



THE IMPACT OF PREOPERATIVE ESOPHAGEAL MANOMETRIC STUDY ON ANTI-REFLUX SURGICAL DECISION: A RETROSPECTIVE STUDY FROM JORDAN

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ABSTRACT

Introduction: Esophageal manometry is an endoscopic study of the esophagus motility and can diagnose dysmotility disorders and the tone of the gastro-esophageal sphincter. The main aim of the study is to identify the role of esophageal manometry in surgery decision-making and to determine which type of fundoplication is required for gastric reflux disease. **Methodology:** it's a retrospective of 210 patients with gastroesophageal reflux disease, who underwent endoscopic esophageal manometry in order to undergo anti-reflux surgery. The study was conducted at King Hussein Medical Hospital. We collected data retrospectively from the electronic medical recording system regarding all patients who performed the test from August 2022 to July 2025. All patients who were planned to undergo antireflux surgery and underwent esophageal manometry as a preoperative preparation were included in this study, whereas the patients who underwent the test because of dysphagia or esophageal dysmotility were excluded from the study. Then, we followed the surgical decision of antireflux surgery to do Nissen or partial Fundoplication accordingly. Medical biostatistical tests and software like SPSS are used to collect data and to measure the results. **Results:** A total of 210 cases, that underwent preoperative preparations and planned for anti-reflux surgery. The mean age was 49+/-0.3 years. A 46 % (n=99) where female patients with slightly higher percentage in male patient (54%, n=111). Manometric study performed for all patient (100%), abnormal study observed in 15 patients (7.2%) that showed significant difference and P-value was than 0.03, most of these dysmotility were a chalasia 10 patients, while the other 5 patients suffered from non-specific abnormal esophageal contractility. **Conclusions:** esophageal manometry is pivotal preparation test must be performed to delineate the esophageal motility before undergoing anti-reflux procedure, it may change the type of surgical procedure and the degree of fundoplication

INTRODUCTION

Esophageal manometry is an endoscopic study of the esophagus motility and can diagnose dysmotility disorders and the tone of the gastro-esophageal sphincter. Usually, the gastroesophageal junction presents in a high-pressure zone; normally, its pressure range is from 6-26 cmH₂O, and its normal intra-abdominal length extends from 2-6 cm.^[1]

Gastroesophageal reflux disease (GERD) is a symptom of feeling heartburn caused by abnormal GEJ. Normally, gastric juice should stay in the stomach; otherwise, exposure of esophageal epithelium to lower PH may harm the tissue and cause metaplasia that increases the risk of malignancy.^[2]

Medical management and Helicobacter pylori eradication are the best ways to treat GERD. Refractory reflux that affects life quality and resists the anti-reflux medications is a strong indication for surgical management. There are several types of anti-reflux procedures that repair the diaphragmatic hernia by posterior cruroplasty and increase the GEJ pressure by performing fundoplication.^[3]

Fundoplication is the procedure of increasing the pressure at the GEJ, and it is classified into partial or complete fundoplication, and it may be anterior or posterior fundoplication.

On the other hand, the patient should be prepared well before the procedure, and studying the esophageal motility is mandatory to avoid complications. The main

aim of the study is to identify the role of esophageal manometry in surgery decision-making and to determine which type of fundoplication is required for gastric reflux disease.

METHODOLOGY

Study design and study population: it's a retrospective study of 210 patients with gastroesophageal reflux disease, who underwent endoscopic esophageal manometry in order to undergo anti-reflux surgery. The study was conducted at King Hussein Medical Hospital August 2022 to July 2025,

Data collection: We collected data retrospectively from the electronic medical recording system regarding all patients who performed the test from August 2022 to July 2025,. Then, we followed the surgical decision of antireflux surgery to do Nissen or partial Fundoplication accordingly. Medical biostatistical tests and software like SPSS are used to collect data and to measure the results.

Inclusion and exclusion criteria: all patients planned for antireflux surgery were included in this study, patients aged from 16-60 years, while the exclusion criteria were age younger than 16 and older than 60, all patients with known history of esophageal dysmotility, patients who respond to antireflux medication.

Procedure: all patients who planned to do antireflux surgery, referred to Endoscopist to do a manometry test to study to mobility of esophagus before performing any surgical procedure, presence of any type of dysmotility may change the surgical decision for partial fundoplication instead of complete nissen fundoplication.

Statistical analysis: SPSS IBM software version 28 was used to analyze the data.

Ethical approval: the study was approved for publication by the ethical committee at the Royal Medical Service number 48/8/26.

RESULTS

A total of 210 cases, that underwent preoperative preparations and planned for anti-reflux surgery. The mean age was 49+0.3 years. A 46 % (n=99) where female patients with slightly higher percentage in male patient (54%, n=111). Table 1.

Manometric study performed for all patient (100%), abnormal study observed in **N=29 (14%)** that showed significant difference and P-value was than 0.03, most of these dysmotility were a chalasias 20 patients, while the other 9 patients suffered from non-specific abnormal esophageal contractility. Table 2.

Esophageal dysmotility was observed more commonly in the older age group it was 73% (n=11), and more common in female patients and represent 60% (n=9), while 40% where as male patients. Table 2.

Table 1: demographic features.

Variable	value
Age more than 50	40%
Male patients	46%
Female patients	54%

Table 2: The results of esophageal manometry.

Findings	N=210 (100%)
Normal manometry	N=181 (86%)
Abnormal manometry	N=29 (14%)
achalasia	N=20 (9%)
Others	N=9 (7%)

DISCUSSION

Our results delineate the importance of esophageal manometry as a preoperative routine and a mandatory test; this recommendation was approved by the American College of Gastroenterologists (ACG) in January 2023. Philip O Katz and co-author argued that it's essential to perform the test before the procedure to avoid many complications and to discover any hidden pathology.^[4]

Pauwels A in his article, proved that doing a manometric study for patients planned for antireflux will have a great advantage and help to decrease the postoperative complications, especially dysphagia and vomiting. Our study showed that the avoidance of fundoplication in 29 patients with abnormal esophageal motility.^[5]

In 2019, the international consensus of ICARUS showed 94% of expert agreement to announce that esophageal manometry is essential to select patients for anti-reflux surgery.^[6]

Ayazi S. has a different opinion, and he argued that there is no need for manometry as a mandatory test; his justification was the minority of esophageal dysmotility make routine preoperative manometry cost ineffective, and we can do the test before the procedure for special cases only.^[7]

CONCLUSION

Esophageal manometry is pivotal preparation test must be performed to delineate the esophageal motility before undergoing anti-reflux procedure, it may change the type of surgical procedure and the degree of fundoplication.

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