

Original Research Article

Comparative study of Laparoscopic Nissen fundoplication Vs Posterior fundoplication in Gastroesophageal reflux disease

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Abstract

Background: Gastroesophageal reflux Disease is a highly prevalent gastrointestinal (GI) disorder and is one of the most common GI illnesses encountered in clinical practice. 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. Our aim was to compare the result of nissen and toupet procedures and to determine which procedure is better in terms of symptomatic improvement symptom recurrence and post-operative complications.

Materials and methods: This was the both prospective and retrospective study included 29 patients with GERD who were operated upon by Laproscopic Nissen Fundoplication and Laproscopic Posterior Fundoplication. 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 patients. All preoperative data compared with the postoperative data.

Results: In our series 68.9% of the patients were below 50 years. 31.03% was above 50 years. The average age of occurrence was being 41.4 years. In our series Sex distribution were 75.8% of Males and 24.1% of Females. 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.

Conclusion: Both Laparoscopic Nissen fundoplication and Laparoscopic posterior fundoplication provides excellent results for GERD in terms of postoperative morbidity and complications.

Key words

Gastroesophageal reflux disease, Laparoscopic Nissen fundoplication, Toupet fundoplication.

Introduction

Gastroesophageal reflux Disease [1] 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 [2].

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 populations [3].

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 1991 [4]. 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. 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.

Our aim was to compare the result of both the procedures and to determine which procedure is better in terms of symptomatic improvement symptom recurrence and post-operative complications.

Materials and methods

This was the both prospective and retrospective study included 29 patients with GERD who were operated upon by Laproscopic Nissen Fundoplication and Laproscopic Posterior Fundoplication. The period of study was from 2013 to 2016. 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. All patients were advised to have liquid diet or soft diet on first postoperative month, later gradually upgraded into solid and semisolid

diet. 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 and participation for study taken from patients.

Inclusion criteria

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

Exclusion criteria

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

Results

An analysis of results of laparoscopic Nissen fundoplication and posterior fundoplication for GERD in the patients admitted to a hospital, between 2013 -2016 has been made and discussed accordingly. There were 16 patients undergone Laparoscopic Nissen Fundoplication and 13 patients undergone Laproscopic posterior fundoplication from 2012 to 2015. Post-operative complications were as per **Table – 1**. Comparison of typical symptoms pre-operative and post-operative improvement was as per **Table – 2**. Incidence of reinterventions was as per **Table – 3**. Incidence of postoperative pharmacotherapy use was as per **Table – 4**.

Discussion

GERD is not age specific, it can present at any age group. In our series 68.9% of the patients were below 50 years. 31.03% was above 50 years. The average age of occurrence was being 41.4 years. In our series Sex distribution were 75.8% of Males and 24.1% of Females

undergone LNF and PPF, it is comparable with other series. 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. In terms of symptomatic control, typical symptoms controlled by both the procedures. Improvement in dysphagia after LPF is more which is comparable with other studies [5]. Overall surgical complication rate is similar for both the procedures in our study but in Tang GI study incidence of early surgical complications is more in LPF. Duration of stay in the hospital was an average 4.26 days (3-8 days).its comparable by study of Khurshed MA study average 3.1 days. Duration of follow up was an average 9 months (6-54 months). Recurrence was observed in single case of LNF for which dilation required [6]. LPF has more complications of pleural effusion, wound infections and UTI whereas LNF has more complications of chest infections and port site hematoma and surgical emphysema [7]. We had postoperative complications, which were mild, settled down with observation or medications or minimal intervention. LNF has more complications of dysphagia whereas LPF has more chances of regurgitation [8]. Cases of LNF have more incidence for taking pharmacotherapy postoperatively [9].

Table – 1: Post-operative complications.

Complications	No. of patients (%) LNF	No. of patients (%) PPF
Wound infection	2 (12.5%)	3 (23%)
Chest infection	4 (25%)	3 (23%)
Pleural effusion	0 (0%)	2 (18%)
Gastric dilation	0	0
Surgical emphysema	2 (12.5%)	0
Urinary tract infection	1 (6.25%)	2 (18%)
Port site hematoma	2 (12.5%)	1 (7.6%)
Cardiac arrhythmia	0	0
Average	11 (100%)	11 (100%)

Table – 2: Comparison of typical symptoms pre-operative and post-operative improvement.

Symptoms	Pre-operative	Post-operative 6 month to 1 year Improvement (LNF)	LPF
	No. of patients (%)	No. of patients (%)	No. of patients (%)
Heart burn	27 (93.1%)	1 (3%)	1 (3%)
Regurgitation	25 (86.2%)	2 (6%)	3 (10%)
Dysphagia	21 (72.4%)	2 (6%)	1 (3%)
Average	24.3 (83.7%)	1.7 (5.8%)	1.7 (5.8%)

Table – 3: Incidence of reinterventions.

Procedure	No. of patients LNF	No. of patients LPF
Redofundoplication	0	0
Dilatation	1 (6%)	0
Total	1 (3.4%)	0

Table – 4: Incidence of postoperative pharmacotherapy use.

	LNF	LPF
Pharmacotherapy postoperatively	3 (18%)	1 (7.6%)
Total	25 (100%)	25 (100%)

Conclusion

Both Laparoscopic Nissen fundoplication and Laparoscopic posterior fundoplication provides excellent results for GERD in terms of postoperative morbidity and complications. Proper preoperative selection and work up is necessary. Experienced laparoscopic surgeon provides better outcome. Patient satisfaction after LNF treatment for GERD is high then PPF. Need for taking Prokinetics/ antacids postoperatively observed more in cases of LNF.

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