

Laparoscopic repair of Morgagni hernia in adults: Report of 2 cases

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ABSTRACT

Morgagni hernia is a congenital, retrosternally situated, diaphragmatic defect usually seen on the right, but which may also affect the left side. It is very rare in adulthood and old age. As result of developing techniques in laparoscopy, congenital diaphragmatic hernia can now be repaired with minimally invasive means. Presently described are cases of 2 elderly female patients with subtle abdominal symptoms incidentally diagnosed with Morgagni hernia after abdominal computed tomography scan. Both patients were operated on using minimally invasive approach and laparoscopic repair was performed with synthetic material reinforcement in both cases. Patients were discharged after uneventful postoperative period. In conclusion, laparoscopic repair can be performed safely in selected cases at centers experienced in advanced laparoscopy.

Keywords: Congenital diaphragmatic hernia; minimally invasive surgery; Morgagni hernia.

Introduction

Morgagni foramen is the triangular shaped space between the xyphisternal muscle fibers and the costal margin and located anteriorly in the diaphragm.^[1] Through this congenital defect, the clinical entity of Morgagni hernia (MH) is observed. It may lead to the herniation of the abdominal contents into the thoracic cavity.^[2] Congenital diaphragmatic hernias constitute about 10% of the congenital anomalies in infancy and MH is the rarest among the congenital diaphragmatic hernias observed.^[3] It is usually right sided but can be left sided or bilateral in some cases, referred to as Larrey hernia.^[4] It usually presents with severe pulmonary symptoms in the early neonatal period; however, it is rarely symptomatic in adults and is usual-

ly incidentally diagnosed.^[5] Nevertheless, adult patients with MH can show symptoms such as dyspnea, cough, chest pain, constipation, and gastric or intestinal obstruction symptoms and any delay in diagnosis may lead to devastating results.^[5-7]

Regardless of the fact that the patient is either symptomatic or asymptomatic, MH requires a surgical treatment due to risks of obstruction or strangulation.^[5] The surgical approach can be transthoracic which is usually suggested as the operative strategy in patients with previous abdominal operation.^[8,9] Many authors have advocated abdominal approach all of which were performed with



Received: 04.04.2014 Accepted: 24.04.2014

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non-absorbable sutures and occasionally reinforced by prosthetic material.^[9,10] In the era of minimally invasive surgery; thoracic video-assisted endoscopic surgery or laparoscopy have started to be used in the repair of congenital diaphragmatic hernias with superior functional outcomes, shorter operative and hospitalization days.^[11,12]

Two cases of elderly patients with mild gastrointestinal and pulmonary functions, who were diagnosed with MH, are reported in this study. It is aimed to discuss the efficacy of laparoscopic approach with review of the literature.

Case Report

Case 1

72-year-old female was admitted to hospital with vague abdominal discomfort and constipation. She had had similar problems for the last 10 years and was referred to our department with rectal mucosal prolapse. Her anamnesis revealed that she had been suffering from mild respiratory symptoms; mostly dyspnea, cough, and orthopnea. She had been suffering from constipation for over 10 years. Physical examination revealed chronic anal fissure and mild mucosal rectal prolapse. Colonoscopy was insignificant and confirmed mucosal prolapse. Abdominal computerized tomography (CT) was ordered to rule out any other abdominal pathology leading to constipation. CT reported that the patient had right sided MH with small bowel and omental fat in the hernia sac (Figure 1).

Laparoscopic operation was undertaken with trocar placement similar to laparoscopic Nissen fundoplication and the contents of the hernia sac were easily reduced. At this stage, the sac was not dissected out since it may have led to the injury of a vital mediastinal structure. The defect was primarily closed by non-absorbable 2/0 silk suture in a running fashion and was reinforced by a com-

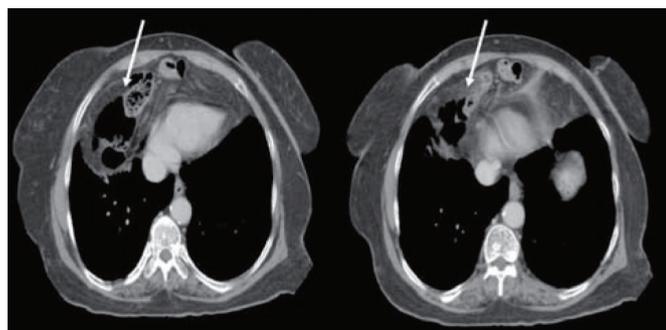


Figure 1. The abdominal CT revealing omental and intestinal structure in the right sided (white arrows) retrosternal Morgagni's Hernia in Case 1.

posite mesh that was fixed in place by polyglactin fixation devices. A suction drain was left under the repair and the operation ended. The patient was discharged on second postoperative day. Her constipation symptoms improved on postoperative first month followup. She also stated that dyspnea had improved as well.

Case 2

62-year-old female patient was admitted to our department with the diagnosis of papillary thyroid carcinoma and was scheduled for a total thyroidectomy. Her histo-

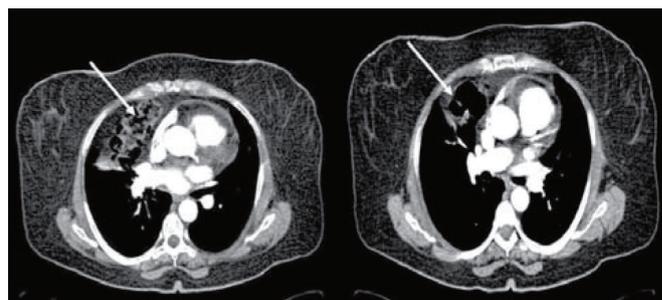


Figure 2. Abdominal CT showing intestinal structures in the right sided hernia sac (yellow arrow heads) in Case 2.

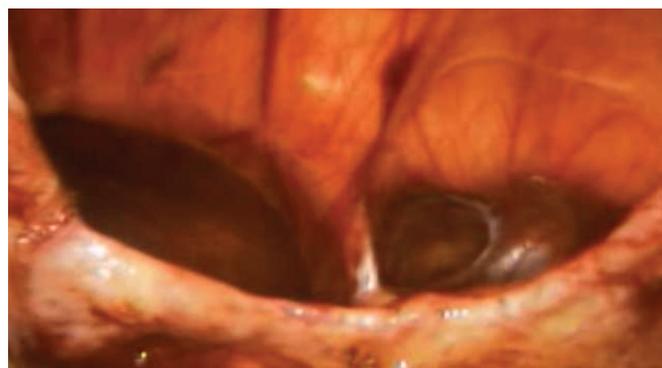


Figure 3. Morgagni hernia before repair.



Figure 4. Morgagni hernia after primary repair and mesh insertion.

ry revealed that she had chronic obstructive pulmonary disease (COPD), which was worsened during obstipation episodes. Her physical examination was insignificant. During her preoperative pulmonary work-up, a thorax CT was taken, revealing a right sided MH (Figure 2). She was initially operated on for thyroid papillary carcinoma and after recovery and radioactive iodine therapy, a repair of the MH was planned.

A laparoscopic repair was undertaken; the hernia sac continued almost all the major omental structure together with the transverse colon. After the reduction of the hernia contents, the defect was repaired primarily with running 2/0 silk sutures and the repair was reinforced by a composite mesh (Figures 3, 4). A suction drain was laid under the repair. She was discharged on the third postoperative day and was symptom free during her clinical visits.

Discussion

Morgagni hernia is a congenital defect in the diaphragm usually on the right side situated retrosternally.^[13] In pediatric age group, it is a very interesting clinical condition being a unique and rare condition occurring together with other congenital defects in other organ systems; mainly the cardiovascular system.^[14] As stated by Al-Salem and colleagues it is more frequently observed in areas where consanguineous marriages are common.^[13,14]

The genetic component in the penetrance of MH is further confirmed by the fact that MH is closely associated with Down's syndrome (Trisomy 21).^[15,16] These genetic components in the etiology strongly suggest a fusion defect between diaphragmatic muscle fibers and the costochondral arc.^[15] Other than genetic factors, mechanical factors such as increased intra-abdominal pressure due to various reasons such as trauma have been reported. In a multicenter study performed by Al-Salem et al. forty-eight infants had MH and 4 were due to acquired etiologies causing increased intra-abdominal pressure such as trauma, ventriculoperitoneal shunts, beta thalassemia causing massive splenomegaly, and thus increasing intra-abdominal pressure.^[14]

Morgagni hernia is extremely rare during adulthood.^[17] In the elderly, it is usually diagnosed late due to subtle abdominal and pulmonary symptoms.^[17,18] Surgery is indicated in symptomatic or asymptomatic cases in order to prevent development of complications.^[19] Emergency surgery is rarely indicated for strangulated hernia.^[18]

Diagnosis depends on clinical suspicion on individual case basis. Nevertheless, newer imaging techniques such as abdominal computerized tomography or magnetic resonance imaging can provide a better means of diagnosis in suspected cases.^[20]

Open abdominal thoracic approach have been advocated in the treatment of MH. However, with the advent of laparoscopic access starting from 1992, reports of laparoscopic repair of MH have been frequently seen in the literature.^[14,21-26] In most cases of adulthood MH, after the anatomic repair of the defect, the repair is usually reinforced with some type of synthetic material in order to reduce recurrences.^[21-26]

Present study reports two geriatric patients who were successfully treated with laparoscopy and both patients were discharged from the hospital without any problems. Both patients had subtle abdominal symptoms which improved postoperatively. The efficacy of laparoscopy in emergency situation is yet to be determined. Moreover, resection of the hernia sac is also controversial; however, especially in elderly cases hernia is chronic and usually larger than that of the infancy period. Therefore, removal of the hernia sac may cause injury to a vital mediastinal structure increasing morbidity in the patient. In the present report, the hernia sac was not resected in both patients and no morbidity was observed due to retained sac.

Laparoscopic repair is a very safe and effective approach in the treatment of MH due to superior aesthetic outcomes, pain control, mobilization and early regain of function which are generally observed in laparoscopic procedures.

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