

A Study to Evaluate Clinical Outcome of Laparoscopic Nissen Fundoplication in Patients with Hiatus Hernia

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ABSTRACT

Introduction: Laparoscopic fundoplication is also important after medical management failure of gastroesophageal reflux disease. Nissen's fundoplication effectiveness is widely regarded as safe and effective, with a mortality rate of less than 1%. The purpose of this study is to assess clinical outcomes after laparoscopic Nissen's fundoplication in a patient with hiatus hernia and evaluate postoperative symptom relief, to evaluate postoperative complications, and to evaluate postoperative improvement in patients' lifestyles.

Materials and methodology: This retrospective observational study was conducted in civil hospital Ahmedabad for 30 patients admitted to Civil Hospital, Ahmedabad from May 2019 to October 2021. The selection criteria for cases were based on the physical findings, clinical history, radiological findings, and endoscopic findings. Patient information was collected from the medical record office. Sociodemographic variables include age at diagnosis, marital status, religion, level of education, occupation, and socioeconomic status.

Results: In this study, the 51–60 years of age-group is affected mostly and the mean age is 56 years. Females are affected by around 53% as compared with 47% of males. The most common presenting complaint is upper abdominal discomfort followed by heartburn, bloating, and regurgitation. The usual day of discharge is day 3 or 4.

Conclusion: Laparoscopic Nissen fundoplication is the better surgery in patients with hiatus hernia with good clinical outcomes. Laparoscopic Nissen fundoplication is an effective surgery for hiatus hernia with minimal complications in expert hands.

Keywords: Heartburn, Hiatus hernia, Nissen fundoplication.

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INTRODUCTION

In this era of laparoscopy, a variety of surgeries are being done for a large number of abdominal pathologies, out of those, laparoscopic repair of hiatus hernia is one of the meticulous procedures that needs expertise. Laparoscopic fundoplication is also important after the failure of medical management of gastroesophageal reflux disease. Nissen's fundoplication effectiveness is widely regarded as safe and effective, with a mortality rate of less than 1%.

In fundoplication, the stomach's gastric fundus is wrapped around the lower end of the esophagus and sutured in place; therefore enhancing the closing function of the lower esophageal sphincter. In order to prevent and cure a concurrent hiatal hernia, in cases in which the fundus protrudes through an enlarged esophageal hiatus of the diaphragm, the esophageal hiatus is constricted further with sutures. There are many types of fundoplication. Commoners are Nissen (posterior 360 degrees), Dor (anterior 90–180 degrees), and Toupet (posterior 270 degrees).

The fundus is completely wrapped around the esophagus in a Nissen fundoplication, which is also referred to as "complete fundoplication." This procedure is now routinely performed laparoscopically. The mechanism of comfort is that anytime the stomach contracts, the esophagus likewise closes up, preventing stomach acid from entering it. Laparoscopic hiatal hernia repair procedure has been shown to give good short- and long-term outcomes in gastroesophageal reflux disease.^{1,2}

Complications include dysphagia, gas bloat syndrome, excessive scarring, dumping syndrome, rare achalasia, and vagus nerve injury, Postoperatively irritable bowel syndrome that lasts roughly 2 weeks. A good outcome following Nissen fundoplication may be expected in approximately 90% of the patients at 10 years

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follow-up. The failure is caused equally by recurring reflux and prolonged adverse effects.

MATERIALS AND METHODOLOGY

The materials for the study of the outcome of laparoscopic Nissen fundoplication were collected from cases admitted in Civil Hospital, Ahmedabad from May 2019 to October 2021 clinically, 30 cases have been studied. The criteria for the case selection were based on physical findings, clinical history, endoscopic findings, and radiological findings.

Study Design

Study type: Retrospective Observational study

Study site: Department of Surgery, Civil Hospital, Ahmedabad

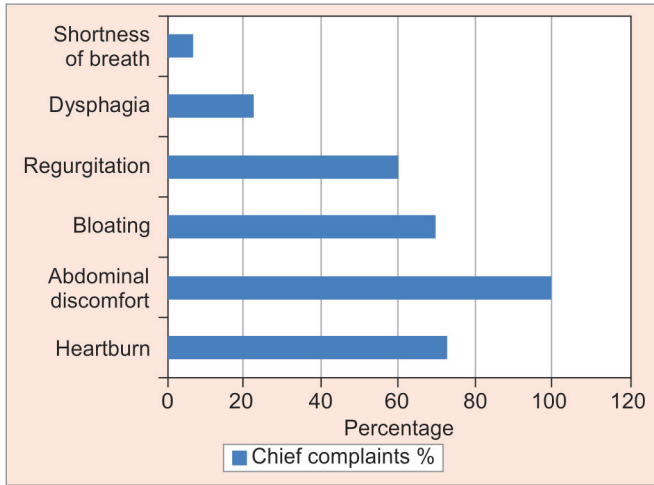


Fig. 1: Chief complaints

Study duration: May 2019 to October 2021

Subject selection:

Inclusion Criteria

- Patients who are undergoing laparoscopic Nissen fundoplication for hiatus hernia.
- Patient willing to participate in the research and give informed and written consent.
- Patients fit for general anesthesia.

Exclusion Criteria

- Patient undergoing another type of fundoplication.
- Patient undergoing fundoplication for a cause other than hiatus hernia.
- Patient was operated on by another method of fundoplication.
- Patient presented with gastric volvulus.

Patient information was collected from the medical record office. Sociodemographic variables include age at diagnosis, marital status, religion, level of education, occupation, and socioeconomic status.

RESULTS

This study comprised 30 patients who met the inclusion criteria during the study period. In this study, participants of 51–60 years age-group are affected mostly and the mean age is 56 years, but commonly affected age-group is 50 years and older.³ This study shows the females’ preponderance over males. Females are affected by around 53% as compared with 47% of males in this study.

The most common presenting complaint is the upper abdominal (Fig. 1) discomfort, followed by heartburn, bloating, and regurgitation. Dysphagia and shortness of breath are also present in 23% and 7%, respectively while in the study of Herron et al., dysphagia is up to 24% which is almost equal to our study.⁴ Late postoperative dysphagia was observed in 5.5% of the patients in the study of Perdakis et al.⁵

Smoking, overweight, and obesity are important risk factors. In the present analysis, 40% of the patients are smokers and 83% are either overweight or obese. Age is another important individual risk factor. In our study, the majority of the patients are older than 50 years of age.

History of prolonged proton pump inhibitors usage is present in 87% of the cases in this study (Fig. 2).

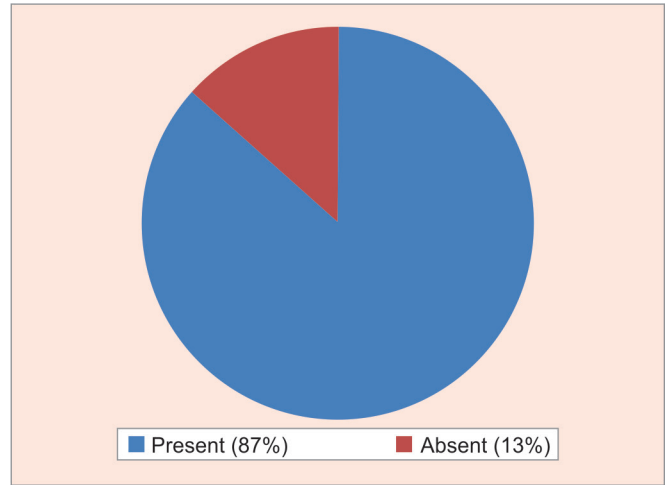


Fig. 2: History of prolonged proton pump inhibitors

Table 1: Complications

Complication	No. of patients	Percentage (%)
Intraop		
Gastrotomy	0	0
Esophagotomy	0	0
Major intraop bleeding	0	0
Pneumothorax	1	3
Postop		
Empyema	0	0
Severe postop nausea and vomiting	0	0
Wrap migration	0	0
Intra-abdominal abscess	0	0

Complications of laparoscopic Nissen fundoplication of 30 patients, certain problems are compared as follows:

In the study of Singhal et al., the pneumothorax incidence is 0.67%, whereas the pneumothorax incidence is 3% in this study.

Intraop bleeding, severe post-op nausea and vomiting, and wrap migration are 0%, 0%, and 0% as compared with 0.33%, 0.33%, and 0.66% in the study of Singhal et al.⁶ (Table 1).

The usual day of discharge from the hospital after laparoscopic Nissen fundoplication is on day 2 or 3⁷ but in this study, the usual day of discharge is on day 3 or 4. One of the patients in this study was discharged on post-op day 10 due to a complication of pneumothorax was managed by an intercostal drainage tube and chest physiotherapy (Fig. 3).

Reoperation rate in this study is 0% in 6 months as compared with 5% that was observed in the study by S.S. Castelijns et al. after 3.7 years of median follow-up.⁸ we followed up with 30 patients for 6 months and checked for symptom relief and complications. K Sato et al. reported that transient dysphagia after the operation was seen in 40–70% of patients but it is relieved after 2–3 months.⁹ In this study, dysphagia persists in one patient after 6 months.

DISCUSSION

Laparoscopic Nissen fundoplication routinely performed surgery for hiatus hernia. Age, overweight, obesity, and smoking are some important risk factors for hiatus hernia. In this study, most of the

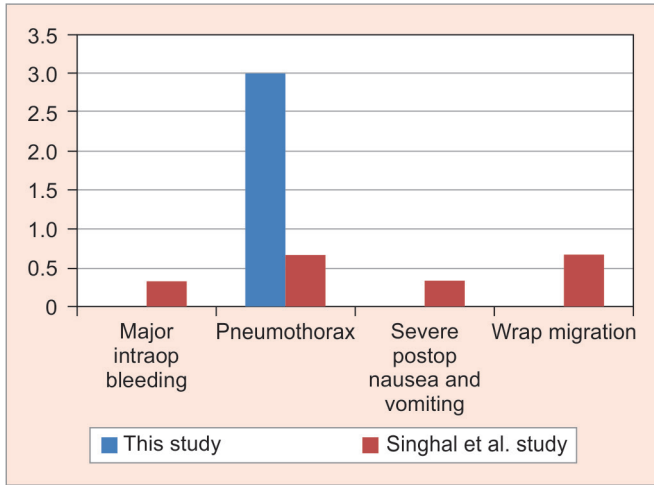


Fig. 3: Comparison of complications with other studies

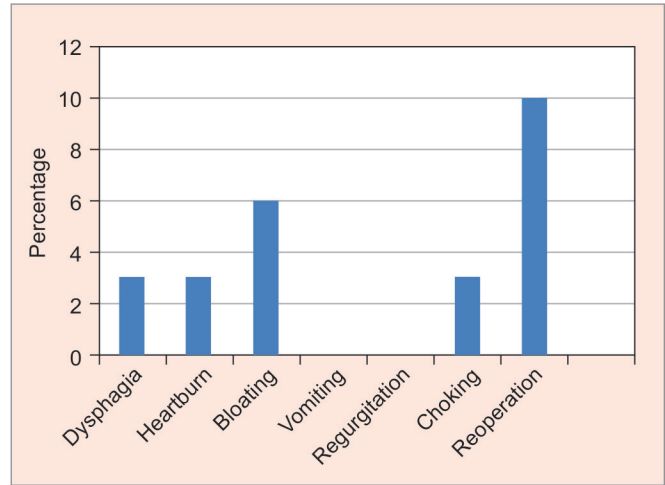


Fig. 4: Follow-up (after 6 months)

patients are older than 50 years and all 30 patients are above the age of 40 years. In this study of 30 patients, more than 80% of patients are either overweight or obese, so we can conclude that overweight and obesity are important risk factors.

Heartburn and upper abdominal discomfort are some common preoperative symptoms. In this study, upper abdominal discomfort was seen in almost all patients and heartburn was seen in more than 70% of patients. Proton pump inhibitors were being used by more than 85% of the patients preoperatively.

Intraoperative and postoperative complications are uncommon, but in this study of 30 patients, 1 patient developed pneumothorax and was managed conservatively and discharged but had complaints of chest pain in follow-up. A few of them developed dysphagia in early follow-up but most of them got rid of these symptoms, which may be due to lower esophageal edema, but persists in 1 patient after 6 months. In the follow-up, regurgitation is present in none of the patients. No patients are re-operated in 6 months (Fig. 4).

CONCLUSION

Although this study shows comparatively good outcomes, long-term follow-up is required to know the outcome of this operation. Laparoscopic Nissen fundoplication is better surgery in patients with hiatus hernia having good clinical outcomes. Laparoscopic Nissen fundoplication is an effective surgery for hiatus hernia with minimal complications in expert hands.

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