Case Report

Morgagni hernia: A rare case report and review of literature

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ABSTRACT

Morgagni hernias (MHs) are rare and constitute about 2% of all diaphragmatic hernias. Although uncommon, it has potential for considerable morbidity if the diagnosis is missed. An elderly woman with known history of chronic asthma and constipation presented to us with vague right-sided chest pain. General physical examination was unremarkable and coincidentally diagnosed to have diabetes mellitus. Chest roentgenogram posteroanterior view revealed a right paracardiac opacity and right lateral view showed the opacity in the peridiaphragmatic area of anterior mediastinum. Computed tomographic scan of the chest and abdomen revealed a right-sided MH containing omental fat. Standard right posterolateral thoracotomy was done, and there was a rent at the medial end of the xiphoid process with hernia sac containing the omentum, which was compressing adjacent lungs and heart. The sac was opened; redundant omentum was resected, and rent closed with intercostal muscle with prolene. MH being rare must be addressed with appropriate investigation to prevent unnecessary morbidity and mortality.

KEY WORDS: Morgagni hernia, omentum, transthoracic approach

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INTRODUCTION

Foramen of Morgagni (sternocostal hiatus) is a triangular space located between the muscular fibers of the xiphisternum and the costal margin fibers that insert on the central tendon of hemidiaphragm. This potential space of a hernia lies just posterolateral to the sternum at the level of the seventh rib on either side of the xiphoid process. Herniation through right sternocostal hiatus is called Morgagni hernia (MH) and through left sternocostal hiatus is called as Larrey hernia.[1] MH is the least common form of congenital diaphragmatic hernia constituting about 2–3% of cases.[2] It usually presents in childhood with respiratory symptomatology, and a majority cases in adults are detected incidentally on chest radiographs.[3] The exact pathophysiology of MH is unclear, but it is postulated that the small foramen of Morgagni is enlarged with prolonged or sudden increase in intra-abdominal pressure allowing abdominal organs to herniate into the thoracic cavity.[4] Respiratory disease as a predisposing factor of MH is infrequent.[5]

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CASE REPORT

A 52-year-old woman with known history of bronchial asthma for the last 20 years and chronic constipation for last 5 years was admitted to our hospital for acute exacerbation of asthma. She also complained of dull aching vague right-sided chest pain. Routine blood investigations were done during which Type 2 diabetes mellitus was detected and treatment with insulin started to control blood sugar. Chest roentgenogram posteroanterior view revealed a right paracardiac opacity and right lateral

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view showed the opacity in the peridiaphragmatic area of anterior mediastinum [Figure 1a]. Barium esophagogram revealed absolutely normal esophagus and dye entered the stomach freely. Pulmonary function test (PFT) revealed severe restrictive pathology. To rule out pericardial mass as differential diagnosis, a two-dimensional echocardiogram of heart with color Doppler study was done. Pericardium was free; however, coincidentally, she had dilated cardiomyopathy with an ejection fraction of 37%. Computed tomographic (CT) scan of the chest and abdomen revealed a right-sided MH containing omental fat [Figure 1b].

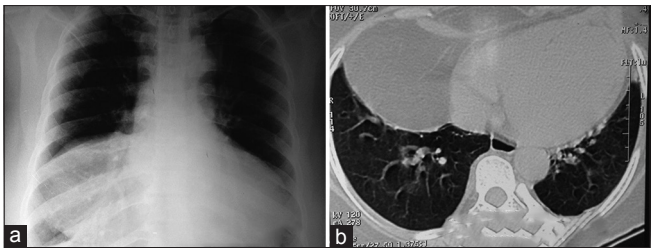

Figure 1: (a) Chest X-ray posteroanterior view, (b) contrast enhanced computed tomography thorax showing Morgagni hernia

Standard right posterolateral thoracotomy was done. Hemithorax was entered and lungs retracted. There was a huge globular mass within a sac coming out through a small rent at medial end of the xiphoid process [Figure 2a] near the attachment of the central tendon, which was popping into the pleural cavity and it was encroaching the heart. The sac was opened [Figure 2b], and redundant omentum was ligated and resected. Intercostal muscle was buttressed-like a patch with the diaphragm using polypropylene 2–0 suture to close the rent [Figure 3]. Chest drains were given and wound closed in layers after achieving meticulous hemostasis.

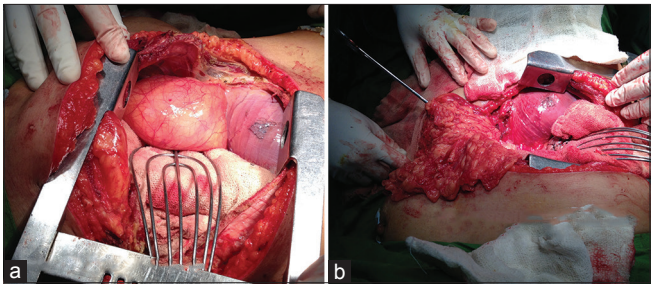

Figure 2: (a and b) Morgagni hernia showing intact sac and its content

Operation was uneventful and the patient was discharged. During follow-up, the patient was doing well with significant improvement in PFT.

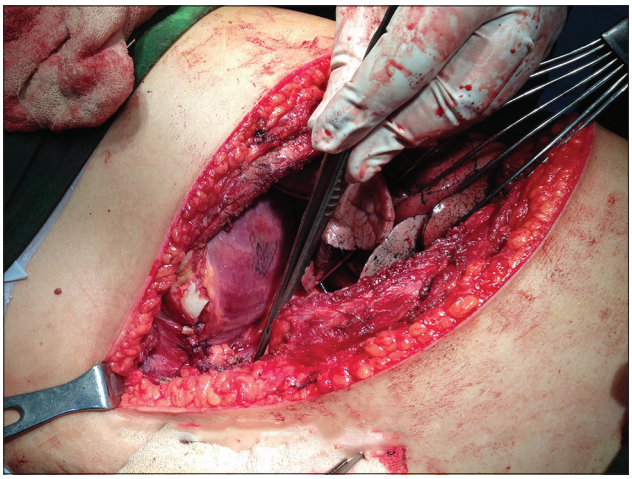

Figure 3: Closure of Morgagni hernia

DISCUSSION

MH is mostly right-sided, and the most common hernia content is omentum followed by colon and small intestine.[6] However, in case of left-sided Morgagni-Larrey hernia, stomach was the most frequent content and omentum was detected in only 20% of cases.[7]

Only 50% cases of MH have predisposing factors such as obesity, multiparity, chronic cough, and chronic constipation.[8] A persistent and progressive disease like chronic obstructive pulmonary disease may predispose MH.[9] In our case, poorly controlled bronchial asthma along with chronic constipation might have predisposed to the development of MH. Majority cases of MH are diagnosed late because patients are either asymptomatic or present with nonspecific gastrointestinal or respiratory symptoms.[10]

The differential diagnosis of right paracardiac opacity in the chest radiograph includes right middle lobe collapse, neurolipoma, consolidation, lung sequestration, pericardial fat pad, lymphoma, and thymic tumor.[11] Contrast enhanced CT scan of the thorax is the most sensitive diagnostic method of MH and may demonstrate the extent, content, as well as its anatomic location.[12] Fatty lesion such as omental mass in the right cardiophrenic angle has to be differentiated from prominent epicardial fat pad, lipoma, liposarcoma, and thymolipoma by CT scan, and this is possible if linear soft-tissue opacities which represent omental vessels are visible within the fatty lesion.[13] Magnetic resonance imaging is a noninvasive technique that can diagnose fatty lesions within MH but rarely done because of its high cost and requirement of skilled personnel.[14] The CT finding in our case helped us to diagnose hernia content as omentum.

In case of MH containing the omentum alone, surgery is advised if the symptoms are recurrent and troublesome.[15] Controversy exists regarding operative techniques of repair of MH via either transabdominal route or transthoracic route. Pfannschmidt *et al*. concluded in their study that thoracic approach is better on right-sided hernia as there is a better visualization of diaphragmatic foramen and pericardial

and pleural adhesion.[16] Ambrogi *et al*. also support transthoracic repair of MH.[6] Abdominal route is preferable in cases of uncertainty in the diagnosis, peritonitis, and bilateral hernia. MH can be repaired by video-assisted thoracic surgery or laparoscopically. The defect can be closed by direct suturing, or it can be reinforced using polytetrafluoroethylene, polypropylene mesh.

CONCLUSION

The basic idea of reporting this case is its rarity in incidence and dilemma in diagnosis. It highlights the difficulties in diagnosis, prompting a need for high index of suspicion when assessing patients with respiratory distress and with symptoms suggestive of gastrointestinal obstruction. A missed diagnosis can lead to life-threatening complications such as obstruction or strangulation which warrants early surgical intervention.

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Conflicts of interest
There are no conflicts of interest.

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