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A comparative evaluation of laparoscopic and open method for the management of Morgagni's hernia

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Abstract

Background: A Morgagni's hernia is a congenital defect found in the anterior aspect of the diaphragm between the costal and the sternal portions of this muscle. The present study was conducted to compare laparoscopic and open procedures for the management of Morgagni's hernia.

Materials and methods: 56 cases of Morgagni's hernia were divided into 2 groups of 28 each. Figure 1 were treated laparoscopically and figure 2 with open operation. Location of the hernia sac and its contents, postoperative complications, and duration of hospital stay were recorded.

Results: Out of 56 patients, males were 36 and females were 20. Hernia side was left in 15 in figure 1 and 14 in figure 2, right in 13 in figure 1 and 14 in figure 2. Methods used was emergency operation 10 in figure 1 and 5 in figure 2, elective operation 16 in figure 1 and 23 in figure 2. Mesh was used in 16 and 7 in figure 1 and II respectively, suture 10 in figure 2 and combination of mesh+ suture in 10 and 6 in figure 1 and II respectively. Postoperative stay was 5.4 days and 10.2 days in figure 1 and II respectively. The difference was significant ($P < 0.05$).

Conclusion: In Morgagni's hernias, surgical intervention is essential as the hernia may cause complications such as strangulation of the colon. A laparoscopic method has benefits of limited hospital stay than open method.

Keywords: Morgagni's hernia, laparoscopic surgery, surgical intervention

Introduction

A Morgagni's hernia is a congenital defect found in the anterior aspect of the diaphragm between the costal and the sternal portions of this muscle. In 1796, Giovanni Batista Morgagni first described the substernal herniation of abdominal organs into the thoracic cavity, based on his observation at the postmortem examination of a patient who died of head injury. This defect is also referred to as the space of Larrey, Napoleon Bonaparte's surgeon who described the retrosternal space as an avenue through which pericardial tamponade could be treated^[1]. Constituting only a small fraction of all types of congenital diaphragmatic hernias, correct diagnosis of MH is often delayed, owing in large part to nonspecific associated respiratory and gastrointestinal complaints^[2]. Once identified, the primary management for both symptomatic and incidentally discovered asymptomatic cases of MH are surgical correction because the herniated contents present increasing risk for strangulation. Various thoracic and abdominal surgical approaches have been described without a clear consensus on preference for operative repair technique^[3]. There is also confusion about the sides of Morgagni's and Larrey's description. Dapri *et al.* describes Morgagni's hernia on the left side while other authors describe Morgagni's hernia on the right and Larrey's hernia on the left side^[4]. Some authors accept both right and left sides for Morgagni's or Larrey's hernias. A diaphragmatic hernia may be located at the esophageal hiatus (sliding and paraesophageal hi *et al.* hernias) or at posterolateral location on the diaphragm (Bochdalek's hernia) or at the parasternal region (Morgagni-Larrey)^[5]. The present study was conducted to compare laparoscopic and open procedures for the management of Morgagni's hernia.

Materials and Methods

The present study was conducted among 56 cases of Morgagni's hernia of both genders. All patients were informed regarding the study and their consent was obtained.

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Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 28 each. Figure 1 were treated laparoscopically and figure 2 with open operation. Symptoms of presentation, physical examination findings, preoperative imaging studies and diagnosis, and surgical procedures were documented. Location of the hernia sac and its contents, postoperative complications, and duration of hospital stay were recorded and evaluated. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results

Table 1: Distribution of patients

Total-56		
Gender	Males	Females
Number	36	20

Table 1 shows that out of 56 patients, males were 36 and females were 20.

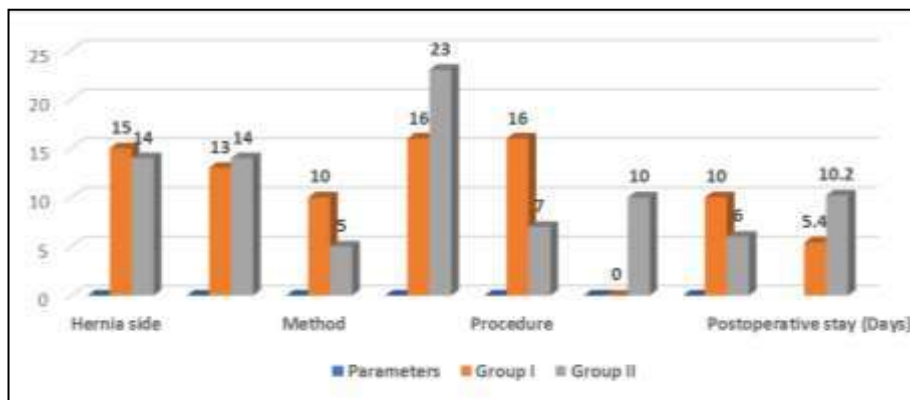


Fig 1: Assessment of parameters

Discussion

Hernia of Morgagni is the most rare of the four types of congenital diaphragmatic hernia (2%–3% of all cases). In adults, it commonly presents with non-specific symptoms-for example, excess flatulence and indigestion [6]. In severe cases, it might present with symptoms of bowel obstruction or strangulation. In children, the majority present with repeated chest infection; rarely it might present in the neonatal period as acute respiratory distress syndrome [7]. More than half are detected when patients are being investigated for unrelated problems. It is diagnosed with a lateral chest radiograph and confirmed with a barium enema or computed tomogram [8]. The present study was conducted to compare laparoscopic and open procedures for the management of Morgagni’s hernia.

In present study, Patients were divided into 2 groups of 28 each. Figure 1 were treated laparoscopically and figure 2 with open operation. Out of 56 patients, males were 36 and females were 20. Arikan *et al.* [9] found that twelve patients were operated with laparoscopy and the remaining nine were operated with the conventional open abdominal technique. Hernia sacs were observed in all of the patients and removed except in four of them. The omentum and the transverse colon were the most commonly seen organs in hernia sacs. Hernia defects were repaired with primary sutures in four patients (all open cases) and primary closure supported with mesh in six patients (four laparoscopic, two open cases). In the remaining 11 patients, hernia defects were closed with synthetic meshes (eight

Table 2: Assessment of parameters

Variables	Parameters	Figure 1	Figure 2	P value
Hernia side	Left	15	14	0.91
	Right	13	14	
Method	Emergency operation	10	5	0.15
	Elective operation	16	23	
Procedure	Mesh	16	7	0.05
	Suture	0	10	
	Mesh+ Suture	10	6	
Postoperative stay (Days)		5.4	10.2	0.01

Table 2, Figure 1 shows that hernia side was left in 15 in figure 1 and 14 in figure 2, right in 13 in figure 1 and 14 in figure 2. Methods used was emergency operation 10 in figure 1 and 5 in figure 2, elective operation 16 in figure 1 and 23 in figure 2. Mesh was used in 16 and 7 in figure 1 and II respectively, suture 10 in figure 2 and combination of mesh+ suture in 10 and 6 in figure 1 and 2 respectively. Postoperative stay was 5.4 days and 10.2 days in figure 1 and 2 respectively. The difference was significant ($P < 0.05$).

laparoscopic, three open cases). Mean postoperative hospital stay was 9.8 days. No recurrence was observed in any patients. Only one of our patients died during follow-up.

We found that hernia side was left in 15 in figure 1 and 14 in Figure 2, right in 13 in Figure 1 and 14 in figure 2. Methods used was emergency operation 10 in figure 1 and 5 in figure 2, elective operation 16 in figure 1 and 23 in figure 2. Mesh was used in 16 and 7 in figure 1 and II respectively, suture 10 in figure 2 and combination of mesh+ suture in 10 and 6 in figure 1 and II respectively. Postoperative stay was 5.4 days and 10.2 days in figure 1 and 2 respectively.

The majority of hernias of Morgagni are diagnosed late because patients can be asymptomatic or present with non-specific respiratory and gastrointestinal symptoms and signs. Diagnosis can be difficult and a missed diagnosis can lead to life threatening complications such as obstruction or strangulation.¹⁰ In literature review, hernia of Morgagni presents itself more acutely (seven cases, 14%) and subacutely in children (19 cases, 40%). In recent years there has been a rise in the number of cases reported, with an approximate total of 200 cases in the last 10 years. This may be due to greater awareness of its diagnosis and because of early treatment to prevent any complications. However, hernia of Morgagni may be more frequent than the literature suggests since most cases are asymptomatic^[11].

Diagnosis is confirmed by plain chest radiographs and contrast films. Hernia of Morgagni usually presents with recurrent chest infections in children (55%) and lateral chest radiographs are

usually always conclusive. Screening may apply to children with increased risk associated anomalies and familial forms of congenital diaphragmatic hernias (from 34% to 50%). Patients with Down's syndrome (five cases) have increased risk of hernia of Morgagni.⁸ Obese patients may develop it later in life and sometimes it may follow trauma^[12].

Conclusion

Authors found that in Morgagni's hernias, surgical intervention is essential as the hernia may cause complications such as strangulation of the colon. A laparoscopic method has benefits of limited hospital stay than open method.

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