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Case Report

Morgagni Hernia: Report of Two Cases and Brief Review of Literature

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Abstract

Morgagni hernias are rare, comprising approximately three percent of all congenital diaphragmatic hernias. They are usually found incidentally but may present with symptoms of bowel obstruction due to viscera entering the hernia sac. Here we present a case series of two Morgagni hernias. The first case is an elderly woman who presented with strangulated transverse colon in the hernia sac, and the other is a young man who complained of vague chest discomfort. These cases exemplify the varied clinical presentation of Morgagni hernias, the importance of being cognizant of their pathology, and their treatment.

INTRODUCTION

Morgagni hernias are rare retrosternal congenital diaphragmatic defects. Usually found incidentally, they can present with bowel obstruction or ischemia. We submit two cases of Morgagni hernia with different presentations and approaches to treatment.

CASE PRESENTATION

Case 1

An 81-year-old female came to the emergency department complaining of intractable nausea, vomiting, and abdominal distention. She had passed no flatus or stool within the past 24 hours. She had no prior abdominal surgeries. On physical exam, her abdomen was distended and diffusely tender without rebound tenderness or guarding. High-pitched bowel sounds were noted. Laboratory studies showed leukocytosis with left shift. A plain abdominal radiograph showed distended small bowel and right colon with air-fluid levels (Figure 1). Barium enema exam revealed acolonic obstruction around the splenic flexure.

She was taken to the operating room for exploratory laparotomy. A Morgagni hernia containing omentum and transverse colon was discovered. A segment of distal transverse colon was kinked and necrotic, but there was no frank perforation. The colon proximal to the obstruction was massively distended, and there were areas of patchy ischemia in the cecum. An extended right hemicolectomy including the ischemic area of transverse colon was performed. Unfortunately, the patient's post-operative recovery was hindered by respiratory failure, renal failure, and sepsis. She died two weeks after her initial presentation.

Case 2

An otherwise healthy 19-year-old male presented to his primary care physician complaining of vague chest discomfort unrelated to activity. Physical exam and laboratory studies were unremarkable. A cardiac evaluation also revealed no pathology. Finally, a non-contrast CT of the chest showed a large Morgagni hernia containing omentum (Figure 2).

The hernia was repaired on an elective basis using a laparoscopic approach. A large retrosternal diaphragmatic hernia containing omentum was found (Figure 3). After reducing the omentum, the defect was closed using a Gore-tex® patch (Figure 4). The patient did well post-operatively and was discharged home on post-operative day two. His chest discomfort has resolved.

DISCUSSION

Congenital diaphragmatic hernias occur in an estimated 1 in 2000-5000 births [1], and only three percent of these are Morgagni hernias [2]. The diaphragm is derived from the septum transversum ventrally, the pleuroperitoneal membrane and body wall laterally, and mesoesophagus mediodorsally. Failure of fusion of these structures in the retroxiphoid region results in a Morgagni hernia [3]. Specifically, it arises from a septum transversum defect due to failure of closure of the pars sternalis and the seventh costochondral arch. This space is known as Larrey's space [4]. First described by the Italian anatomist Giovanni Morgagni in 1761, the diaphragmatic hernia through this space is called a Morgagni hernia [1].

The Morgagni hernia appears as an oval shaped defect on a transverse axis. Its front edges are combined to the osteocartilaginous thoracic wall and its back edges are combined

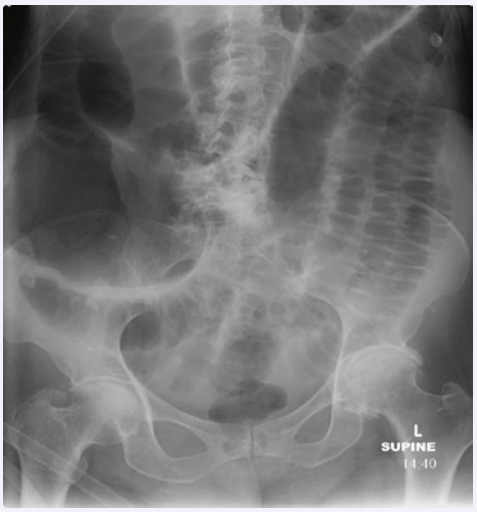

Figure 1 Plain abdominal x-ray showing massive cecal distention.

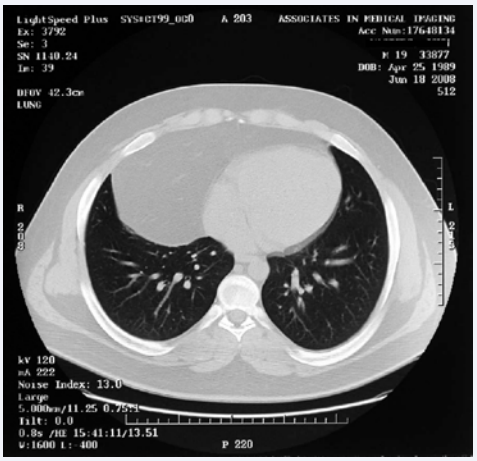

Figure 2 CT of chest showing omentum in the Morgagni hernia sac.

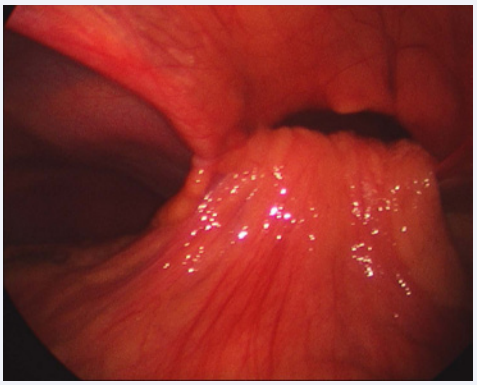

Figure 3 The retrosternal defect containing omentum.

to the muscular edge of the diaphragm [5]. The sac of a Morgagni hernia may contain omentum, transverse colon, and, less commonly, stomach and liver [4]. Ninety percent of Morgagni hernias are right sided, two percent left sided, and eight percent

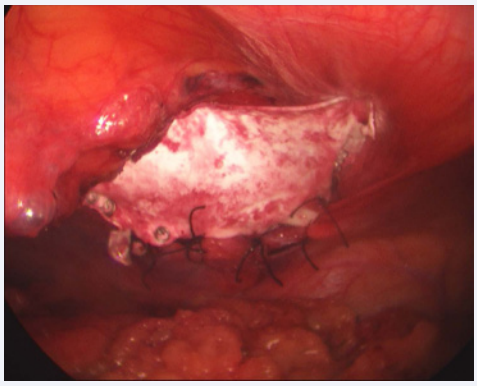

Figure 4 The completed repair with mesh.

bilateral [1]. Morgagni hernias are rarer on the left side because the pericardial sac forms a barrier on the sternocostal trigon [6].

Fifty to seventy percent of patients diagnosed with Morgagni hernias are asymptomatic, and their hernias are found during workup of other problems [4,7]. If present, symptoms may include epigastric discomfort or bloating. Acute symptoms are usually due to bowel obstruction, but the incidence of this is very low [2,3]. Most Morgagni hernias are diagnosed in children though approximately 5% are diagnosed in adults [1]. The most common adult presentation is in middle-aged, overweight women [4]. Trauma, severe exertion, and obesity may cause enlargement of formerly clinically insignificant hernias in adults, leading to a late presentation [1].

In children, Morgagni hernias are frequently associated with other congenital anomalies. They may present with severe respiratory distress, recurrent chest infections, or intermittent gastrointestinal symptoms [8]. As opposed to adults, the incidence of male and female cases in children is roughly equal [9].

Computed Tomography is the best imaging method for Morgagni hernias [4,6]. Contrast is not needed, as bowel and omentum can easily be seen on anon-contrast scan [6]. Endoscopy is generally not helpful in diagnosis [7].

To avoid complications such as incarceration, bowel obstruction, strangulation, and gastric volvulus, timely repair of Morgagni hernias is recommended [7,10]. The hernia is closed along its transverse axis by suturing the edge of the diaphragm to the retrosternal and retrocostal peritoneum and periosteum [3,5]. About half of the reported hernias are repaired with mesh, and half are repaired primarily [10]. Mesh has been particularly advocated in cases of large defects or muscle weakness [4].

Morgagni hernias may be repaired via a thoracic or abdominal approach, but bowel obstruction mandates an abdominal approach [1]. Laparoscopic and thoracoscopic approaches have been attempted with success in a limited number of cases [6]. The first laparoscopic repair of a Morgagni hernia was reported in 1992 [3]. Laparoscopy reduces post-operative pain, ileus, and hospitalization time and leads to quicker recovery of activity [5,10]. There is currently a debate regarding the management of the hernia sac in laparoscopic repairs. Some advocate resecting

it, and others recommend leaving it in place to prevent massive pneumomediastinum and resulting respiratory compromise [10]. As no complications have been reported from leaving the sac in the mediastinum, this appears to be the safest approach [9]. The reported relapse and mortality rates for repair of Morgagni hernias are extremely low [5].

CONCLUSION

Morgagni hernias are rare retrosternal congenital diaphragmatic defects. Usually found incidentally, they can present with bowel obstruction or ischemia. Most are found in children, but a minority is found in adults. Computed tomography is the method of choice for diagnosis. The hernia is repaired by suturing the edge of the diaphragm to the retrosternal and retrocostal peritoneum and periosteum. The laparoscopic approach to Morgagni hernia repair has been shown to be safe and beneficial.

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