



COMPARATIVE STUDY OF LAPROSCOPIC NISSEN FUNDOPLICATION VERSUS POSTERIOR FUNDOPLICATION IN CASES OF GERD

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ABSTRACT

Gastroesophageal reflux Disease is the most common GI illness which is the failure of the normal antireflux barriers. Antireflux surgery provides a permanent anatomic and physiologic cure. We Studied the comparison between laparoscopic Nissen fundoplication versus laparoscopic posterior fundoplication in cases of GERD. 29 patients with GERD who were operated upon by Laparoscopic Nissen Fundoplication & Laparoscopic Posterior Fundoplication from September 2021 to November 2023 were included, excluding those who underwent previous esophagus or stomach surgery, have complicated refluxes or primary esophageal motility disorder. Data on patient demographics and clinical outcomes were collected. Clinical outcomes included Postoperative complication, improvement in typical, atypical and nonspecific symptoms, need for post operative pharmacotherapy and Viscik grade scale. There were 75% Male & 25% Female with average age of 41.2 years. No significant difference was observed in postoperative complications and typical Symptoms improvement. Posterior fundoplication has shown good improvement in atypical and nonspecific symptoms and use of post operative pharmacotherapy. On Viscik grade scale LNF has more cases of excellent symptomatic improvement & LPF has more cases of good symptomatic improvement. In conclusion, this study does not show any significant difference in post operative complications and typical symptoms improvement

KEYWORDS

GERD, Antireflux surgery, Laparoscopic Nissen Fundoplication, Laparoscopic Posterior Fundoplication

INTRODUCTION

Gastroesophageal reflux Disease is a highly prevalent gastrointestinal (GI) disorder and is one of the most common GI illnesses encountered in clinical practice. It is the failure of the normal antireflux barriers to protect against frequent and abnormal amounts of gastric contents moving retrograde effortlessly from the stomach to esophagus, i.e. Gastroesophageal reflux (GER). GER itself is not a disease, but rather a normal physiologic procedure, occurring multiple times a day. In contrast GERD is a spectrum of disease usually producing symptoms of heartburn and acid regurgitation.

Gastroesophageal reflux disease (GERD) is one of the most common conditions presenting to primary care physicians and gastroenterologists. It refers to the abnormal exposure of the oesophageal mucosa to refluxed gastric contents, including acid and pepsin, resulting in symptoms and/or tissue damage.

Epidemiological studies suggest that between 21% and 44% of the adult population report heartburn, the predominant symptom of GERD, on a monthly basis¹.

The prevalence of oesophagitis in the community is estimated to be up to 2%^{2,3}. Evidence of oesophagitis is found in over 50% of patients presenting to a doctor with symptoms of GERD⁴.

It was found that the prevalence of at least monthly heartburn among the Indians was 5.3%. Corresponding percentages for at least monthly acid regurgitation among Indians were 4.8%. These numbers are clearly lower than comparable percentages from Western populations⁵.

Natural history of GERD over periods of time from 10 to 22 years confirm that it is not a self-limiting condition and patients still have significant morbidity and impaired quality of life many years after their initial diagnosis^{6,7}.

The American College of Gastroenterology suggests the following definition of GERD: "chronic symptoms or mucosal damage produced by the abnormal reflux of gastric contents into the esophagus"^{8,9}. The prevalence of gastroesophageal reflux disease (GERD) in the world is high, with approximately 20% of the population experiencing weekly symptoms.

In the 1990s, the advent of laparoscopic surgery revolutionized the surgical approach to the patient with GERD when the laparoscopic Nissen fundoplication was described by Dallemagne in 1991⁹. Soon thereafter, many modifications of the laparoscopic Nissen fundoplication were developed, one of them was creating posterior fundal wrap instead of full circled wrap by andre Toupet. Toupet proposed his technique at a time when the Nissen fundoplication was emerging as the treatment of choice for GERD. By replicating

laparoscopically, the original modifications of the open techniques.

Pharmacologic treatment of GERD has been revolutionized by the advent of proton pump inhibitors. The medications are relatively expensive but are well tolerated. Need to be continued for lifelong indefinitely and does not prevent bile reflux. Reflux is caused by failure of the normal lower esophageal sphincter mechanism.

Antireflux surgery provides a permanent anatomic and physiologic cure with symptomatic relief and prevents the adverse consequences of ongoing esophageal exposure to acid and bile reflux.

The overall short-term and to some extent long term results in appropriately selected patients are excellent. Minor self-limited symptoms may occur in the postoperative period in some patients.

Aims & Objectives

Aim

To compare between laparoscopic Nissen fundoplication versus laparoscopic posterior fundoplication in cases of GERD.

Objectives

To assess the following clinical parameters in postoperative patients underwent Laparoscopic Nissen Fundoplication & Laparoscopic posterior Fundoplication

- 1) Symptomatic improvement within 6 months to 1 year following procedures
- 2) Postoperative Complications
- 3) Recurrence

MATERIALS AND METHODS

- This is the both prospective and retrospective study included 29 patients with GERD who were operated upon by Laparoscopic Nissen Fundoplication & Laparoscopic Posterior Fundoplication
- Time period from September 2021 to November 2023. Demographic and clinical profiles of all patients were recorded.
- All patients were subjected to thorough clinical evaluation, upper GI endoscopy done in all patients, esophageal Manometry and 24 ph study done in selected pts.
- All preoperative data compared with the postoperative data. All patients were asked to pay follow up visit at least twice in the first year (early follow up). During follow up, each patient was assessed in the manner similar to that of preoperative assessment, clinical examination.
- Majority of the patients started oral intake on the second postoperative day with a mean of 2.5±0.5 days.
- The survey carried regarding the use of postoperative antireflux medication, the need for postoperative reintervention and patient willingness to have the operation again
- Consent for data collection & participation for study taken from

patients.

Inclusion Criteria

Diagnosed cases of GERD who were operated upon by Laparoscopic Nissen Fundoplication (LNF) & Laparoscopic Posterior Fundoplication (LPF)

Exclusion Criteria

- 1) Esophageal lengthening
- 2) Endoscopic procedure
- 3) Patients with previous gastric or esophageal surgeries
- 4) Patients with complicated refluxes (e.g. Barrett's esophagus, short esophagus)
- 5) Patients with primary esophageal motility disorders (e.g. scleroderma, achalasia)

Patient Satisfaction

Grading of overall patient satisfaction was according to viscik grade scale¹¹.

Grade	Description
Excellent	Completely recovered
Good	Major improvement with symptoms
Fair	Major improvement, but still some significant symptoms or
Poor	Side effects Minor or no improvements or even worsening

OBSERVATIONS & DISCUSSION

An analysis of results of laparoscopic Nissen fundoplication & posterior fundoplication for GERD in the patients admitted to a hospital, between September 2021 to November 2023 has been made and discussed accordingly.

There were 16 patients undergone Laparoscopic Nissen Fundoplication & 13 patients undergone Laparoscopic posterior fundoplication.

GERD predominantly affects the individuals of all ages but more common in the 3rd, 4th, 5th, 6th decades.

The average age of occurrence was being 41.24 years. Increased incidence is observed in 2nd, 3rd & 5th decade. Average weight was 67.79 kgs (50-85kgs).

In our series incidence of GERD more common in males 22(75.8%) and in females 7 (24.2%)

In our series, duration of surgery was an average 203 minutes (180-250 minutes). No operative and postoperative mortality, no conversion to open surgery, no intraoperative complications, but we had minimal postoperative complications.

Duration of stay in the hospital was an average 4.26 days¹⁰ (3-8 days). It is comparable by study of Khursheed MA study average 3.1 days¹⁰.

Duration of follow up was an average 9 months (6-12 months).

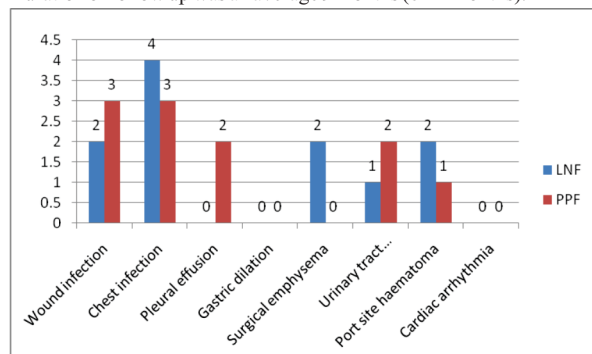


Chart 1: Postoperative Complications

Inference – LPF has more complications of pleural effusion, wound infections & UTI whereas LNF has more complications of chest infections & portsite hematoma & surgical emphysema

We had postoperative complications, which were mild, settled down with observation or medications or minimal intervention. Wound (port

site) infection 5(17.2%) was treated with antibiotics and drainage, chest infection (atelectasis) 7(24%) treated with IV antibiotics, Pleural effusion 2(6.8%) was treated with physiotherapy settled down 2-3 days, mild surgical emphysema 2(6.8%) may be due to good hiatal dissection and proper esophagus mobilization, it settled down in 2 days, urinary tract infection 3(10.3%) was treated with antibiotics, port site hematoma 3(10.3%) was managed conservatively.

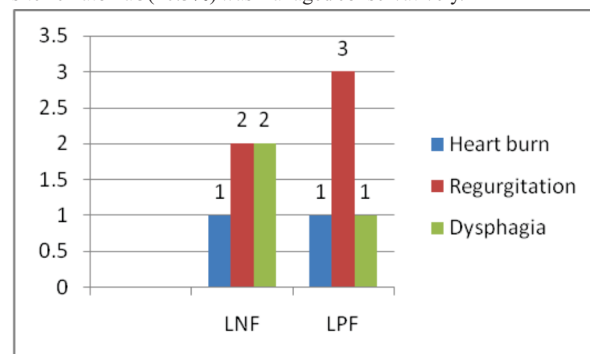


Chart 2: Comparison of Persistent of Typical Symptoms

Inference – LNF has more persistent of dysphagia whereas LPF has more persistent of regurgitation

On Comparison of persistent of atypical symptoms, LNF has more persistent of epigastric pain, chest pain, cough, sorethroat than LPF

On Comparison of persistent Nonspecific symptoms, LNF shows more persistent of bloating & flatulence

In the late postop period, 1(6%) patient had dysphagia possibly because of edema, it settled down without any interventions. 1(6%) patient undergoing dilatation for esophageal stricture, as she had preoperatively but frequency has come down, pt feels better gradually as day progresses.

No cases of wrap migration/disruption/ischemia.

In the early postop period, 3(18%) (LNF) & 1(7.6%) (PPF) were using some form of medication like PPI/prokinetics/antacids, not regularly but occasionally, rest of patients 25(86.2%) were not using any form of medications.

On comparison of postoperative pharmacotherapy use, LNF has more incidence for taking pharmacotherapy postoperatively

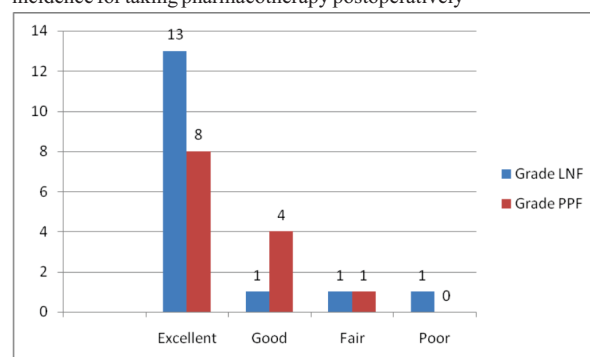


Chart 3: Viscik Grade Scale¹¹

Inference – LNF has more cases of excellent symptomatic improvement & LPF has more cases of good symptomatic improvement.

Comparative results of Laparoscopic Nissen Fundoplication & Posterior Fundoplication were analyzed and compared with other series in terms of age, sex, preop clinical symptoms, postop improvement of symptoms, surgical complications, reinterventions, use of medications in the postop period, patient's satisfactions.

CONCLUSION

1. Both Laparoscopic Nissen fundoplication & Laparoscopic posterior fundoplication provides excellent results for GERD in terms of postoperative morbidity & complications.

2. Typical symptoms show similar response to LNF & LPF than atypical symptoms and non-specific symptoms. Whereas atypical symptoms show greater response to LPF.
3. Proper preoperative selection and work up is necessary.
4. Experienced laparoscopic surgeon provides better outcome.
5. Patient satisfaction after LNF treatment for GERD is high then PPF.
6. Need for taking Prokinetics/antacids postoperatively observed more in cases of LNF

Drawback and limitations of this study were

1. Needs larger volumes
2. Longer duration of follow up period of more than 1-5 yrs

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