

Clinical Profile and Laparoscopic Management of Hiatus Hernia: In a Tertiary Care Center

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Received on: 04 April 2023; Accepted on: 12 July 2023; Published on: 05 September 2023

ABSTRACT

Aim: This study will be useful in evaluating the clinical profile of patients and to assess the outcome of laparoscopic and medical management of gastroesophageal reflux disease (GERD) with hiatus hernia.

Materials and methods: We retrospectively analyzed patients who were diagnosed with GERD and hiatus hernia over a period of 4 years and looked for outcomes of laparoscopic fundoplication.

Results: A total number of 30 cases between January 2018 and December 2021 were included in this retrospective study with male-to-female ratio of 2:1. Most patients with GERD present with abdominal pain which is localized to the epigastric region. About 72.1% (p -value = < 0.005) of patients had mainly reflux symptoms such as epigastric pain, heartburn, or regurgitation, of which, epigastric pain was the most common (68%). In our study, the most common investigation performed was upper gastrointestinal endoscopy which was able to highlight an underlying pathology in terms of hiatal hernia in 38.5% (p -value = 0.019) patients. Proton pump inhibitors were used more frequently in patients and outcome of medical management varied. Laparoscopic fundoplication is the standard surgical treatment for GERD and has very low complication rates. On routine follow-up of all patients treated surgically for GERD, 67% (p -value = 0.007) had complete symptomatic relief in contrast to medical management, wherein only 22% of patients had long-term symptomatic relief.

Conclusion: Laparoscopic total fundoplication is fast being adopted as the surgical gold standard for the treatment of GERD after appropriate trial of medical management among the population presenting in an Indian tertiary care hospital.

Clinical significance: The study results would improve treatment outcomes in patients with hiatus hernia.

Keywords: Gastroesophageal reflux disease, Hiatus hernia, Laparoscopic fundoplication, Proton pump inhibitors, Retrospective comparative study, Upper gastrointestinal endoscopy.

World Journal of Laparoscopic Surgery (2023): 10.5005/jp-journals-10033-1560

INTRODUCTION

Hiatal hernia refers to the displacement of abdominal organs, most commonly the stomach, through the esophageal hiatus of the diaphragm into the mediastinum. The prevalence of hiatal hernia increases with age and is present in over 50% of the aged population.¹ Gastroesophageal reflux disease (GERD) is a motility disorder characterized primarily by heartburn and caused by the reflux of gastric contents into the esophagus. Most cases can be diagnosed on the basis of clinical history; diagnosis can generally be made with reasonable certainty if the patient complains of heartburn and regurgitation of gastric contents.² Clinicians should develop a care plan for the investigation of symptoms suggestive of GERD, selection of therapy (with an explanation of potential risks and benefits), and long-term management, including possible de-escalation, in a shared decision-making model with the patient.³ Total fundoplication (TF) is an effective treatment for patients with GERD symptoms, particularly in those with persistent regurgitation despite proton pump inhibitor (PPI) therapy, based on evaluation 6 months after the procedure.⁴

OBJECTIVES

This study will be immensely useful in evaluating further the outcome of laparoscopic surgery in tertiary care centers. In this context, our goal is to:

- Evaluate the clinical profile of patients with GERD with hiatus hernia.

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How to cite this article: Talwar A, Krishna S, Bhat PM, *et al.* Clinical Profile and Laparoscopic Management of Hiatus Hernia: In a Tertiary Care Center. *World J Lap Surg* 2023;16(1):21–24.

Source of support: Nil

Conflict of interest: None

- Assess the outcome of laparoscopic management of GERD with hiatus hernia.
- Know the outcome of medical management of GERD with hiatus hernia.

MATERIALS AND METHODS

This study was a hospital-based retrospective study wherein we compiled data from all the patients who were diagnosed with GERD and hiatus hernia between January 1, 2018 and December 31, 2021. The data consisted of the patient demographics, their clinical symptoms, investigations for diagnosis, treatment, and follow-up records until 6 months after their surgical/medical management. These data entries were obtained from the patient records using electronic medical record and collected using Microsoft Excel.

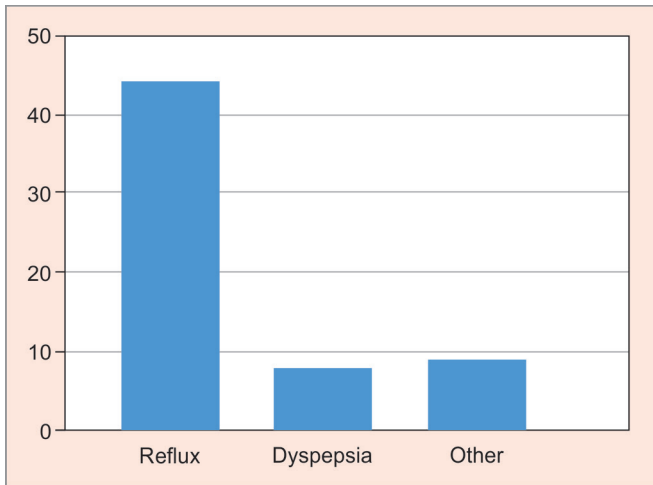


Fig. 1: Distribution of symptoms

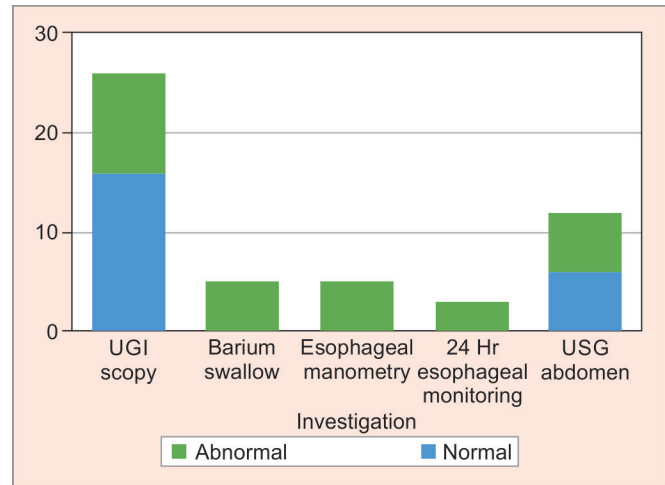


Fig. 2: Diagnostic investigations

The entries were analyzed using IBM SPSS 23.0 for Windows. All categorical and quantitative variables were presented as frequencies and percentages and were compared by Chi-squared test for trend. All statistical analyses were carried out for two-tailed significance, and $p < 0.05$ was considered significant.

RESULTS

A total number of 30 cases between January 2018 to December 2021 were included in this retrospective study. The maximum and minimum age was 19 and 74 years, respectively. The most common age-group with symptoms of GERD was observed to be 51–60 years. There was a total of 20 male patients and 10 female patients giving a male-to-female ratio as 2:1.

Most patients with GERD present with abdominal pain which is localized to the epigastric region. In our study, all 30 patients had this common presentation. We divided the symptom presentation broadly into reflux symptoms, dyspepsia symptoms, and other symptoms such as vomiting, dysphagia, and early satiety. A graphic presentation of the same is shown in Figure 1. According to our study, 72.1% (p -value = < 0.005) of patients had mainly reflux symptoms such as epigastric pain, heartburn, or regurgitation, of which, epigastric pain was the most common (68%). Loss of appetite was also a common complaint in 13.3% of cases whereas dyspepsia symptoms including bloating and belching in total accounted for 13.1% of cases. The graphic distribution of all symptoms observed is shown in Figures 1 and 2.

Few patients ($n = 5$) presented with gastric complaints such as diarrhea, constipation, or alternating diarrhea and constipation. Cholelithiasis was also an incidental finding in four patients.

Underlying comorbidities also have a significant bearing on the treatment outcome. Among the cases collected, 26.6% of patients ($n = 8$) had underlying hypertension, 13.3% of patients had diabetes mellitus, and 10% of patients had a history of previous ischemic heart disease. About 50% of cases ($n = 5$) who underwent laparoscopic fundoplication had an underlying comorbidity.

Diagnosis of GERD requires various investigation modalities such as upper gastrointestinal (GI) scope, barium swallow, esophageal manometry, and 24-hour esophageal monitoring. In our study, the most common investigation performed was upper GI endoscopy in 26 patients. The scopy was able to highlight an underlying pathology in terms of hiatal hernia in 38.5%

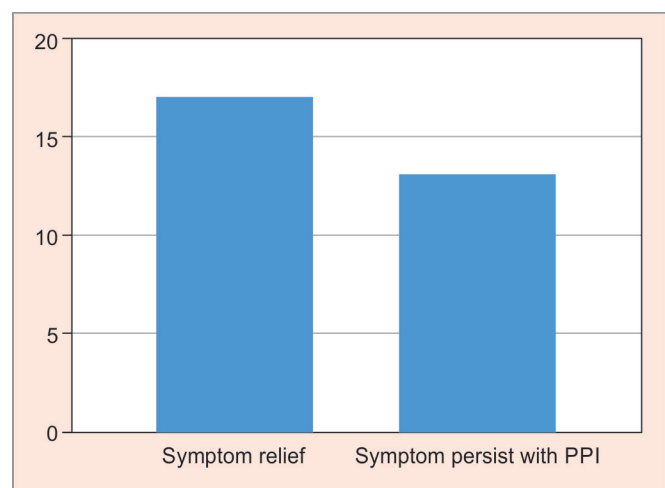


Fig. 3: Outcomes of medical management

(p -value = 0.019) of patients. Esophageal manometry and 24-hour esophageal monitoring were the most accurate investigations that gave a better visualization of gastric reflux into the esophagus. All the patients who underwent these investigations were taken up for laparoscopic fundoplication later (Fig. 3). Other investigations such as ultrasound (USG) abdomen were able to provide an inconclusive diagnosis in only 6% of cases ($n = 2$).

Initial management for all patients was medical using PPIs, H₂-receptor antagonists (H₂RAs), or prokinetic agents. Proton pump inhibitors were used more frequently in patients treated empirically, with Pantoprazole being the most commonly given medicine, followed by esomeprazole and rabeprazole. Antacids were also added in a few patients. The outcome of medical management varied as some patients (56.7%, $n = 17$) had symptom relief by solely medical management, while others (43.3%, $n = 13$) had persistent symptoms (Fig. 4). This ratio was statistically significant ($p = 0.0014$) and highlights the importance of PPI and H₂RA on short-term treatment of GERD.

The need for a surgical correction was observed in patients in whom symptoms were persistent even with the use of PPI (50%, $n = 6$), in patients where symptoms recurred after stopping of PPI (33%, $n = 4$), or in patients who were dependent on PPI

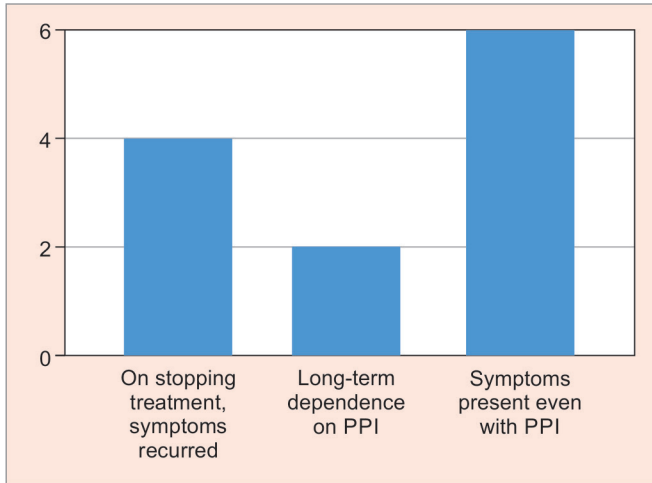


Fig. 4: Reasons for surgical management

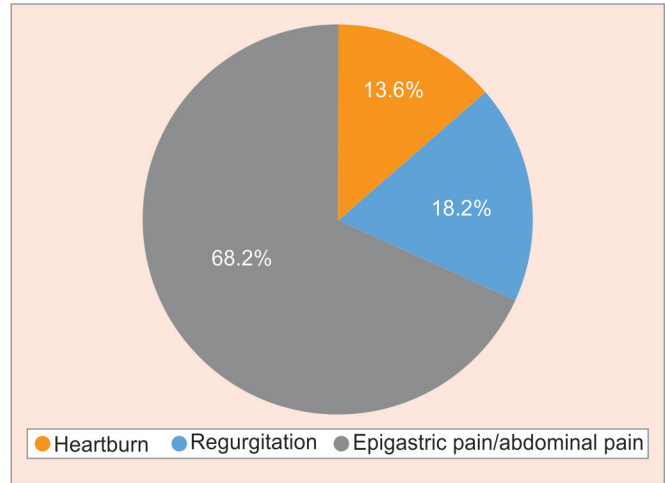


Fig. 6: Reflux symptoms

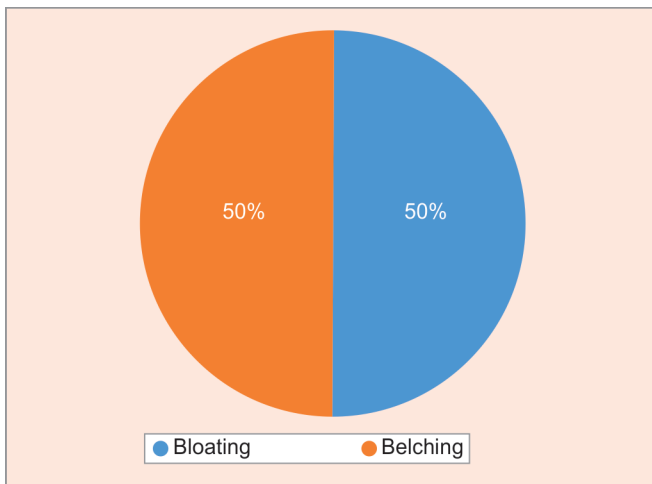


Fig. 5: Dyspepsia symptoms

for long term (17%, $n = 2$; Fig. 5). Laparoscopic fundoplication is the standard surgical treatment for GERD and has very low complication rates. In our study, 40% of patients ($n = 12$) underwent laparoscopic fundoplication. We observed that only 1 out of these 12 patients who underwent surgery had immediate postoperative complications of subcutaneous emphysema and postoperative urinary retention. Two other patients had remote postoperative complications with loose stools and tightness or symptoms relapse with reflux symptoms (p -value < 0.05) (Fig. 6).

On routine follow-up of all patients treated surgically for GERD, 67% (p -value = 0.007) had complete symptomatic relief even up to 6 months of treatment. This was in contrast to medical management, wherein only 22% of patients had long-term symptomatic relief.

DISCUSSION

According to the Montreal Classification and Description, Global Consensus Group, GERD is a disorder that develops when stomach acid refluxes into the esophagus and creates bothersome symptoms and/or issues. There are two types of GERD: erosive and nonerosive reflux disease (NERD). The class of symptoms known as

“erosive” includes those that show esophageal mucosal injury. The NERD group includes signs of esophageal mucosal injury but no endoscopic proof of it. In NERD, PPIs have a low symptom response rate.⁵ Women report heartburn and regurgitation symptoms more frequently than men do.⁴ In the adult population of the US, the incidence of GERD is 5 per 1,000 person-years. Our study, however, saw a ratio of 2:1 for men and women, respectively, mostly in the 51–60 years age-group.

According to a retrospective study by the Stanford University School of Medicine, heartburn and acid regurgitation were the most prevalent symptoms in the cohort, and they were all resistant to PPI medication.⁶ Dysphagia and chest discomfort were not the most common complaints. In our study, 72% had reflux symptoms of which epigastric discomfort was the most prevalent. While loss of appetite was observed in 13.3% cases and other dyspeptic symptoms were far less common.

The AGA clinical practice update states that if persistent heartburn, regurgitation, and/or noncardiac chest pain do not respond sufficiently to a PPI trial, or if warning symptoms exist, doctors should perform an endoscopy. Thereafter, in the absence of erosive reflux disease (Los Angeles B or greater) or long-segment (3 cm) Barrett’s esophagus, it is recommended to perform prolonged wireless pH monitoring off medication (96 hours recommended if feasible) to confirm and characterize GERD.³ We concluded that while upper GI endoscopy was the most basic investigation showing an underlying abnormality for the reflux in 38.5% of cases, other investigations were more specific to demonstrate the reflux *per se*. In individuals treated empirically and in those with endoscopy-negative reflux disease, PPIs are more efficient than H2RAs, but H2RAs are also beneficial.⁷

Refractory symptoms (symptoms that may or may not be related to GERD), refractory GERD symptoms (symptoms that persist in individuals with established GERD regardless of relation to continuous reflux), and refractory GERD should all be distinguished from one another.⁸ About 56.7% of patients had symptomatic relief with medical management, but others presented later with symptom persistent and were taken for further evaluation. An initial management strategy that places a strong emphasis on the proper use of PPIs will result in a complete response in about 80% of patients.²

A recent open-label randomized controlled trial comparing PPI treatment with TF found that TF was superior to PPI in controlling problematic GERD symptoms, with 54% of patients reaching normalization of intraesophageal pH after TF.⁴ Our routine follow-up proved 67% success rates for patients treated surgically.

A retrospective analysis of 50 surgical cases of GERD in Japan revealed that just four patients (8%) had postoperative problems, which is very comparable to our study (8.3%). They also determined in their study utilizing the frequency scale for the symptoms of GERD—that there was a considerable improvement in postoperative symptoms, which accounted for a 90% overall efficacy rate.⁹

Dallemagne et al. summarized that laparoscopic fundoplication can be used as a “gold standard” treatment of GERD among appropriately investigated and selected individuals.¹⁰ Our study is limited by a small sample size and the population is limited to one tertiary care center. However, the results obtained contrast the reasons for outcomes observed in surgical as well as medical management of GERD.

CONCLUSION

Laparoscopic TF is fast being adopted as the surgical gold standard for treatment of GERD after appropriate trial of medical management, and our study reaffirms this concept among the population presenting in an Indian tertiary care hospital. This study sheds light on the high efficacy of PPI regimens and the utility of laparoscopic fundoplication in necessitated patients toward providing adequate relief from GERD symptoms.

Clinical Significance

The study results would improve treatment outcomes in patients with hiatus hernia.

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