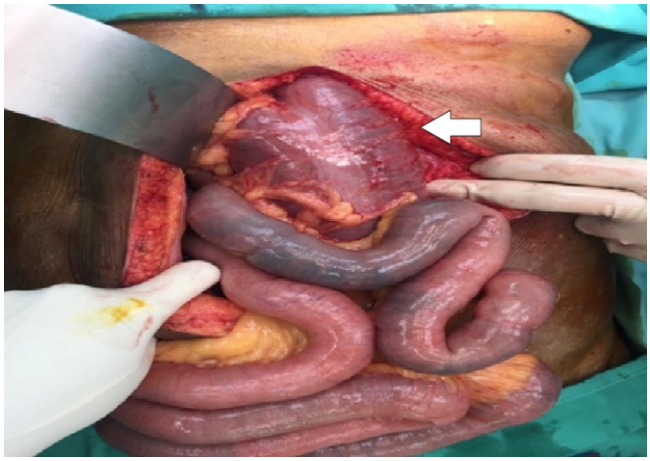

Figure 1. Intraoperative findings – Grossly dilated loop of transverse colon seen entering the hernia defect (White arrow)

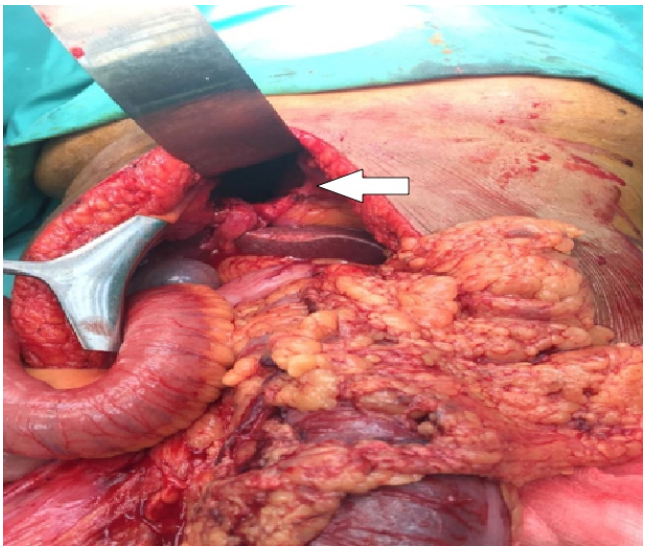

Figure 2. The diaphragmatic defect aftter reduction of hernia defects (White arrow)

confirmed our suspicion of a strangulated diaphragmatic hernia, however, we were surprised to find that the primary cause of the obstruction was a sigmoid colon tumour. The patient underwent an emergency laparotomy. Intraoperative findings were a constricting tumour at the sigmoid colon, causing proximal large bowel dilatation. A defect was found over the right side of her diaphragm and the contents were reduced, which included a grossly dilated caecum, and ascending and transverse colon, which was dusky with

Correspondence: Gillian Caunter
E-mail: caunter2@yahoo.com
https://orcid.org/0000-0003-0241-412X
Received: 10-08-2021 Accepted: 16-07-2022
DOI: http://doi.org/10.4038/sljs.v40i2.8879

ischemic patches (Figure 4). The defect measured 4x4cm (Figure 5). A subtotal colectomy with end ileostomy creation was performed. The diaphragmatic defect was primarily repaired with non-absorbable nylon sutures in two layers. The patient recovered and was discharged home. Histopathological examination of the resected bowel specimen confirmed a poorly differentiated adenocarcinoma of the sigmoid colon. Six months later, the patient remained symptom-free but declined further adjuvant treatment due to advanced age and poor functional status.

Discussion

Morgagni hernia is the cause of only 2-3% of diaphragmatic hernias[1-2]. It is caused by failure of fusion of the sternal and costal portions of the diaphragm[3] and is located anterior and medially[1-3]. Even though it is a congenital hernia, the condition is usually diagnosed in adults[1]. It is postulated that increasing abdominal pressure with age is required to stretch the defect and allow herniation of the bowel into the thorax[1,3]. Other contributing factors include obesity, trauma and pregnancy[2-3]. Many patients remain asymptomatic and are diagnosed incidentally during a workup for other pathologies[1,3]. When symptoms are present, they are vague and may persist for years[3]. Common symptoms are related either to the pulmonary system (cough, shortness of breath, exertional dyspnea) or gastrointestinal symptoms (indigestion, dysphagia, reflux, intermittent discomfort or pain) [2,3]. Some patients present more dramatically in an emergency setting with intestinal obstruction or strangulation of the bowel[1,3].

Plain abdominal radiographs of the chest and abdomen will show gas-filled bowel loops in the thoracic cavity[2]. Various diagnostic imaging methods have been used to confirm the diagnosis, including ultrasound1, barium studies[1,2,5], endoscopy[2] and MRI[2,5]. However, in our opinion, a CT scan remains the gold standard[1,5] as it is accurate, fast, non-invasive, easily available and cost-effective. In a minority of patients, a conclusive diagnosis may be difficult as the bowel can slip in and out of the sac. A diagnostic laparoscopy then provides a means to both diagnose and repair the defect[3].

Surgery is the definitive treatment[2]. The hernia can be approached via an open method, either through the thorax or abdomen[5]. The abdominal approach allows for evaluation of the contralateral diaphragm for any additional defects and it is also the easier approach for reduction of hernia contents[2-3]. It is preferred in the emergency setting because it allows for the repair of any intra-abdominal pathology[5]. Some authors have described success with a thoracotomy approach, as separating the sac from structures in the mediastinum is easier. [2]. In an elective setting, laparoscopy is an excellent option, with a faster post-operative recovery[2-3]. As with most hernias, the defect can be primarily repaired using sutures[2,3,5], with mesh repair reserved for larger defects[2,3,5].

In older patients, colon cancer is one of the most common causes of large bowel obstruction[4]. In our patient, the obstruction caused by the sigmoid tumour resulted in dilatation of the proximal large bowel and subsequent strangulation of bowel loops within a previously asymptomatic Morgagni hernia. This has never been previously seen or reported in the literature. While the standard treatment of an obstructed sigmoid colon tumour is either a Hartmann's procedure or a sigmoidectomy with anastomosis[4], we performed a subtotal colectomy to address the tumour along with the unhealthy proximal bowel. A midline laparotomy allowed us excellent access to reduce the hernia contents, perform the bowel resection and close the hernia defect successfully.

Conclusion

Morgagni hernia is rare but can present as bowel obstruction or strangulation. Prompt diagnosis is required before bowel gangrene or perforation occurs. Plain radiographs together with a contrast CT scan will confirm the diagnosis, and also identify other concurrent abdominal pathologies that need to be addressed. Surgery is the mainstay of treatment, via an open or laparoscopic approach.

All authors disclose no conflict of interest. The study was conducted in accordance with the ethical standards of the relevant institutional or national ethics committee and the Helsinki Declaration of 1975, as revised in 2000.

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Learning Points:

- Morgagni hernia in itself is rare, presenting as an emergency with bowel obstruction secondary to a tumour has never been reported, thus clinical suspicion and appropriate imaging are required to confirm the diagnosis and initiate treatment
- CT scan is an easily available, non-invasive tool to confirm the diagnosis and also identify any other concurrent pathology that would require surgical correction.
- Surgery is the definitive treatment and should not be delayed to avoid bowel perforation, gangrene or sepsis.