

Clinical and Endoscopic Correlation in Gastroesophageal Reflux Disease

Nitin Wadaskar***, T. P. Manohar**, H. R. Ralkar*, D. V. Doifode

ABSTRACT

Objective: To determine the correlation between the clinical, endoscopic and histological findings in patients of gastroesophageal reflux disease (GERD).

Design: Prospective study.

Place and Duration of Study: N.K.P Salve Medical College and Research Center, Nagpur from November 2007 to October 2009.

Patients and Methods: Patients complaining of heartburn and/or acid regurgitation at least twice per week for at least 2 months were inducted in the study. Presence of clinical symptoms of epigastric pain, retrosternal burning, and reflux were recorded. Patients were subjected to esophagogastroduodenoscopy and three biopsies were taken from esophago-gastric

junction. Correlation/regression analysis was done on clinical, endoscopic and histological findings.

Results: A total of 80 patients were selected and endoscopically examined. Most common symptoms given by patients to heartburn was 65(81%), regurgitation in 56 (70%) patients, waterbrash in 53(66%) and other symptoms in 45(56%). Grade A esophagitis in 15(18%) patients, Grade B esophagitis in 11(13%) patients, and Grade C and D esophagitis in one patient, as per Los Angeles classification. There was no significant correlation between the clinical symptomatology with endoscopic findings ($p > 0.05$) and reflux ($p > 0.05$) and no correlation was observed with histological findings ($p > 0.09$). Out of 80, 37 (46%) patients who had normal mucosa on endoscopy but on histology had dysplasia (16) and inflammation (4). Grading of endoscopic and histological findings showed no significant correlation with each other ($p > 0.05$).

Conclusion: Endoscopic negative GERD is common; severity of clinical symptoms not correlated with endoscopic findings and not correlated with histological findings.

KEYWORDS: *Gastroesophageal reflux disease. Esophagitis. Endoscopic negative GERD. Endoscopy*

INTRODUCTION

Gastroesophageal reflux disease is the most common gastrointestinal diagnosis recorded during visits to outpatient clinics. A current definition of the disorder is "a condition which develops when the reflux of stomach contents causes troublesome symptoms (i.e., at least two heartburn episodes per week) and/or complications." Several extraesophageal manifestations of the disease are well recognized, including laryngitis and cough. With respect to the esophagus, the spectrum of injury includes

esophagitis, stricture, the development of columnar metaplasia in place of the normal squamous epithelium (Barrett's esophagus), and adenocarcinoma.

Esophagitis occurs when excessive reflux of acid and pepsin results in necrosis of surface layers of esophageal mucosa, causing erosions and ulcers. Several factors may predispose patients to pathologic reflux, including hiatus hernia, lower esophageal sphincter hypotension, loss of esophageal peristaltic function, abdominal obesity, increased compliance of the hiatal canal gastric hypersecretory states, delayed gastric emptying, and overeating¹.

Many patients of clinical diagnosis of GERD or having epigastric pain do not show any abnormality

Address for correspondence

Department of Medicine,
N.K.P. Salve Medical college, Nagpur.
*Professor, **Associate Professor, ***Lecturer

on endoscopic examination. These are labeled as endoscopic negative GERD. In such patients the histopathology could provide the diagnosis as it has been shown that esophageal biopsy is reasonably sensitive in diagnosing the reflux disease in the absence of endoscopic findings^{2,3}.

The objectives of this study were to document the frequency of endoscopic and histological findings in patients with clinical diagnosis of gastroesophageal reflux disease and to determine the correlation between the clinical, endoscopic and histological findings.

MATERIAL AND METHODS

It was a prospective study conducted at, N.K.P.Salve medical college and research center, Nagpur from November 2007 to October 2009. All patients with clinical diagnosis of GERD undergoing endoscopic examination in the said duration were included using convenience sampling technique. Patients complaining of heartburn and/or acid regurgitation and extraesophageal symptoms at least twice per week for at least 2 months were inducted⁴. Patient with suspected or confirmed coronary heart disease or with previous upper gastrointestinal surgery such as cholecystectomy, gastric resection, or previous selective vagotomy was excluded from study. Informed consent was taken from all the selected patients.

Presence of clinical symptoms of epigastric pain, retrosternal burning, and reflux were recorded.

Patients were subjected to esophagogastroduodenoscopy (EGD) observing standard procedure. Presence of esophagitis was recorded and grading was done according to the Los

Angeles Classification System for endoscopic assessment of esophagitis^{5,6}. Three biopsies were taken from the esophagogastric junction (EGJ); biopsies were transferred to histopathologist within 24 hours in 10% buffered formalin. EGD findings were not known to the histopathologist and was asked to comment on the presence of inflammation or otherwise, apart from the routine histological reporting. pH monitoring was not done. Difference in means of continuous variables was assessed by Student's 't' test and Chi-square test was also used where applicable. Significance Level was at <0.05.

RESULTS

During the study period, a total of 80 patients of GERD underwent endoscopic examination. Mean age of the

patients was 41.08 ± 13.5 years. Gender distribution was males 52(65%) and females 28 (35%). Mean age \pm SD of males was 39.09 ± 14 years and that of females 44.78 ± 11.86 years. Clinically most common symptom was heartburn followed by regurgitation, waterbrash and others.

Details are given in **Table I**.

Symptoms	No. of patients (%)
Heartburn	65 (81%)
Regurgitation	56 (70%)
Waterbrash	53 (66%)
Others	45(56%)

Cases had overlap in their symptoms during presentation.

The endoscopic examination revealed that 37(46%) patients had normal mucosa while 28(35%) patients had various grades of inflammation; details are given in Table II. Grade-A esophagitis was found in 15(19.25%) patients followed by grade-B was in 11(13%), one patient of grade-C and grade-D esophagitis was found.

Table II

Esophagitis findings	No. of patients (%)
GRADE A15	(19.25%)
GRADE B11	(13%)
GRADE C1	(1.25%)
GRADE D1	(1.25%)

Of 80 patients, nine (11.25%) had gastritis and esophageal ulcer 3(4%), whilst 4(5%) had hiatus hernia. Endoscopy was normal in 37(46%) patients. 4(5%) patient had hiatus hernia with esophagitis. Out of 80 patient, 35(43.75%) had dysplasia, inflammation was present in 15(18.75%) patients and Barrett's esophagus in 3(4%) patients. Twelve (15 %) patients had normal squamous epithelium. No report was possible in 15(18%) patients, due to insufficient material.

Out of 37(46%) patients of endoscopic negative

GERD; the histological examination revealed presence of dysplasia in 16(43.24%) patients and inflammation in 4(10.85) patients while 8 (21.6%) had normal histology.

No significant correlation was observed with gender and endoscopic findings (Table III). Endoscopic findings were found no correlation with presence of histologic inflammation and symptoms. It did not have correlation with gender and symptom of retrosternal burning.

Table .III

In this study, there was no association between histopathological findings (dysplasia, inflammation, normal epithelium and no opinion) and endoscopic findings. ($p > 0.05$)

Table .IV

DISCUSSION

GERD continues to intrigue both clinicians and researchers alike because of its varied presentation, changing epidemiology, lack of gold standard for diagnosis and evolving

treatment. It affects the major adult population of Western World and recent studies suggest that the prevalence in the Asia is increasing. It may be due to more frequent recognition

by the clinicians after improved diagnosis or lifestyle change in dietary fat and increases intake of carbonated drinks. The prevalence of GERD from Asian Pacific region in early 90's

was reported at 2-6 % which is very low as compared to the western countries^{7,8}. In resurvey of same population after few years a four-fold increase in the prevalence

was documented⁹. This is also the case in our population although no serial assessment of prevalence has been done. In this study, we aimed at correlating clinical diagnosis with endoscopic and histological findings. Upto 80% of patients with typical symptoms of gastroesophageal reflux disease (GERD) neither have definite endoscopic esophageal breaks nor Barrett's esophagus at

upper GI endoscopy. These patients suffer from non-erosive reflux disease (NERD), also termed endoscopic negative reflux disease (ENRD)¹⁰. The frequency of ENRD was 46%. In our study, majority of the individuals with ENRD experienced heartburn (32) followed by waterbrash (28) and regurgitation (24) despite the absence of any endoscopic evidence. Endoscopic negative patients have symptom severities comparable to those with erosive disease and which significantly impair their quality of life. Since ENRD has approached as a milder end of the spectrum and Barrett's esophagus at the other end, suggesting that the patient's disease may progress over time along this spectrum. Another similar study conducted found that frequency of ENRD was 55.6% with female preponderance, belonged to the younger age group as compared to the patients with erosive esophagitis, majority of the individuals with ENRD experienced epigastric pain and retrosternal burning of grade-4 intensity despite the absence of any endoscopic evidence¹¹. Another study suggested that ENRD is a disease of excessive gastroesophageal reflux¹².

CONCLUSION

Most patients in present study suffered from ENRD or mild esophagitis. The macroscopic appearance of esophageal erosion did not correlate with classical histological features of reflux esophagitis. Conversely normal looking esophagus was not proof of histologically normal mucosa.

Table .III

sex	Endoscopic Findings					Total	λ^2 p
	Esophagitis	Hiatus hernia	Gastritis	Ulcer	Normal		
Male	22	1	4	2	23	52	0.10 0.74
Female	6	2	5	1	14	28	
Total	28	3	9	3	37	80	

Table .IV

Histopathological findings	Endoscopic Findings					Total	λ^2
	Esophagitis	Hiatus hernia	Gastritis	Ulcer	Normal		p
Dysplasia	14	1	2	2	16	35	1.40
Inflammation	5	1	4	1	4	15	0.23
BARRETT'S OESOPHAGUS	3						
Normal epithelium	1	1	2	0	8	12	
No opinion	5	0	1	0	9	15	
Total	28	3	9	3	37	80	

REFERENCES

1. Peter J. Kahrilas, M.D. Gastroesophageal reflux disease. *N Engl J Med* 2008; 359:1700-7.
2. Narayani RI, Burton MP, Young GS. Utility of esophageal biopsy in the diagnosis of non-erosive reflux disease. *Dis Esophagus* 2003; 16: 187-92.
3. Abbas Z, Fareed R, Baig M, Khan T, Shah MA. Prevalence of histological reflux esophagitis in H. pylori positive patients: effect of density of H. pylori and activity of inflammation. *J Pak Med Assoc* 2001; 51: 36-41.
4. Klausner AG, Schindlbeck NE, Muller-Lissner SA. Symptoms in gastroesophageal reflux disease. *Lancet* 1990; 335: 205-8.
5. Armstrong D, Bennett JR, Blum AL. The endoscopic assessment of esophagitis: a progress report on observer agreement. *Gastroenterology* 1996; 111: 85-92.
6. Lundell LR, Dent J, Bennett JR, Blum AL, Armstrong D, Galmiche JP, et al. Endoscopic assessment of esophagitis-clinical and functional correlates and further validation of the Los Angeles classification. *Gut* 1999; 45: 172-80.
7. Ho KY, Kang JY, Seow A. Prevalence of gastrointestinal symptoms in a multi-racial Asian population, with particular reference to reflux-type symptoms. *Am J Gastroenterology* 1998; 93: 1816-22.
8. Pan GZ, Xu GM, Ke MY, Han SM, Guo SP, Li ZS, et al. Epidemiological study of symptomatic gastroesophageal reflux disease in China: Beijing and Shanghai. *Chin J Dig Dis* 2000; 1:2-8.
9. Ho KY, Lim LS, Goh WT, Lee JM. The prevalence of gastroesophageal reflux has increased in Asia: a longitudinal study in the community. *J Gastroenterology Hepatol* 2001; 16(suppl):A132.
10. Papa A, Urgesi R, Grillo A, Danese S, Guglielmo S, Roberto I. Pathophysiology, diagnosis and treatment of non-erosive reflux disease (NERD). *Minerva Gastroenterology Dietol* 2004; 50: 215-26.
11. Badar Zuberi, Nabina Faisal et al: correlation between clinical, endoscopic and histological findings at esophago-gastric junction in patients of gastroesophageal reflux disease. 2005, *JCPSP*, VOL.15 (12) 774-777.
12. Kaur et al: Concordance between endoscopic and histological gastroesophageal reflux disease. *Indian journal of gastroenterology* 2007 vol 26 January-February