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Morgagni Hernia Associated with Severe Obesity: Concomitant Laparoscopic Repair and Gastric Bypass - A Case Report

Hérnia de Morgagni Associada À Obesidade Grave: Correção Laparoscópica Concomitante ao Bypass Gástrico - Relato de Caso

Hernia de Morgagni Asociada a Obesidad Grave: Reparación Laparoscópica Concomitante con Bypass Gástrico - Reporte de Caso

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Abstract: Background: Morgagni hernia is a rare form of congenital diaphragmatic hernia. Many patients remain minimally symptomatic until adulthood, when factors such as morbid obesity increase intra-abdominal pressure and worsen the condition.
Case Report: A 40-year-old female patient with a BMI of 52.53 kg/m² had experienced respiratory symptoms since childhood, with progressive worsening after recent weight gain. Imaging studies confirmed an anterior Morgagni hernia, with herniation of omental adipose tissue and the transverse colon into the right hemithorax, causing compressive atelectasis of the lung. Concomitant laparoscopic repair and Roux-en-Y gastric bypass were performed. The patient then remained in the intensive care unit for three days because of persistent pulmonary atelectasis. She showed significant respiratory improvement and resolution of the condition on imaging studies.
Conclusion: Concomitant laparoscopic repair of the diaphragmatic hernia and gastric bypass proved to be a safe and effective surgical approach.

Keywords: Morgagni Hernia; Bariatric Surgery; Gastric Bypass; Laparoscopy; Morbid Obesity.

Resumo: Contexto: A hérnia de Morgagni é uma forma rara de hérnia diafragmática congênita. Muitos pacientes permanecem oligossintomáticos até a vida adulta, quando fatores como a obesidade mórbida aumentam a pressão intra-abdominal e agravam o quadro.
Relato do Caso: Paciente do sexo feminino, 40 anos, IMC de 52,53 kg/m², com sintomas respiratórios desde a infância que apresentaram piora progressiva com o ganho ponderal recente. Exames de imagem confirmaram hérnia de Morgagni anterior com herniação de tecido adiposo omental e cólon transverso para o hemitórax direito, cursando com atelectasia compressiva do pulmão. Foi realizada correção laparoscópica concomitante ao bypass gástrico em Y de Roux, seguida de recuperação em UTI por três dias devido a atelectasia pulmonar persistente, evoluindo com melhora respiratória significativa e resolução do quadro aos exames de imagem.
Conclusão: A realização concomitante de correção laparoscópica da hérnia diafragmática e bypass gástrico mostrou-se uma abordagem cirúrgica segura e eficaz.

Palavras-chave: Hérnia de Morgagni; Cirurgia Bariátrica; Bypass Gástrico; Laparoscopia; Obesidade Mórbida.

Resumen: Contexto: La hernia de Morgagni es una forma rara de hernia diafragmática congénita. Muchos pacientes permanecen oligosintomáticos hasta la edad adulta, cuando factores como la obesidad mórbida aumentan la presión intraabdominal y agravan el cuadro.
Reporte de Caso: Paciente de sexo femenino, de 40 años, con IMC de 52,53 kg/m² y síntomas respiratorios desde la infancia, que empeoraron progresivamente con el aumento de peso reciente. Los estudios de imagen confirmaron una hernia de Morgagni anterior con herniación de tejido adiposo omental y colon transverso hacia el hemitórax derecho, lo que causó

atelectasia compresiva del pulmón. Se realizó reparación laparoscópica concomitante con bypass gástrico en Y de Roux, seguida de recuperación en UCI durante tres días debido a atelectasia pulmonar persistente. La paciente evolucionó con una mejoría respiratoria significativa y resolución del cuadro en los estudios de imagen.
Conclusión: La reparación laparoscópica concomitante de la hernia diafragmática y el bypass gástrico demostró ser un abordaje quirúrgico seguro y eficaz.

Palabras clave: Hernia de Morgagni; Cirugía Bariátrica; Bypass Gástrico; Laparoscopia; Obesidad Mórbida.

Introduction

Morgagni hernia is a rare form of congenital diaphragmatic hernia, accounting for approximately 2-5% of diaphragmatic hernias. It results from defective fusion of the diaphragmatic structures in the retrosternal region, usually on the right side, allowing abdominal contents to herniate into the chest. Although it is frequently diagnosed in childhood, some patients remain minimally symptomatic until adulthood, and the condition is aggravated by factors that increase intra-abdominal pressure, such as obesity, pregnancy, and chronic constipation. Morbid obesity is associated with worsening ventilatory mechanics and may exacerbate previously compensated respiratory symptoms in patients with congenital diaphragmatic hernia.

Case Report

A 40-year-old female patient presented to the outpatient clinic with severe obesity refractory to clinical treatment. She was 1.55 m tall, weighed 126.2 kg, and had a body mass index (BMI) of 52.53 kg/m². She reported multiple previous unsuccessful attempts at weight loss. She had severe dyspnea in the supine position, difficulty sleeping supine, and marked functional limitation with minimal exertion. According to the patient, respiratory symptoms had been present since childhood, approximately since four years of age, but had progressively worsened after substantial recent weight gain.

During the diagnostic investigation, chest radiography and computed tomography were performed. They revealed an anterior midline Morgagni hernia, predominantly on the right, with herniation of abdominal contents into the right hemithorax. Omental adipose tissue and a colonic loop protruded into the thoracic cavity, causing a compressive effect on the adjacent lung parenchyma and compressive atelectasis of the right lung. There was also a mass effect on the mediastinal structures and cardiac silhouette, with slight leftward mediastinal shift.

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Given the association between morbid obesity and progressive respiratory impairment, simultaneous laparoscopic repair of the diaphragmatic hernia and bariatric surgery was selected. Laparoscopic Roux-en-Y gastric bypass was performed together with repair of the Morgagni hernia during the same surgical procedure. An anterior right diaphragmatic hernia containing the transverse colon herniated into the chest was observed. The herniated contents were completely reduced, and the diaphragmatic defect was closed laparoscopically with interrupted sutures using 2-0 Prolene®.

In the immediate postoperative period, the patient had persistent right pulmonary atelectasis and respiratory distress and therefore remained in the intensive care unit for three days for ventilatory support and intensive respiratory physiotherapy. During postoperative recovery, significant clinical improvement was observed, with resolution of dyspnea on mild exertion and marked improvement in tolerance of the supine position during sleep. Follow-up chest radiography showed resolution of the previously observed right-lung atelectasis. Preoperative and postoperative radiographic images are presented below. The preoperative image shows substantial right-lung compression associated with compressive atelectasis and mediastinal shift secondary to the anterior diaphragmatic hernia. The postoperative radiograph shows significant improvement in right-lung expansion, resolution of atelectasis, and reduced compression of the mediastinal structures.

Discussion

Morgagni hernia is a predominantly congenital condition resulting from embryological failure of closure of the sternocostal triangle of the diaphragm. Despite its congenital origin, many patients may remain asymptomatic for decades. Acquired factors that chronically increase intra-abdominal pressure, such as morbid obesity, may precipitate clinical deterioration and progression of respiratory symptoms.

In adults, the most common symptoms include dyspnea, chest discomfort, recurrent respiratory infections, and nonspecific gastrointestinal symptoms. The diagnosis is often made incidentally on imaging studies. The laparoscopic approach has become the preferred method for surgical repair because of its lower morbidity, faster recovery, and better functional outcomes. In patients with morbid obesity, combining the repair with bariatric surgery may significantly improve ventilatory mechanics and reduce intra-abdominal pressure in the long term.

Conclusion

Morgagni hernia in adults may remain underdiagnosed for decades and can be aggravated by morbid obesity and chronically increased intra-abdominal pressure. In this case, concomitant laparoscopic repair of the diaphragmatic hernia and gastric bypass proved safe and effective, promoting significant respiratory improvement and functional recovery of the patient.

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Figures



Figure 1. Pulmonary hypotransparency in the lower lobe of the right lung, which may be related to herniation of abdominal contents. Elevation of the right hemidiaphragm of indeterminate appearance.

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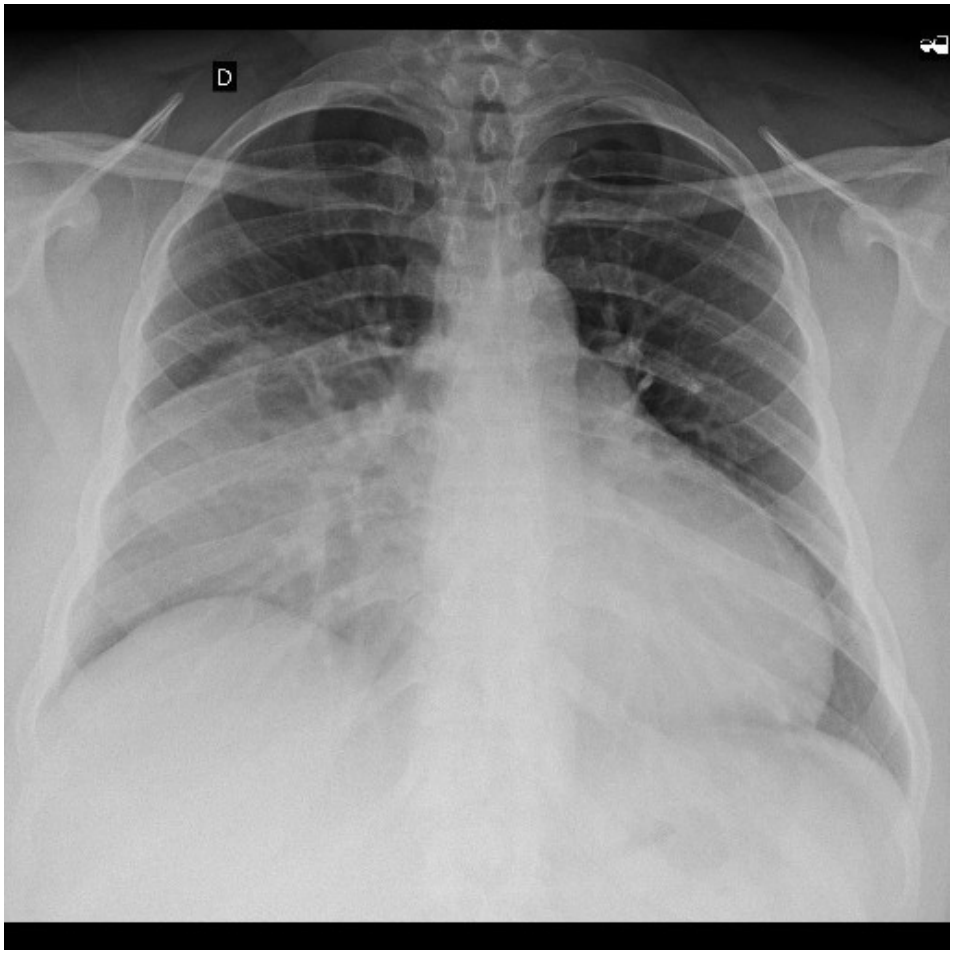


Figure 2. Postoperative chest radiograph showing satisfactory right-lung expansion, improvement of atelectasis, and reduction of the mediastinal compressive effect after laparoscopic repair of the Morgagni hernia associated with gastric bypass.

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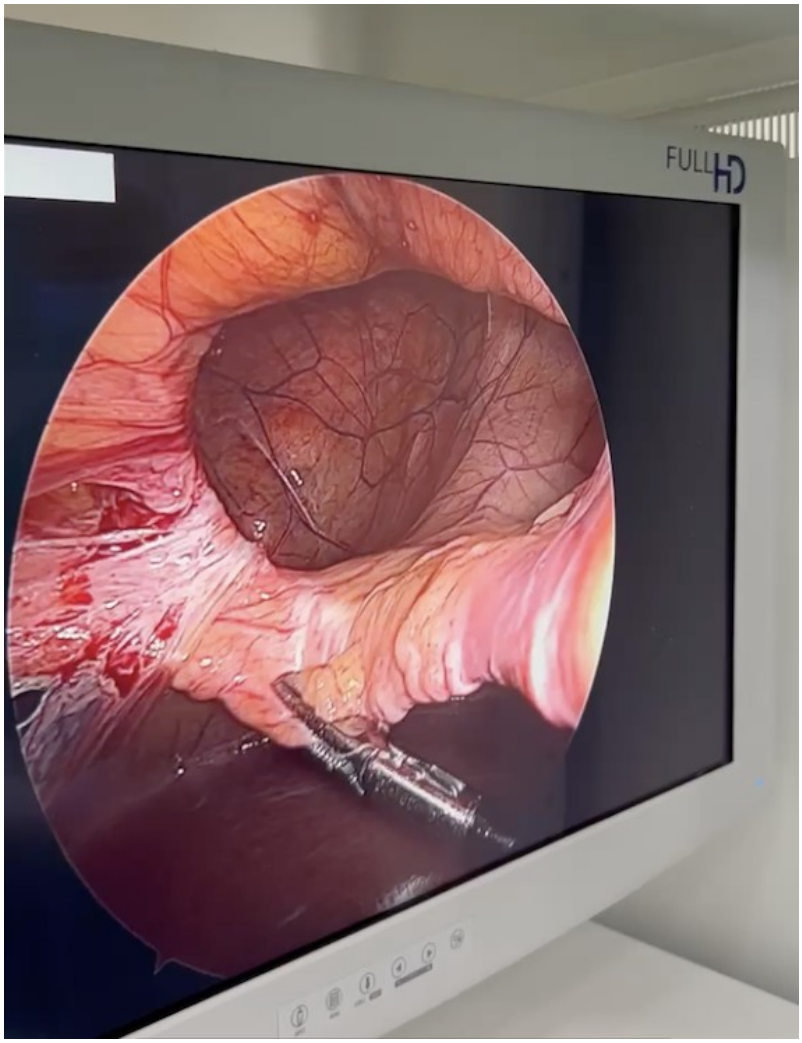


Figure 3. Intraoperative laparoscopic view showing the Morgagni hernia and the anterior diaphragmatic defect after reduction of the herniated contents.