

Outcomes of Laparoscopic Fundoplication: A Single-Surgeon Experience in a Tertiary Care Setting.

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Abstract

Background: Gastroesophageal reflux disease (GERD) is a chronic condition that significantly impacts patients' quality of life. When medical management fails, laparoscopic fundoplication is the surgical treatment of choice. This study evaluates the clinical outcomes, patient satisfaction, and complication rates of laparoscopic fundoplication performed by a single surgeon in a tertiary care hospital.

Methods: This retrospective study included 20 patients with GERD refractory to medical therapy, undergoing laparoscopic fundoplication by a single surgeon over two years. Preoperative assessments included demographic data, comorbidities, and GERD-HRQL scores. Intraoperative parameters such as duration of surgery and complications were recorded. Postoperative outcomes included symptom relief, length of hospital stay, complications, and patient satisfaction. Symptom scores before and after surgery were compared using paired t-tests.

Results: The mean age of patients was 45.3 years, with a female predominance (60%). Indications for surgery included GERD (100%), hiatus hernia (60%), Barrett's oesophagus (20%), and severe esophagitis (30%). Postoperative GERD-HRQL scores significantly improved from 44.6 ± 8.7 to 7.9 ± 3.3 ($p < 0.001$). The mean duration of surgery was 95.3 minutes, with no conversions to open surgery. Intraoperative complications were minimal, with a single case of pneumothorax (5%). Postoperative complications included temporary dysphagia (15%) and port site pain (20%). All patients were discharged by the third postoperative day. Patient satisfaction was high, with 95% of patients reporting being satisfied or very satisfied with their outcomes.

Conclusion: Laparoscopic fundoplication is a highly effective and safe treatment for GERD, with significant symptom relief, high patient satisfaction, and minimal complications when performed by an experienced surgeon in a tertiary care setting. These findings support the continued use of laparoscopic fundoplication for patients with refractory GERD and highlight the importance of surgical expertise in optimizing outcomes.

Keywords:

Gastroesophageal reflux disease (GERD), laparoscopic fundoplication, patient satisfaction, surgical outcomes, and tertiary care hospital.

Introduction

Gastroesophageal reflux disease (GERD) is a chronic condition characterized by the abnormal reflux of gastric contents into the oesophagus, leading to symptoms such as heartburn, regurgitation, and chest pain. It is a prevalent disorder affecting approximately 20% of the Western population, with a significant impact on quality of life and healthcare costs [1]. While lifestyle modifications and pharmacologic therapies, such as proton pump inhibitors (PPIs), form the cornerstone of GERD management, a subset of patients remain refractory to medical treatment or develop complications such as Barrett's oesophagus, hiatal hernia, or severe esophagitis [2,3].

Laparoscopic fundoplication has emerged as the surgical treatment of choice for patients with GERD who are unresponsive to medical therapy or who prefer a surgical solution to avoid long-term medication use. The procedure involves wrapping the upper part of the stomach around the lower oesophagus to reinforce the lower oesophageal sphincter, thereby preventing acid reflux. This minimally invasive technique offers several advantages over traditional open surgery, including reduced postoperative pain, shorter hospital stays, quicker recovery times, and better cosmetic results [4, 5].

Despite the benefits, the success of laparoscopic fundoplication depends on several factors, including surgical expertise, patient selection, and perioperative management. Studies have shown that the experience of the surgeon can significantly influence the outcomes and complication rates associated with the procedure [6]. Hence, evaluating the outcomes of laparoscopic fundoplication performed by a single experienced surgeon can provide valuable insights into the procedure's efficacy and safety in a controlled setting.

Previous research has demonstrated high rates of symptom relief and patient satisfaction following laparoscopic fundoplication, with most patients experiencing significant improvement in GERD symptoms and quality of life [7, 8]. However, potential complications, such as dysphagia, gas bloat syndrome, and surgical site infections, underscore the need for careful patient selection and meticulous surgical technique [9, 10].

This study aims to evaluate the clinical outcomes, patient satisfaction, and complication rates of laparoscopic fundoplication performed by a single surgeon in a tertiary care hospital. By focusing on a single surgeon's experience, this study seeks to minimize variability and provide a clear assessment of the procedure's effectiveness and safety in a high-volume, specialized setting.

Aims and Objectives

To evaluate the clinical outcomes, patient satisfaction, and complication rates of laparoscopic fundoplication performed by a single surgeon in a tertiary care hospital.

Methodology

Study Design: This retrospective study was conducted at a tertiary care hospital in j&k, analyzing data from patients who underwent laparoscopic fundoplication performed by a single surgeon over a period of two years.

Patient Selection: A total of 20 patients with confirmed GERD refractory to medical therapy and with indications such as hiatus hernia, Barrett's oesophagus, and moderate to severe esophagitis were included. Exclusion criteria were previous upper abdominal surgery and contraindications to laparoscopic surgery.

Data Collection: Preoperative, intraoperative, and postoperative data were collected from medical records. Preoperative assessment included demographic details, comorbidities, and GERD-HRQL scores. Intraoperative parameters recorded were the duration of surgery and complications. Postoperative outcomes included symptom relief, length of hospital stay, complications, and patient satisfaction.

Statistical Analysis: Descriptive statistics were used to summarize the data. Symptom scores before and after surgery were compared using paired t-tests. A p-value of <0.05 was considered statistically significant.

RESULTS

Patient Demographics and Baseline Characteristics:

The study included 20 patients, with a mean age of 45.3 years, predominantly female (60%). Baseline characteristics are summarized in Table 1.

TABLE 1. Baseline Characteristics of Patients.

Characteristic	Value
Mean Age (years)	45.3 ± 12.5
Gender (Male/Female)	8/12
Mean BMI (kg/m ²)	27.6 ± 3.8
Comorbidities (%)	
Hypertension	6 (30%)
Diabetes Mellitus	4 (20%)
Asthma	2 (10%)

Indications for Surgery:

The primary indications for surgery were GERD (100%), hiatus hernia (60%), Barrett's oesophagus (20%), and moderate to severe esophagitis (30%).

Table 2. Indications for surgery

Indication	Number of Patients (%)
Gastroesophageal Reflux Disease	20 (100%)
Hiatus Hernia	12 (60%)
Barrett's Oesophagus	4 (20%)
Moderate to Severe Esophagitis	6 (30%)

Preoperative and Postoperative Symptom Scores:

Symptom relief was assessed using the Gastroesophageal Reflux Disease Health-Related Quality of Life (GERD-HRQL) questionnaire. There was a significant reduction in symptom scores for heartburn, regurgitation, and cough postoperatively (all p-values < 0.005).

Table 3. Symptom scores before and after surgery.

Symptom	Preoperative Score (Mean ± SD)	Postoperative Score (Mean ± SD)	P-value
Heartburn	18.5 ± 4.2	3.2 ± 1.8	< 0.003
Regurgitation	15.7 ± 3.9	2.8 ± 1.6	< 0.001
Cough	10.4 ± 3.5	1.9 ± 1.1	< 0.004
Total GERD-HRQL	44.6 ± 8.7	7.9 ± 3.3	< 0.001

Intraoperative Parameters. Intraoperative parameters showed an average surgery duration of 95.3 minutes, with a 5% intraoperative complication rate.

Table 4. Intraoperative parameter.

Parameter	Value (Mean \pm SD)
Duration of Surgery (minutes)	95.3 \pm 20.4
Intraoperative Complications	1 (5%)
Conversion to Open Surgery	0 (0%)

Postoperative Parameters:

The postoperative parameters, including complications and recovery metrics, are summarized in Table 5.

Table 5. Postoperative outcomes.

Parameter	Number of Patients (%)
Length of Hospital Stay (days)	3.0 \pm 1.1
Dysphagia (temporary)	3 (15%)
Port Site Pain	4 (20%)
Pneumothorax	1 (5%)
Surgical site infection	1 (5%)
Reoperation required	0 (0%)

Patient Satisfaction:

Patient satisfaction was measured using a postoperative questionnaire. Patient satisfaction

results are shown in Table 6.

Table 6. Patient Satisfaction.

Satisfaction Measure	Number of Patients (%)
Very Satisfied	15 (75%)
Satisfied	4 (20%)
Neutral	1 (5%)
Dissatisfied	0 (0%)
Very Dissatisfied	0 (0%)

DISCUSSION

The present study evaluates the outcomes of laparoscopic fundoplication performed by a single surgeon at a tertiary care hospital. The results demonstrate significant improvement in symptoms of gastroesophageal reflux disease (GERD), high patient satisfaction, and a low complication rate.

Symptom Relief and Quality of Life:

Our study found a significant reduction in GERD-HRQL scores postoperatively, indicating marked improvement in symptoms such as heartburn, regurgitation, and chest pain. These findings align with previous studies that have reported laparoscopic fundoplication as an effective intervention for controlling GERD symptoms and enhancing patient quality of life [1, 2]. The substantial symptom relief observed reinforces the procedure's role as a cornerstone treatment for patients with refractory GERD, especially those not adequately managed by pharmacological therapy.

Patient Satisfaction:

High patient satisfaction rates were recorded, with 95% of patients reporting being satisfied or very satisfied with their surgical outcomes. This level of satisfaction is consistent with other studies, where patient satisfaction post-laparoscopic fundoplication typically ranges between 80-90% [3, 4]. The satisfaction is likely attributed to the significant symptom relief, low complication rates, and effective postoperative care protocols in place at the tertiary care centre.

Complications and Safety Profile:

The complication rates observed in this study were minimal. Temporary dysphagia occurred in 15% of patients, port site pain in 20%, and a single case of pneumothorax (5%) was

reported. These rates are comparable to existing literature, where dysphagia and port site pain are commonly reported minor complications following laparoscopic fundoplication [5, 6]. The incidence of pneumothorax, although relatively rare, highlights the need for vigilant intraoperative monitoring and prompt management [7]. Importantly, no major complications such as reoperation were required, and all patients were discharged by the third postoperative day, reflecting efficient perioperative care and rapid recovery protocols.

Indications for Surgery:

The study population had varied indications for laparoscopic fundoplication, including GERD (100%), hiatus hernia (60%), Barrett's oesophagus (20%), and moderate to severe esophagitis (30%). This diversity is typical of the patient population presenting for fundoplication, where GERD is often complicated by hiatal hernia or Barrett's oesophagus [8]. The successful surgical outcomes across these indications underline the procedure's versatility and effectiveness in treating a spectrum of oesophageal pathologies.

Intraoperative and Postoperative Management:

The mean duration of surgery was 95.3 minutes, consistent with the typical range reported in laparoscopic procedures [9]. The absence of conversions to open surgery and the low intraoperative complication rate (5%) reflect the surgeon's expertise and the benefits of minimally invasive techniques. Postoperatively, the average hospital stay was three days, indicating efficient postoperative recovery and management protocols.

Study Limitations:

Several limitations must be acknowledged. The retrospective design may introduce selection bias and limit the ability to establish causality. Additionally, the single-surgeon experience, while providing consistency in technique and care, may limit the generalizability of findings to other settings or surgeons with varying levels of expertise. Future studies could benefit from a prospective design and a larger, multi-surgeon cohort to enhance the robustness and applicability of the findings.

Conclusion:

The findings from this study affirm that laparoscopic fundoplication is a highly effective and safe surgical intervention for GERD and associated conditions. Patients experienced significant symptom relief, high satisfaction rates, and minimal complications, underscoring the procedure's value in a tertiary care setting. These outcomes highlight the importance of experienced surgical practice and comprehensive perioperative care in achieving optimal patient outcomes.

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