Endoscopic Observation around the Gastro Esophageal Junction in Patients with Symptomatic Reflux Disease

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ABSTRACT

Aims and Objectives
The study was done to determine the endoscopic findings around the gastro esophageal junction in patient with symptomatic reflux disease.
Material and Method
This was a Cross sectional study, conducted in Gastroenterology Ward (M-III), Services Hospital Lahore from 15-03-2016 to 14-09-2017. Two hundred and fifty patients were enrolled in the study. Demographic data was collected from each patient. Patients were evaluated for the presence of various abnormalities on endoscopy (i.e., RE, HH and CLE). All data was collected through a predefined proforma. Data was analyzed through SPSS version 21.
Results:
Mean age of patients was 34.40±3.78. Most of the patients (54%) were between the ages of 31-50 years. Majority of the patient were male. Endoscopic findings in the patients of gastroesophageal reflux disease (GERD) include reflux esophagitis (RE), hiatus hernia (HH) and columnar lined esophagitis (CLE) with prevalence of 11.9%, 16.2% and 10% respectively. A total of 62% patients have normal endoscopy. There was no significant relationship between age, sex, duration of GERD, presence of DM and HTN with endoscopic findings.
Conclusion
Majority of the patients with clinical GERD have normal endoscopic findings and other findings include RE, HH and CLE with prevalence of 11.9%, 16.2% and 10%.
Keywords: GERD, Endoscopy Hiatus Hernia

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Introduction

Gastroesophageal reflux disease (GERD) is the common disease in Western countries with 10-20% of population suffering weekly symptoms of GERD.[1] In Asia, the incidence of GERD during 2005-2010 was 5.2-8.5% in Eastern Asia and 6.3-18.3% in Iran.[2] Hospital-based incidence of GERD from Pakistan have been reported as 24.0%. The typical symptoms of GERD are heartburn and acid regurgitation, and extra esophageal symptoms like atypical chest pain, sleep disturbances, cough, hoarseness, asthma, and dental erosions form part of GERD symptoms.[3] GERD is a clinical diagnosis while gastroscopy is performed to evaluate the degree of esophagitis and its complications.[4]

Identification of nonerosive reflux disease (NERD) as an independent presentation of GERD is one the most important development in the last decade.[5] NERD is defined as the presence of classic GERD symptoms without esophageal mucosal injury during upper GI endoscopy.

GERD is the result of the failure of the normal antireflux barrier to protect against frequent and abnormal amounts of refluxed gastric contents. Most symptomatic patients have no visible mucosal damage at the time of endoscopy (NERD), whereas others may have esophagitis, peptic strictures, or Barrett's esophagus.

In 2009, there were 8.9 million outpatient clinic visits of patients with GERD, the leading diagnosis for all GI disorders in USA.[6] A study conducted in Sri Lanka on endoscopic findings around Gastroesophageal junction found the frequency of Hiatus hernia (HH), Columnar Lined Esophagus (CLE) and Reflux Esophagitis (RE) as 14.3% (n=165), 9.5% (n=109) and 13.3% (n=153), respectively.[7] In the Columnar Lined Esophagus group, 48 patients had Barrett's esophagus. Of all these patients, 94.8% had mild esophagitis (Los Angeles classification A and B) and all were younger male having Hiatus Hernia, and grade 3 or 4 Gastroesophageal flap valve (GEFV).

As far as already published literature is concerned, this is the only international study available. Locally no study is available. This study was therefore done to generate the baseline data for endoscopic abnormalities in and around gastroesophageal junction in patients with Reflux Diseases to help gastroenterologist in future for better treatment. The rational of the study is to assess the endoscopic findings at the gastro esophageal junction in symptomatic GERD patients.

Objectives

To assess the frequency of endoscopic abnormalities at the level of gastroesophageal junction in symptomatic GERD patients.

Material and Methods

This was a Cross sectional study, conducted in Gastroenterology Ward (M-III), Services Hospital Lahore from 15-03-2016 to 14-09-2017. Sampling technique was non-probability, consecutive and sample size of 210 patients was estimated using 4% margin of error, 95% confidence interval and taking expected prevalence of Columnar Lined Esophagus as 9.5%.[8] Patients of both gender with age range 18- 50 years with clinical diagnosis of GERD for at least three months were included. Patients with hematemesis, melena dysphasia and typical symptoms of peptic ulcer disease were excluded.

Inclusion criteria:

- Patients between 18-50 years
- Both gender
- Patients diagnosed with GERD for at least 3 months.
- Patients who give written informed consent to be part of the study.

Exclusion criteria:

- Patients with peptic ulcer, nonspecific dyspepsia.
- Patients who were taking anti-platelet agents, non-steroidal anti-inflammatory drugs (NSAIDs) or bisphosphonates.
- Patients who had dysphagia, hematemesis, and melena.
- Patients who had history of ERCP procedure.

Data Collection Procedure:

Two hundred and ten patients who presented for endoscopy and had GERD in Medical Unit III, Services Institute of Medical Sciences, Lahore and who fulfilled above criteria were counseled and explained the details of study. Written informed consent and detailed history was taken from each patient. Demographic data was collected from each patient. Patients were evaluated for the presence of various abnormalities on endoscopy (i.e., RE, HH, and CLE) as mentioned in the operational definition by a single consultant level gastroenterologist. All data was collected through a predefined proforma.

Data Analysis Procedure:

All the collected data was analyzed with SPSS version 21. Numerical variables i.e., age was presented by mean ±SD. Categorical variables i.e., gender and endoscopic abnormalities (i.e.,

RE, HH, CLE) in and around gastroesophageal junction (as per operational definition) were presented as frequency and percentage. Data was stratified for age, gender, duration of GERD, diabetes, BMI, and hypertension. Post stratification chi-square test was applied keeping a p-value ≤ 0.05 as significant.

Results

Two hundred and ten patients were included in the study. The mean age of patients was 34.40 years with standard deviation of 3.78. Most of the patients (54%) were between the ages of 31-50 years while remaining 46% were between the ages of 18-30 (table 1). Majority of the patient i.e., 62% were male while 38% females (table 2). Regarding endoscopic findings, 61.9% had normal endoscopy (NERD). About 16% patients had hiatal hernia while 11.9% had reflux esophagitis. Ten percent patients had columnar lined epithelial lining (table 2).

When we stratified our data according to the age of patients, it was observed that endoscopic findings were normal in 57 patients, CLE in 13 patients, hiatal hernia in 15 patients and reflux esophagitis in 11 patients between ages of 18-30 (table 2). On the other hand, for the patients between ages of 31-50, endoscopic findings were normal in 73 patients, hiatal hernia in 14 patients, reflux esophagitis in 19 patients and columnar lined was present epithelium in 8 patients. The p value was not significant i.e., 0.466 (table 3).

When we stratified our data according to the gender, it was seen that 87 male patients had normal endoscopy in comparison with 43 females who had normal endoscopic findings. Eleven male patients had columnar lined epithelium whereas 10 female patients had it. In this study, 18 male patients were having reflux esophagitis while 16 female patients had it. Regarding hiatal hernia, 14 male and 11 female had hiatal hernia on endoscopy. ($p = 0.981$) (table 3).

When we stratified our data according to the duration of GERD, 55 patients who had GERD for $\geq$ 6 month had normal endoscopy while 75 patients with GERD < 6 months had normal endoscopy. According to the results of our study, 13 and 16 patients with GERD for $\geq$ 6 months had CLE and HH, respectively. The p value was 0.115 i.e., non-significant.

When we stratified the data according to the presence of diabetes mellitus, it was observed that diabetes mellitus was not significantly associated with GERD i.e., p value was 0.968. Similarly, hypertension was also not significantly associated with endoscopic findings of GERD i.e., p value=0.687 (table 3).

When we stratified our data according to the diabetes mellitus the P value was 0.968 and results shown in (table 3).

When we stratified our data according to BMI of patients, it was seen that BMI was strongly associated with endoscopic findings i.e., p value was 0.046 (table 3).

When we stratified our data according to Hypertension the P value was 0.687 (table 3).

Table 1: Age and Gender Distribution (n=210)

Age (in years)	**No. of patients**	**%**
18-30	96	46.0%
31-50	114	54.0%
Total	**210**	
Male	130	62.0%
Female	80	38.0%

Mean±SD: 34.40±3.78 years

Table 2: Frequency of Endoscopic Abnormalities (n=210)

Endoscopic Abnormalities	**No. of patients**	**%**
RE	25	11.9%
HH	34	16.2%
CLE	21	10.0%
Absent	130	61.9%
Total	**210**	**100.0%**

Table 3: Stratification by Age, Gender, Duration of GERD, Diabetes, BMI and Hypertension (n=210)

Age years	**Endoscopic Abnormalities**				**P value**
	HH	RE	CLE	No	
18-30	11	15	13	57	0.466
31-50	14	19	8	73	
Total	**25**	**34**	**21**	**130**	
Gender					
Male	14	18	11	87	0.981
Female	11	16	10	43	
Total	**25**	**34**	**21**	**130**	
Duration of GERD					
≥ 6 Months	16	17	13	55	0.115
< 6 Months	9	17	8	75	
Total	**25**	**34**	**21**	**130**	
Diabetes					
Yes	12	18	10	67	0.968
No	13	16	11	63	
Total	**25**	**34**	**21**	**130**	
BMI					
≥ 25 Kg/m^2	15	21	13	78	0.046
< 25 Kg/m^2	10	13	8	52	
Total	**25**	**34**	**21**	**130**	
Hypertension					0.687
Yes	13	20	12	63	
No	12	14	9	67	
Total	**25**	**34**	**21**	**130**	

Discussion

The present study "endoscopic observation around the gastro oesophageal junction in patient with symptomatic reflux disease" was conducted at Medical Unit-III, Services Hospital Lahore. Purpose of this study was to establish a baseline data for endoscopic abnormalities at the gastroesophageal junction in patients with Reflux Diseases in Pakistan and to help gastroenterologist to treat this most commonly occurring endoscopic finding in patients of GERD.

A total of two hundred and ten patients participated in our study. According to the results of our study, 61.9% had normal endoscopy. These results were comparable with the results of other studies. According to a study conducted in Srilanka, 62.9% patients with GERD had normal ebdoscopy.[7] In another study conducted in Sweden, 77% patients had normal endoscopy.[9] Reason for this high frequency of normal endoscopic findings was since this study was conducted on normal subjects and our study was conducted on patients with GERD.

According to our result, 16.2% patients had hiatal hernia. These results were comparable with the results of other studies. According to the study conducted in Sri Lanka, 14.3% patients had hiatal hernia.[7] In another study conducted at Korea, hiatal hernia was present in 9.8% of patients with GERD.[10] The reason for this low prevalence is the low BMI index in Korean population (average BMI index was 23.2). In another study conducted at Sweden, Hiatal hernia was present in 21% of patients with GERD.[9] Furthermore, according to the results of one study conducted at Japan, hiatal hernia was found in 17.5% of patients with GERD.[11] In one study conducted in Norway showed that frequency of hiatal hernia in GERD patients was 16.6% and in a study conducted at USA, frequency of GERD was 22%.[12-13] Reason for this slight high incidence in Sweden, USA and Norway was because of the fact that overall frequency of GERD has shown an increasing trend in Western World, and this is associated with high BMI in these population.

In some studies, incidence of Hiatal hernia was low in GERD patients e.g., hiatus hernia was found in 2.2% and 7% in Taiwan.[14-15] In a study conducted in Singapore, it was found that 2.9% of GERD patients had Hiatal hernia.[16] Yet in another study conducted at Korea 4.1% of 1010 patients with GERD had hiatal hernia.[17] Reason for this low prevalence is its uncommon occurrence in the Far East, and the prevalence of hiatus hernia also follow this trend.

According to the results of our study, 11.9% patients had reflux esophagitis. These results were comparable with the results of other studies. In one study conducted at Korea, it was seen that reflux esophagitis was present in 9.9% of GERD patients.[10] Similar results were also obtained in other studies conducted in Korea.[18-19] Some other studies conducted in Asia, it was found

that incidence of reflux esophagitis is rising with overall prevalence of 3-16%.[20-23] Similar results were also obtained in a study conducted at Egypt. According to this study, RE was present in 24% of GERD patients.[24]

In our study, columnar lined epithelium was present in 21% of patients. These results were comparable with the results of our study. In one study conducted in Korea, CLE was found to be 23.3% of patients.[25] Yet in other studies, CLE was found in 10-15% of patients with GERD.[26] In a study conducted in Sri Lanka, CLE was found in 9.5% of patients.[7]

Conclusion

Non erosive reflux disease (NERD) is the most common endoscopic finding in symptomatic GERD patients. Its prevalence is 62%. These patients should be treated as GERD. The prevalence of RE, HH, and CLE is patients of GERD is 11.9%, 16.2% and 10% respectively. These patients should also be treated and follow up endoscopies should be done for screening of Barrett's esophagus, especially in those with CLE.

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