

ORIGINAL ARTICLE

A Study on the Correlation Between Endoscopic Findings and Symptoms of Gastro-Esophageal Reflux Disease

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ABSTRACT

Background and Aim: Gastroesophageal reflux disease (GERD) is a physiological passage of stomach contents into the esophagus. It is basically the pathological complications and symptoms. Endoscopy is a gold standard investigation tool that eliminates the gastroesophageal reflux disease co-morbidities such as malignancy and Barret's esophagus. The present study was carried out to evaluate the correlation between endoscopic findings and symptoms of gastroesophageal reflux disease.

Materials and Methods: This intervention cross-sectional study was carried out on 109 gastro esophageal reflux disease patients in Gastroenterology department of Isra University Hospital, Hyderabad for six months duration from January 2021 to June 2021. Suspected gastroesophageal reflux disease patients were assessed thoroughly by physical examination, history, and endoscopy for gastrointestinal symptoms. Severity, symptom type, duration, and frequency were assessed as clinical symptoms. The upper gastrointestinal endoscopy findings were evaluated in terms of esophageal erosions, and their grades such as Grade A, Grade B, Grade C, and Grade D. The endoscopy abnormal findings such as hernia, esophagus, malignancy, and Barret's esophagus were correlated with gastroesophageal reflux disease.

Result: Out of 109 patients, 78 (71.5%) were females while 31 (28.5%) were male. The mean age of the patients was 43.54 ± 7.3 years with an age range between 25 and 67 years and the mean BMI was 43.34 ± 5.76 kg/m². Gastro esophageal reflux disease symptoms such as malignancy and Barrett's esophagus shown no evidence on pre-operative endoscopy. About 29 (26.6%) patients had normal endoscopy. The symptomatic patients were 80 (73.4%) which were categorized based on LA classifications into Grade A 62 (77.5%), Grade B 13 (16.3%), Grade C 3 (3.8%) and Grade D 2 (2.5%). Based on the reflux score system, patients were distributed as mild 43 (53.8%), moderate 11 (13.8%), severe 5 (6.3%), and very severe 21 (26.3%).

Conclusion: Our study found a significant correlation between gastro esophageal reflux disease and endoscopy esophagitis findings. Pre-operative endoscopy should be carried for abnormal endoscopy in both symptomatic and asymptomatic patients.

Keywords: Gastro-oesophageal reflux disease, Endoscopy, Esophagitis

INTRODUCTION

Gastro esophageal reflux disease (GERD) is a common gastrointestinal illness that is defined as the reflux of stomach contents into the esophagus, which frequently causes bothersome symptoms and complications. The longstanding gastro esophageal reflux disease causes a premalignant disorder Barrett's esophagus¹. Various studies reported an increasing prevalence of gastro esophageal reflux disease from 18.1%² to 27.8%³. Others founded 25.9%, 33.1%, 11.6%, and 23% prevalence of GERD in Europe, the Middle East, Australia, and South America respectively³⁻⁶. The gastro esophageal reflux disease must be diagnosed timely and accurately. Long-term GERD complications, such as erosive esophagitis, laryngitis, esophageal strictures, Barrett's esophagus, and laryngeal stricture, can cause significant morbidity⁷. The most serious concern is Barrett's esophagus, which increases the risk of developing esophageal adenocarcinoma⁸. Clinically gastro esophageal reflux disease might be symptomatic and asymptomatic. Symptomatic GERD includes symptoms such as Epigastric pain, chest burning sensation or heartburn, and Regurgitation. Sore throat, hoarseness, lungs, dysphagia and abdomen were the atypical or asymptomatic GERD⁹.

Barret's Esophagus is caused by longstanding gastro esophageal reflux disease which might lead to malignancy. Barrett's esophagus can be accurately diagnosed with upper gastrointestinal endoscopy. Very few studies were carried out on GERD clinical symptoms and endoscopic findings. Though gastro esophageal reflux disease can be diagnostically identified by endoscopy plays a significant role in gastro esophageal reflux disease co-morbidities such as malignancy or Barrett's esophagus elimination as a gold standard¹⁰. Gastro esophageal reflux disease complications could be effectively prevented through early diagnosis and identification of GERD symptoms¹¹. One study reported the endoscopy clinical characteristics for GERD indications seen in patients. These characteristics of endoscopic findings provided evidence for early diagnosis and initial treatment to be followed for an immediate investigation of gastro esophageal reflux disease¹². Esophagogastroduodenoscopy (EGD) is the Invasive gold standard for evaluating and grading esophagitis and ruling out other esophageal diseases. Although endoscopy has a low sensitivity for GERD, it has an excellent specificity of 90–95 percent.¹³ Reflux esophagitis is diagnosed endoscopically by mucosal breaks presence in the esophagus which makes it a reliable indicator. Loss Angeles classification was used for esophageal reflux

grading. Esophagogastroduodenoscopy offers pre-operative surgical management for various conditions such as ulcer, hernia, gastric carcinoma, and BE. The current study was carried out with an aim to determine the association between endoscopy and gastro esophageal reflux symptoms.

METHODS

This intervention cross-sectional study was carried out on 109 gastro esophageal reflux disease patients in Gastroenterology department of Isra University Hospital, Hyderabad for six months duration from January 2021 to June 2021. Suspected gastro esophageal reflux disease patients were assessed thoroughly by physical examination, history, and endoscopy for gastrointestinal symptoms. Severity, symptom type, duration, and frequency were assessed as clinical symptoms. The upper gastrointestinal endoscopy findings were evaluated in terms of esophageal erosions, and their grades such as Grade A, Grade B, Grade C, and Grade D. The endoscopy abnormal findings such as hernia, esophagus, malignancy, and Barret's esophagus were correlated with gastro esophageal reflux disease. The endoscopy of upper gastrointestinal procedure comprised of patients keeping nil by mouth for six hours before the procedure, mouthpiece placement, local anesthesia application to the posterior pharyngeal wall, patients positioned on the left side, and endoscope insertion by mouth. Patients were kept under observations followed by a 15-30 minutes procedure for an hour. The endoscopy's findings were recorded as follows: esophageal erosion was graded as Grade A, B, C, and D based on LA classification. Patients mucosal breaks (n>1) having <5 mm as referred to as Grade A, Grade B (n>1) with >5 mm, Grade C < 75% esophageal circumference with more than 2 mucosal fold and Grade D involve at least 75% esophageal circumference. Barrett's esophagus, CA esophagus, hernia, and Stricture esophagus were other abnormal findings. All these gastro esophagus reflux symptoms were correlated with endoscopic findings such as BMI, and Barrett's esophagus.

Patients who agree to an informed consent form with general symptoms of gastro esophageal reflux disease were enrolled. Other inclusion criteria were symptomatic GERD such as regurgitation, heartburn, epigastric pain while atypical symptoms were sore throat, chronic cough, laryngitis, bloating, dysphagia, tooth decay, asthma and pneumonia, and belching. Patients above 25 years of age and who had seven days prior consultation before endoscopy were enrolled in this study. Patients treated for ulcer, pregnant, prior gastric surgery, inflammatory bowel disease, major illness, such as coagulopathy and gastrointestinal malignancy were excluded from this study. SPSS version 20 was used for data analysis.

RESULTS

Out of 109 patients, 78 (71.5%) were females while 31 (28.5%) were male. The mean age of the patients was 43.54 ± 7.3 years with an age range between 25 and 67 years and the mean BMI was 43.34 ± 5.76 kg/m2. Gastro esophageal reflux disease symptoms such as malignancy and Barrett's esophagus shown no evidence on pre-operative endoscopy. Figure-I demonstrate the gender

distribution of 109 GERD patients. About 29 (26.6%) patients had normal endoscopy. The symptomatic patients were 80 (73.4%) which were categorized based on LA classifications into Grade A 62 (77.5%), Grade B 13 (16.3%), Grade C 3 (3.8%) and Grade D 2 (2.5%) as shown in Tabe-1/Figure-II. Based on the reflux score system, patients were distributed as mild 43 (53.8%), moderate 11 (13.8%), severe 5 (6.3%), and very severe 21 (26.3%).

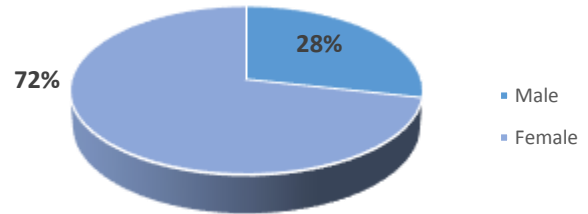


Figure-I gender distribution of 109 GERD patients

Table 1 Pre-operative LA grade

LA grade	Frequency n	Percentage %
Grade A	62	67.5
Grade B	13	16.3
Grade C	3	3.8
Grade D	2	2.5
Total	80	100

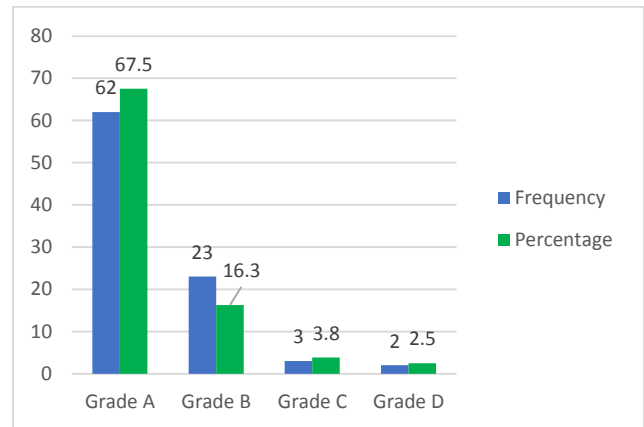


Figure-II Pre-operative LA grade classification

Table 2. Distribution of reflux symptom score among 109 patients

Symptoms	Frequency n	Percentage %
Asymptomatic	29	26.6
Mild	41	51.3
Moderate	17	21.3
Severe	3	3.6
Very Severe	19	23.8
Total	109	100

Of the total 80 (73.4%) symptomatic patients, the prevalence of reflux score among patients was as follow;

very severe 19 (23.8%), severe 3 (3.8%), moderate 17 (21.3%), and mild 41 (51.3%) as shown in Table-2 and Figure 3. About 29 (26.6%) had shown no symptoms of gastro esophageal reflux disease.

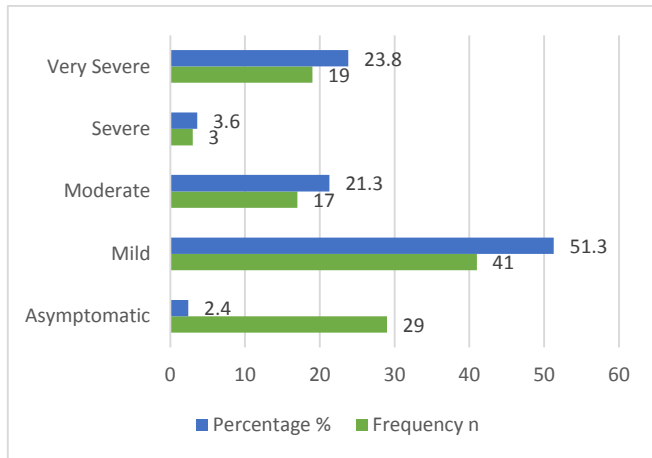


Figure-III Distribution of reflux symptom score among 109 patients

DISCUSSION

Gastro esophageal generally has been significantly associated with lower esophageal sphincter (LES) as transient relaxation increases, hiatal hernia presence, abdominal pressure, LES pressure decrease, and morbid obesity¹⁴. But gastro-oesophageal causing GERD is not always true as the number of patients had no oesophagitis symptoms with proven reflux. There appears to be no comprehensive study on the prevalence of GERD. GERD data in Riau had also not been reported until today. Out of 80 reflux esophagitis, the prevalence of Los Angeles classifications severity grade A and B were higher 62 (67.5%) and 23 (16.3%) respectively. This result matched with other studies¹⁵. Another study carried out in China reported the prevalence of esophagitis subjects with Grade A and Grade B 76.6% and 14.1% respectively compared to GERD in all patients¹⁶. A similar study found Grade A and B percentages which were 76.5% and 23.5% respectively¹⁷.

The GERD patient's healing rates were found lower in erosive esophagitis (LA grade C and D) higher grade in patients as compared to lower grade erosive esophagitis¹⁸. These findings come from the mechanism of lower esophageal contraction and higher acid exposure in severe esophagitis. Poor healing rate caused by insignificant association between severe esophagitis and pathophysiology [19]. In the present study, 80 patients had symptoms of gastro esophageal reflux disease out of which were categorized based on LA classifications into Grade A 62 (77.5%), Grade B 13 (16.3%), Grade C 3 (3.8%) and Grade D 2 (2.5%). LA grade (either A or B) had most of the contribution in Eosinophilic esophagitis (EE) with symptoms varying from mild to moderate. These findings matched another study²⁰ which found the gastro esophageal frequent symptoms in EE from severe to mild with grade A or B compared to the grade C or D severe EE²¹. Another study was conducted on 159 morbidly obese patients on vertical gastroplasty before and after the endoscopy. About

31% of patients had visible EE on endoscopy²². Another study found 53 and 35 patients with gastritis and reflux respectively while carrying their study on a total of 104 gastro esophageal patients. The prevalence of GERD-free gastritis and reflux was reported at 22% and 29% respectively. Gastroscopy should be carried out on both asymptomatic and symptomatic patients.

When the oesophageal mucosa is exposed to gastroduodenal reflux, it dilates the intercellular spaces. It causes increased paracellular permeability, allowing the noxious components of the refluxate to stimulate sensory nerve endings in the oesophageal mucosa²³. The pathogenesis of GERD patient's manifestation is still unclear. Also, endoscopy and gastro esophageal reflux disease had a lack of correlation in terms of symptoms. Endoscopy with post-operative EE had 40% gastro esophageal reflux disease with no symptoms. Therefore, to determine the asymptomatic patients' post-operative GERD prevalence, continuous follow-up must be done on endoscopy.

Despite the GERD and morbid obesity significant association, various studies reveal the GERD bariatric procedure is best suited for morbidity obesity. It is suggested to assess the pre-operative in patient's endoscopy and reflux score play a key role in symptomatic patients percentage compared to normal endoscopy. Another study proposed independent pH monitoring to perform reflux tests in bariatric surgery for obese candidates based on endoscopic evidence of GERD²⁴. The present study has several advantages such as pre-operative endoscopy and the early procedure carried out in a single center. It also reported an association between gastro esophageal reflux disease and morbid obesity. However, BMI and esophagitis had no significant association with endoscopy. The inconsistency in the study of BMI and GERD association still needs to be assessed as existing studies failed to do so. The higher BMI value is considered as evidence of GERD and BMI correlation. Another study also reported a significant association between GERD and BMI incidents²⁵.

CONCLUSION

Our study found a significant correlation between gastro esophageal reflux disease and endoscopy esophagitis findings. Pre-operative endoscopy should be carried for abnormal endoscopy in both symptomatic and asymptomatic patients.

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