CASE REPORT

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Congenital Morgani Hernia Presenting as Shortness of Breath and Chest Pain

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Abstract

Background: Morgagni hernia is a very rare type of congenital diaphragmatic hernia. Its reported prevalence in literature is only 2 - 3%. There is a congenital defect in the anterior part of the diaphragm, which results in penetration of abdominal organs into thorax and results in symptoms. Since it is a congenital disease, it can be detected earlier during foetal life by routine ultrasonography or late during adolescent life. Late diagnosis in adults is extremely rare. Definitive treatment is surgical repair, which should be done in all cases – symptomatic or asymptomatic – to avoid life-threatening complications, like volvulus, strangulation, incarceration, or small bowel obstruction. In view of rarity of the condition we are reporting this case which we have seen recently, presented to us with shortness of breath and chest pain.

Key words: Morgagni hernia, diaphragmatic hernia; chest pain, respiratory distress.

Introduction

The Italian anatomist Giovanni Battista first described Morgagni hernia (MH) in 1769 as a diaphragmatic hernia on an anterior side, originating from the costo-sternal trigones, which is a triangular space between the muscles originating from the xiphi-sternum and the costal margin of the diaphragm and protruding into the central tendon[1]. The most common contents of the hernia sac are abdominal visceral organs including the omentum, followed by the colon, stomach, small bowel, and part of the liver[2]. MH can be present on either side of the sternum; but, it is more commonly found on the right side. Most cases are asymptomatic. In symptomatic cases, the most common presenting symptoms are cough and shortness of breath. Computed tomography (CT) is the most important tool for establishing the diagnosis. Surgical repair is the treatment of choice in all cases to prevent complications.

We present a rare case of a symptomatic diaphragmatic hernia in a female patient who presented in old age with an unusual clinical presentation of chest pain and shortness of breath and improved completely after laparoscopic surgical repair.

Case Report

We report a case of 75-year-old female who came with 4 months history of respiratory difficulty and chest pain of 15 days duration. She was given symptomatic treatment and was diagnosed as a case of atrial fibrillation with fast ventricular rate. Inspite of taking full treatment, the patient's symptoms worsened, so was referred to the respiratory medicine department for further evaluation. There was no history of trauma, surgical intervention. There was no significant past medical history or family history of coronary artery disease, or airway diseases. She was asymptomatic before this episode since childhood. Chest pain was right-sided with severe intensity, not radiating; pressure quality increased with respiration, with difficulty in breathing, and relieved by standing and worsened on lying flat. There was no aggravation on walking. This was not associated with palpitations, dizziness, wheeze, or pedal oedema. Her general physical examination and systemic examination was normal. Her chest wall was non tender, lungs were having clear breath sounds bilaterally without any evidence of wheezing, rales, or rhonchi. She was investigated and all investigations were normal. CECT chest was suggestive of a large Morgagni hernia with defect in the right dome of diaphragm, with mild emphysematous changes and fissure thickening (as shown in image), large sliding hiatus hernia is also seen with bilateral mild pleural thickening. Adult onset diaphragmatic hernia is a rare condition with variable clinical manifestations. The majority of adult-onset diaphragmatic hernias are associated with trauma; but this patient denied history of any trauma – recent or past. The patient was evaluated by a surgeon and eventually underwent laparoscopic mesh repair of the diaphragmatic hernia. Her symptoms resolved on follow-up after surgical correction.

Discussion

Morgagni hernia (MH) is a congenital diaphragmatic hernia.

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It is rare and comprises only about 2% of all diaphragmatic hernias[3]. MH occurs due to an anteromedial diaphragmatic defect. Almost always, it occurs on the right side of the sternum (91%), which is the same side as in our patient; it occurs on the left side in only 5% of patients. Only 4% of the reported cases are bilateral.

The defect results from a fusion failure of the diaphragm with the costal arches[2-6]. Sanford *et al* reported that the average length of the diaphragmatic defect in the greatest dimension is 7.5 cm[6]. Patients can be asymptomatic most of the time which can results in delay in diagnosis. Only a few rare symptomatic adult cases have been described[7].

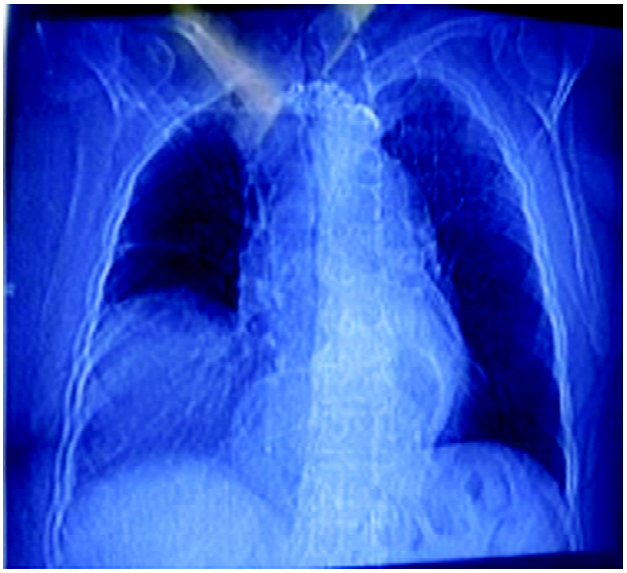

Fig. 1: *Chest X-ray PA view showing a homogeneous opacity in the right middle and lower zone.*

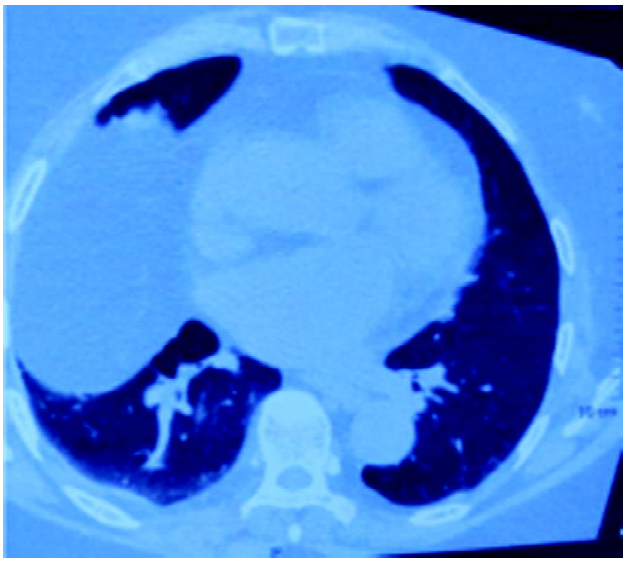

Fig. 2: *CT scan showing a right sided Morgagni hernia.*

Most patients present in childhood with respiratory issues, whereas in adults symptoms are nonspecific, respiratory or gastrointestinal symptoms or mostly asymptomatic which results in delay in diagnosis. In symptomatic cases, respiratory symptoms are the most common presenting complaints in about 34% of cases[6]. In some cases, symptoms include cough, dyspnoea, and chest pain. New-onset respiratory complaints in a formerly asymptomatic individual may be an early indication of progression of MH[8]. Abdominal pain can be due to incarceration or strangulation of the viscera, which are dreaded complications[9,10]. Pregnancy, trauma, obesity, chronic constipation, and chronic cough are common predisposing conditions contributing to the development of MH. Exercise and other types of exertion may also result in symptoms[11]. Women tend to present after the age of 50 years; men present earlier in life with complaints related to their hernia[8]. The most common contents of the hernia sac are abdominal visceral organs including the omentum, followed by the colon, stomach, small bowel, and part of the liver[2]. MH can be present on either side of the sternum; but, it is more commonly found on the right side. Most cases are asymptomatic. In symptomatic cases, the most common presenting symptoms are cough and shortness of breath. Li *et al* reported that the most common abdominal organs found in the hernia sac are the colon and omentum, and less frequently the small bowel, stomach, and liver[3]. The presence of a hernia sac is associated with better outcomes, whereas thoracic herniation of the liver is associated with worse outcomes. A similar case report was reported with chest pain by Mohamed *et al*[11]. In paediatric patients, it can be associated with other comorbid conditions, e.g., cardiac anomalies and major foetal defects; and MH has little effect on the outcome of the co-morbid diseases[12].

Computed tomography (CT) is the most important tool for establishing the diagnosis. Surgical repair is the treatment of choice in all cases to prevent complications[13]. The most feared complication of MH is strangulation and obstruction, rare complications including gastric volvulus with small intestine diverticulosis have been reported with MH[14]. Therefore, even if a patient is asymptomatic, surgical repair of MH is always indicated to prevent dreaded complications[3]. Surgical correction is the only established management for MH; however, because of the rarity of this pathology, there are currently no widely accepted guidelines on a standardised surgical technique in the literature[6]. A variety of surgical techniques are available include open abdominal approaches via laparotomy; open thoracic approaches via median sternotomy or thoracotomy; and minimally invasive techniques, including laparoscopy and thoracoscopy. There are various advantages and disadvantages associated with each approach in the repair of MH[6]. Minimally invasive surgery in laparoscopy carries

the shortest recovery time, offering almost immediate return to normal activities and diet by 3 days in a majority of cases and with a complication rate as low as 5%, which makes it the most favoured approach in uncomplicated cases. However, this method may prove suboptimal for complicated cases, because failure to reduce contents may necessitate open surgery[2]. Results of surgical repair are excellent.

Conclusion

Morgagni hernia (MH) is the rarest type of congenital diaphragmatic hernia. This is diagnosed predominantly in the first few hours of life or in the antenatal period. It is rare in adults, as it is mostly asymptomatic in adults and often detected incidentally. Symptomatic presentation in an adult is a rare event, which inspired us to report this rare case. Although rare, MH should be considered in the differential diagnosis of an adult with chest pain with respiratory distress after ruling-out other common causes.

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