

## ENDOSCOPIC EVALUATION OF MANOMETRIC PROFILE OF GASTRO ESOPHAGEAL REFLUX DISEASE

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**Article Info:** Received 15 April 2019; Accepted 21 June. 2019

**DOI:** <https://doi.org/10.32553/ijmbs.v3i7.436>

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**Conflict of interest:** Nil

### Abstract

**Background:** Gastro esophageal reflux disease leads to poor quality of life to patients because of pain and discomfort. Some studies also reported that incidence of adenocarcinoma of esophagus and Barrett's esophagus among patients with reflux disease. The abnormal esophageal motility act as a major risk factors and also reported with severity and prognosis of the disease.

**Material & Methods:** In present study 50 patients of heart burn or acid regurgitation (GERD) for at least more than 3 months were enrolled from outdoor and from ward by simple random sampling. Clearance from Institutional Ethics Committee was taken before start of study. Written informed consent was taken from each study participant.

**Results:** 15 (30%) had non-erosive reflux disease and 35 (70%) had erosive reflux disease. Among the patients of non-erosive reflux disease, 13 (26%) had normal lower esophageal sphincter pressure and 2 (4%) had Low Lower esophageal sphincter pressure. Among the patients of erosive reflux disease, 32 (64%) had normal lower esophageal sphincter pressure and 3 (6%) had Low Lower esophageal sphincter pressure (P value >0.05). Among the patients of non-erosive reflux disease, 10 (20%) had normal esophageal motility and 5 (10%) had Ineffective esophageal motility. Among the patients of erosive reflux disease, 25 (50%) had normal esophageal motility and 10 (20%) had Ineffective esophageal motility (P value >0.05).

**Conclusion:** Low Lower esophageal sphincter and Ineffective or abnormal esophageal motility pressure was non-significantly associated with non-erosive and erosive reflux disease. Ineffective esophageal motility and Low LES pressure was the main cause for gastro esophageal reflux disease

**Keywords:** GERD, High Resolution Manometry, Ineffective peristalsis.

### INTRODUCTION

The burden of gastro esophageal reflux disease (GERD) has reported high prevalence all over worldwide and studies also show the geographical variation in occurrence of the disease. Previous studies reported that gastro esophageal reflux disease had high prevalence among studies conducted at united states of America and united kingdom i.e. 28% and 26% respectively, some studies also stated that high prevalence of GERD in Asian countries (1). Gastro esophageal reflux disease leads to poor quality of life to patients because of pain and discomfort. Some studies also reported that incidence of adenocarcinoma of esophagus and Barrett's esophagus among patients with gastro esophageal reflux disease (2).

The underlying etio-pathogenesis in various studies for gastro esophageal reflux disease was abnormal

esophageal motility which act as a major risk among several risk factors and abnormal esophageal motility also reported with severity and prognosis of the disease (3). As a result of this abnormal motility there is delayed clearance of the reflux contents which result in mucosal exposure to the highly acidic gastric contents for a prolonged duration of time that result in esophagitis and several other complications. In previous studies, patients with abnormal esophageal motility the prevalence of gastro esophageal reflux disease was found upto 40-50% (4).

However, in sub classes of gastro esophageal reflux disease patterns of esophageal motility were reported to have varying pattern. The abnormal esophageal motility and lower esophageal sphincter pressure were associated with gastro esophageal reflux disease (5). High-Resolution Manometry of esophagus detects the change in intraluminal pressure and the motor activity from upper to lower

esophageal sphincter (6). We conducted the present study to assess the endoscopic evaluation of manometric profile of gastro esophageal reflux disease.

## MATERIALS & METHODS

The present prospective study was conducted at department of general medicine of NIMS Medical College, Jaipur. The study duration was of six months from January 2016 to July 2016. A sample size of 50 was calculated at 95% confidence interval at 10% acceptable margin of error by epi info software version 7.2. Patients were enrolled from outdoor and from ward by simple random sampling. Clearance from Institutional Ethics Committee was taken before start of study. Written informed consent was taken from each study participant.

The data were collected by detailed history, general physical and clinical examination from each patient after taking the written consnet. Patients who had heart burn symptoms for at least more than 3 months were included in the study. Patients who had gastric or esophageal surgery or esophageal and fundic varices, ingestion of corrosive agents, achalasia, esophageal cancer, acute cardiovascular or respiratory diseases were excluded from the present study. Some of the study participants who were taking proton pump inhibitors, we to instructed them

to stop the medicine for three weeks. Similarly, some of the study participants who were taking calcium-channel blockers and nitrates, we to instructed them to stop the medicine before 48hours of the manometry. Manometry was performed in all the study participants and basal LES pressure was measured. ion. Data was recorded based upon HRM using Chicago classification (7). Data analysis was carried out using SPSS v22. All tests were done at alpha (level significance) of 5%; means a significant association present if p value was less than 0.05.

## RESULTS

In the present study we enrolled 50 patients who were aged from 18 to 54 years. The mean age of the enrolled patients was  $31.46 \pm 6.73$  years. There was no patient in the present study who aged less than 18 years of age. Out of total patients diagnosed with GERD 58% were male and 42% were females. All of these patients with GERD were subjected for endoscopy and esophageal manometry. In the present study two patients diagnosed with hiatus hernia. Out of total patients diagnosed with GERD, on the basis of clinical presentation 64% patient had heart burn, 61% patient had acid regurgitation, 16% patient had chest pain, 10% patient had nausea and 9% patient had vomiting.

**Table 1: Association between manometric profile and endoscopic findings.**

Manometric profile	Endoscopic findings		P value
	Non-erosive reflux disease	Erosive reflux disease	
Normal lower esophageal sphincter pressure (%)	13 (26%)	32 (64%)	>0.05
Low Lower esophageal sphincter pressure (%)	2 (4%)	3 (6%)	
Normal esophageal motility (%)	10 (20%)	25 (50%)	>0.05
Ineffective esophageal motility (%)	5 (10%)	10 (20%)	

In the present study, out of the total 50 patients presented with gastro esophageal reflux disease, 15 (30%) had non-erosive reflux disease and 35 (70%) had erosive reflux disease. Among the patients of non-erosive reflux disease, 13 (26%) had normal lower esophageal sphincter pressure and 2 (4%) had Low Lower esophageal sphincter pressure. Among the patients of erosive reflux disease, 32 (64%) had normal lower esophageal sphincter pressure and 3 (6%) had Low Lower esophageal sphincter pressure.

However, this difference was statistically non-significant (P value >0.05). Among the patients of non-erosive reflux disease, 10 (20%) had normal esophageal motility and 5 (10%) had Ineffective esophageal motility. Among the patients of erosive reflux disease, 25 (50%) had normal esophageal motility and 10 (20%) had Ineffective esophageal motility. However, this difference was statistically non-significant (P value >0.05). (Table 1)

## DISCUSSION

In the present study we enrolled 50 patients who were aged from 18 to 54 years. The mean age of the enrolled patients was  $31.46 \pm 6.73$  years. There was no patient in the present study who aged less than 18 years of age. Out of total patients diagnosed with GERD 58% were male and 42% were females. All of these patients with GERD were subjected for endoscopy and esophageal manometry. In the present study two patients diagnosed with hiatus hernia. Out of total patients diagnosed with GERD, on the basis of clinical presentation 64% patient had heart burn, 61% patient had acid regurgitation, 16% patient had chest pain, 10% patient had nausea and 9% patient had vomiting. Similar results were obtained in a study conducted by Paterson WG et al among patients of esophageal motility disorders and reported that low basal LES pressure with abnormal low amplitude esophageal motility waves at distal esophagus (8). Similar results were obtained in a study conducted by Kruse-Anderson et al among patients of esophageal motility disorders and reported that that low basal LES pressure with abnormal low amplitude esophageal motility waves (9).

Similar results were obtained in a study conducted by Savarino et al among patients of esophageal motility disorders and reported that that low basal LES pressure with functional heart burn and hiatus hernia (10). Similar results were obtained in a study conducted by De Giorgi F et al among patients of esophageal motility disorders and reported that that low basal LES pressure with absent peristalsis among scleroderma patients (11). Similar results were obtained in a study conducted by Gutschow et al among patients of esophageal motility disorders and reported that that low basal LES pressure with statically significant association with older age in compared to younger patients (12). Similar results were obtained in a study conducted by Frazzoni et al among patients of esophageal motility disorders and reported that low basal LES pressure with statically significant association with gastro esophageal reflux disease (13).

In the present study, out of the total 50 patients presented with gastro esophageal reflux disease, 15 (30%) had non-erosive reflux disease and 35 (70%) had erosive reflux disease. Among the patients of non-erosive reflux disease, 13 (26%) had normal lower esophageal sphincter pressure and 2 (4%) had

Low Lower esophageal sphincter pressure. Among the patients of erosive reflux disease, 32 (64%) had normal lower esophageal sphincter pressure and 3 (6%) had Low Lower esophageal sphincter pressure. However, this difference was statistically non-significant (P value  $>0.05$ ). Among the patients of non-erosive reflux disease, 10 (20%) had normal esophageal motility and 5 (10%) had Ineffective esophageal motility. Among the patients of erosive reflux disease, 25 (50%) had normal esophageal motility and 10 (20%) had Ineffective esophageal motility. However, this difference was statistically non-significant (P value  $>0.05$ ). Similar results were obtained in a study conducted by Somani et al among patients of esophageal motility disorders and reported that abnormal low amplitude esophageal motility waves (14). Similar results were obtained in a study conducted by Daum et al among patients of esophageal motility disorders and reported that higher peristaltic dysfunction among patients had erosive reflux disease by using HRM method of manometry procedure (15). However, Similar study conducted by Lemme et al among patients of esophageal motility disorders and reported that non significant association between peristaltic dysfunction among non-erosive and erosive reflux disease (16). However, Similar study conducted by Simren et al among patients of esophageal motility disorders and reported that significant association between peristaltic dysfunction among non-erosive and erosive reflux disease (17).

## CONCLUSION

We concluded Based on the results of present study that, Low Lower esophageal sphincter pressure was non-significantly associated with non-erosive and erosive reflux disease. Ineffective or abnormal esophageal motility was also non-significantly associated with non-erosive and erosive reflux disease. Ineffective esophageal motility and Low Lower esophageal sphincter pressure were the main cause for gastro esophageal reflux disease.

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