EJSS
European Journal of Surgical Sciences

Eur J Surg Sci 2012;3(2):65-68

CASE REPORT

# Hernia of Morgagni Concomitant with Mobile Cecum in an Adult Patient

Kamuran Cumhur DEĞER[1], Tahsin DALGIÇ[1], Murat ULAŞ[1], Orhan ELBİR[1], E. Birol BOSTANCI[1], Musa AKOĞLU[1]

[1] Department of Gastrointestinal Surgery, Ankara High Specialization Training and Research Hospital, Ankara, Turkey

## ABSTRACT

*Diaphragmatic hernias of Morgagni were first described in 1769 as anatomical defects in the anterior diaphragm that allow herniation of abdominal viscera into the thorax. They are the rarest of congenital diaphragmatic hernias, accounting for 2-3% of cases. Intestinal malrotations, extrapulmonary sequestration and cardiovascular anomalies frequently accompany. Diagnosis is reached with a posteroanterior, lateral chest radiograph and confirmed with a barium enema or computed tomography. Although the majority of these hernias are asymptomatic, repair is recommended to avoid future complications. We describe herein an adult patient presenting with fatigability who was diagnosed with an underlying Morgagni hernia concomitant with mobile cecum, and we discuss the surgical approaches.*

***Key words:*** *Adult, Mobile cecum, Morgagni hernia*

Received: February 17, 2012 • Accepted: March 30, 2012

## ÖZET

### Erişkinde Mobil Çekum ile Birliktelik Gösteren Bir Morgagni Hernisi Olgusu

*Diyafragmatik Morgagni hernisi ilk kez 1769 yılında karın organlarının göğüs boşluğuna fıtıklaşmasına neden olan ön diyafragmadaki anatomik bozukluk olarak tarif edildi. Olguların %2-3 kısmını yaparak doğumsal diyafragmatik hernilerin en nadir görülenidir. Sıklıkla intestinal malrotasyon, ekstrapulmoner sekestrasyon ve kardiyovasküler anomalilerle birlikte seyreder. Ön-arka, yan göğüs grafileri ile tanı konulur ve baryumlu kolon grafisi ve bilgisayarlı tomografi ile doğrulanır. Gelecekte oluşabilecek komplikasyonlardan sakınmak için bu hernilerin çoğu asemptomatik dahi olsa cerrahi onarım öneriliyor. Biz çabuk yorulma şikayetiyle başvuran erişkin bir hastada altta yatan morgagni hernisi ile birliktelik gösteren mobil çekum olgusunu ve cerrahi yaklaşımları tartıştık.*

***Anahtar kelimeler:*** *Erişkin, Mobil çekum, Morgagni hernisi*

Geliş Tarihi: 17 Şubat 2012 • Kabul Ediliş Tarihi: 30 Mart 2012

## INTRODUCTION

Diaphragmatic hernias of Morgagni were first described in 1769 as anatomical defects in the anterior diaphragm that allow herniation of abdominal viscera into the thorax. They are the rarest of congenital diaphragmatic hernias, accounting for 2-3% of cases[1]. Though Morgagni hernia is a congenital hernia, it is rarely diagnosed during the early years of life. Hernia of Morgagni is located just posterolateral to the sternum. It has also been described as retrosternal, parasternal, substernal, and subcostosternal. It is caused by a congenital defect in the fusion of the septum transverses of the diaphragm and the costal arches. This weakness in the diaphragm can be stretched later with a rapid increase in intraperitoneal pressure, giving rise to a hernia[2]. It can occur on either side of the sternum through a muscle-free triangular space called the Larrey space. In rare cases, the hernia can be bilateral. Because of the preventive effect of the left pericardium, 90% of hernias of Morgagni are in the right anteromedial localization. Intestinal malrotations, extrapulmonary sequestration and cardiovascular anomalies frequently accompany[3]. Diagnosis is reached with a posteroanterior and lateral chest radiograph and confirmed with a barium enema or computed tomography (CT). Reports in the literature describe repair by the transabdominal or transthoracic approach with or without a mesh.

In this case report, we describe an adult patient presenting with fatigability who was diagnosed with an underlying Morgagni hernia concomitant with mobile cecum. We also discuss the current surgical interventions for this disease.

## CASE REPORT

A 17-year-old female was admitted with a history of fatigability for approximately two months. On her physical examination, her temperature was 36.3°C, and there were no signs of peritoneal irritation. Respiratory sounds were found to be diminished at the right basal region on auscultation. Her routine complete blood count and blood biochemical analysis were normal. There was no medical history of note, nor any recent trauma or surgery. On her routine posteroanterior chest X-ray, a heterogeneous increase in opacity in the right para-cardiac area and colonic haustration images in the left para-cardiac area were observed (Figure 1). CT of the thorax done for further investigation showed multiple intestinal segments localized anterior to the heart in the anterior mediastinum (Figure 2). These findings suggested that the patient had a diaphragmatic hernia of

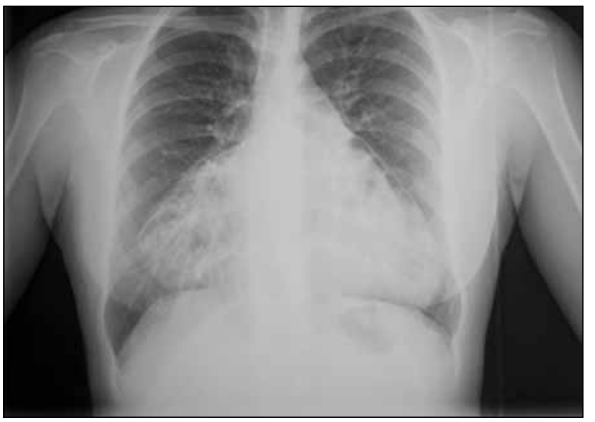

**Figure 1. X-ray of the chest showing a heterogeneous increase in opacity in the right para-cardiac area and colonic haustration images in the left para-cardiac area.**

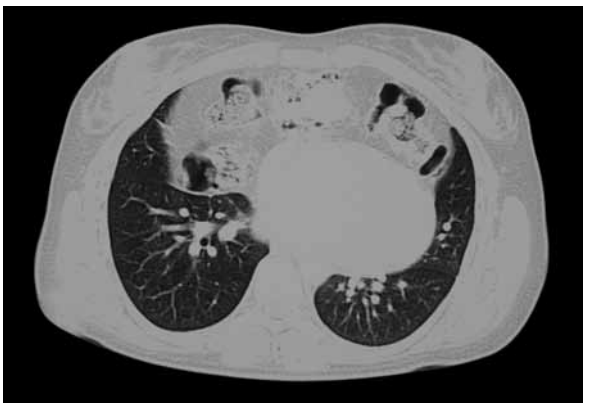

**Figure 2. Computed tomography of the thorax showing multiple intestinal segments localized anterior to the heart in the anterior mediastinum.**

Morgagni type, since it was located in the retrosternal space. A laparotomy was performed. During the operation, bilateral Morgagni hernia was determined, and there was a degree of mid-gut malrotation with a mobile cecum situated in the right retrosternal area. Therefore, a routine appendicectomy was also performed. Moreover, in the left retrosternal space, partial small bowel segments were found. The contents of the hernia were returned to the abdominal cavity, and the defect was closed with interrupted polypropylene sutures. The patient recovered uneventfully.

## DISCUSSION

Congenital diaphragmatic hernias are a rare form of diaphragmatic hernias during adult life. They are

characterized by their location. Bochdalek's hernias are located posterolaterally while Morgagni hernias are located anteriorly. They may be uni- or bilateral. The incidence is 1/5000 live births. Ninety-eight percent of congenital diaphragmatic hernias are Bochdalek (posterolateral) and 2% are Morgagni (retrosternal or parasternal) hernias[4]. The pathology is more frequent in women. The frequency increases with age, particularly after 50 years of age. Most hernias of Morgagni are diagnosed late because patients can be asymptomatic or present with vague gastrointestinal and respiratory symptoms and signs[5]. The need for surgery depends on presentation. Although the majority of these hernias are asymptomatic, repair is recommended to avoid future complications. Treatment options include transabdominal or transthoracic repair. In recent years, there has been a trend towards repair by laparoscopy. The transabdominal approach was favored when the diagnosis was certain, as it allows easier reduction of the hernia, especially for bilateral hernias. Furthermore, abdominal viscera within the hernia can be pulled down easily to their normal location in the abdomen. Chin et al. advised a transthoracic approach, as it provides a wide exposure and easy repair of the hernia sac[6]. However, Loong et al. preferred thoracotomy when the diagnosis was uncertain[2]. The case presented here was a 17-year-old female with the complaint of fatigability and she had no gastrointestinal system symptoms. We performed laparotomy, and exploratory findings were bilateral-type Morgagni hernia. A degree of mid-gut malrotation with a mobile cecum was observed in the right retrosternal space, and transverse colon with small bowel segments was found in the left retrosternal space (Figure 3). Appendectomy was performed due to the future likelihood of difficulty in diagnosing appendicitis due to mid-gut malrotation with mobile cecum. Cecopexy, using a lateral peritoneal flap, which was first described by Dixon and Meyer in 1948, is said to be the surgical technique of choice for mobile cecum[7]. This technique has stood the test of time and best achieves fixation of the cecum. As our patient did not describe any intestinal obstruction symptoms, we did not attempt cecal fixation. During the operation, consideration should be given to whether to remove the sac and whether to use a mesh. Almost 90% of cases of hernia of Morgagni have a sac. As described by Kuster et al., it was recommended to not remove the sac, as this may result in massive pneumomediastinum with potential respiratory and circulatory complications[8]. Rau et al. had a different approach, and removed the sac to avoid leaving a loculated space-occupying lesion in the chest that might result in recurrence or cyst formation[9]. However, there is no available literature to demonstrate the reasons for either procedure. The use of prosthetic mesh is becoming more popular. If the defect is small, it can be sutured easily. Although the defect was large, we also preferred to repair the defect with sutures only (Figure 4). Moreover, there was no hernia sac to remove. A mesh overlapping the edges of the defect can be manipulated easily with laparoscopic instruments, and it provides a good tension-free repair[10].

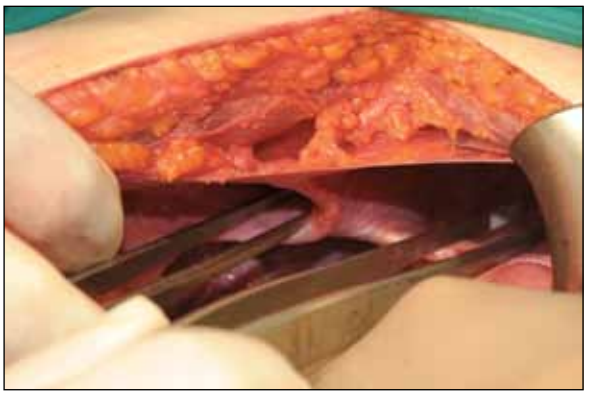

**Figure 3. Tissue forceps are in the right and left retrosternal spaces demonstrating the bilateral-type Morgagni hernia. Note that there is no hernia sac.**

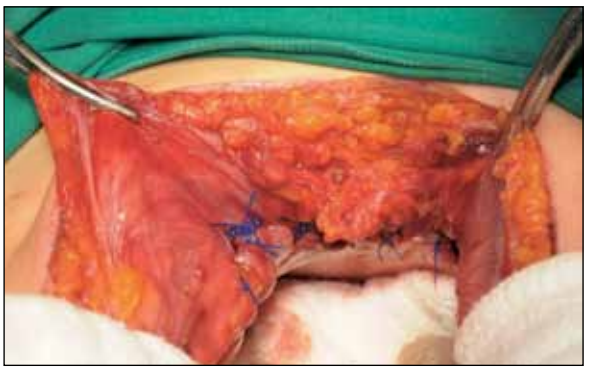

**Figure 4. The defect was repaired with interrupted polypropylene sutures.**

In conclusion, the repair of Morgagni hernia can be performed safely and effectively with different surgical approaches. The choice of the surgical procedure is based on the patient's individual criteria. The risk of progression and incarceration warrants surgical intervention, even in asymptomatic patients.

## REFERENCES


1. *Comer TP, Clagett OT. Surgical treatment of hernia of the foramen of Morgagni. J Thorac Cardiovasc Surg 1966; 52: 461-8.*
2. *Loong TPF, Kocher HM. Clinical presentation and operative repair of hernia of Morgagni. Postgrad Med J 2005; 81: 41-4.*
3. *Serhatlıoğlu S, Özdemir H, Okçu A, Akfırat M. Diyafragma hernisi: üç olgu sunumu. Turgut Özal Tıp Merkezi Dergisi 1997; 4: 99-102.*
4. *Hartman GE. Diaphragmatic hernia. In: Berhman RE, Kliegman RM, Arvin AM (eds). Nelson Textbook of Pediatrics. 15th ed. Philadelphia: WB Saunders Company; 1996: 1161.*
5. *Lin ST, Moss DM, Henderson SO. A case of Morgagni hernia presenting as pneumonia. J Emerg Med 1997; 15: 297-301.*
6. *Chin EF, Duchesne ER. The parasternal defect. Thorax 1955; 10: 214-9.*
7. *Dixon CF, Meyer AC. Volvulus of the caecum. Surg Clin North Am 1948; 28: 953-63.*
8. *Kuster GG, Kline LE, Garzo G. Diaphragmatic hernia through the foramen of Morgagni: laparoscopic repair case report. J Laparoendoscopic Surg 1992; 2: 93-100.*
9. *Rau HG, Schardey HM, Lange V. Laparoscopic repair of a Morgagni hernia. Surg Endosc 1994; 8: 1439-42.*
10. *Huntington TR. Laparoscopic transabdominal preperitoneal repair of a hernia of Morgagni. J Laparoendosc Surg 1996; 6: 131-3.*



**Address for Correspondence**

Kamuran Cumhur DEĞER, MD
Department of Gastrointestinal Surgery
Ankara High Specialization Training
and Research Hospital
Ankara-Turkey

E-mail: cumhurdeger@hotmail.com