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**Research Article**

# A Spectrum of GERD among Indian Population

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**Abstract:** Gastro Esophageal Reflux Disease (GERD) is a complex disorder caused by the reflux of gastric contents into the esophagus either with or without complications. The objective of present study is to determine the correlation between clinical, endoscopic and histological findings in patients of GERD. This prospective study has been done in the Department of Medicine, Sri Aurobindo Medical College and P.G. Institute, Indore (MP). 100 patients of GERD has been taken for study during the year 2012-2013.The patients who fulfilled the clinical criteria of GERD along with inclusion & exclusion criteria has been studied. Endoscopy and histopathology examination were done in all patients. Descriptive statistical analysis and evaluation were done to analyze the result. Chi-square test was applied and 'P' value was determined accordingly In our study all the cases have presenting complaint of epigastric pain, after endoscopy of these patients more than 50% of cases shown esophagitis out of which 28% cases had only esophagitis and 24% cases had hiatus along with esophagitis, 14% cases had only hiatus hernia, Barrett's esophagus was present endoscopically in 8 cases and 26 cases had normal endoscopy. We conclude that severity of clinical symptoms does correlate with endoscopic findings while histopathological findings correlate with those of endoscopic findings but not with clinical symptoms.
**Keywords:** GERD, Endoscopy, Histopathology

## INTRODUCTION

Gastro Esophageal Reflux Disease (GERD) is a complex disorder caused by the reflux of gastric contents into the esophagus either with or without complications. Gastroesophageal reflux disease with its major symptom as heartburn, is the most common disorder of esophagus,[1] and the major indication of antacid consumption.[2] Esophageal erosions and ulcerations are typical of reflux esophagitis but occur in fewer than 33% of patients with GERD. When endoscopic findings are normal, biopsies may reveal histological changes.[3] It is called as Endoscopic Negative Reflux Disease (ENRD). The prevalence of GERD is estimated to be 10% to 20% in Europe and North America and 5% in Asia.[4] The incidence rate, reported by two longitudinal studies, was 4.5 and 5.4 per 1000 people per year, respectively.[5,6] With an emphasis on morphological diagnosis, endoscopy has become a major tool to assess the final consequences of GERD, which is especially useful for population-based screening.[7] The endoscopic esophageal changes caused by reflux disease are not only helpful diagnostically, but also identify patients exposed to a significant risk of disease chronicity.[8]

This particular study was designed to analyze the spectrum of GERD based on presenting symptoms, addiction habits and endoscopic findings.

## SUBJECTS AND METHODS

This prospective study has been done in the Department of Medicine, Sri Aurobindo Medical College and P.G. Institute, Indore (MP).

100 patients of GERD has been taken for study during the year 2012-2013.

**Controls:** 50 patients (Those subjects who had undergone upper G I Endoscopy due to indication of other than GERD).

**Case Selection**

The patients who fulfilled the clinical criteria of GERD along with inclusion & exclusion criteria has been studied.

Typical symptoms to fulfill the criteria of GERD are:

- Epigastric pain, heart burn, regurgitation of stomach content (of more than 3-4 wks duration).
- Endoscopy and histopathology examination were done in all patients.

**Inclusion criteria:**

All the patients attended OPD as well as IPD of SAIMS hospital, Indore with symptoms of GERD, age group of more than 18 year**.**

**Exclusion criteria:**

- History of Diabetes Mellitus.

- Known case of Duodenal/peptic ulcer.
- History of taking antacid drugs or PPI for long term ( > 6 wk)
- Pregnant females.
- Chronic NSAIDs/steroid intake.
- Known case of Carcinoma Esophagus.

**Statistical Analysis**

Descriptive statistical analysis and evaluation were done to analyze the result. Chi-square test was applied and 'P' value was determined accordingly. The data was analyzed using SPSS software (version 12; SPSS Inc. Chicago, IL, USA).

**RESULTS**

**Table No- 1: Distribution of cases of GERD according to Age**

| Age Group | | Case | Control | Total |
|---|---|---|---|---|
| **21 - 30** | n | 8 | 11 | 19 |
| | % | 8.00% | 22.00% | 12.67% |
| **31 - 40** | n | 28 | 10 | 38 |
| | % | 28.00% | 20.00% | 25.33% |
| **41 - 50** | n | 32 | 14 | 46 |
| | % | 32.00% | 28.00% | 30.67% |
| **51 - 60** | n | 12 | 9 | 21 |
| | % | 12.00% | 18.00% | 14.00% |
| **> 60** | n | 20 | 6 | 26 |
| | % | 20.00% | 12.00% | 17.33% |
| Chi Square Test ; p = 0.082 ; Not Significant | | | | |

**(total cases =100 & control = 50) ;n=number of patients**

According to age group, maximum patients were of 41-50 year of age that is 32%, and minimum number of patients were in 21-30 year age group that is 8%, and age group of 31-40 year had 28% patients, 51-60 year age group had 12% patients and 20% patients had age of more than 60 year. p value is not significant ; so there is no clear cut relationship between age group and incidence of GERD.

**Table No- 2: Distribution of cases of GERD according to sex**

| Gender | | Case | Control | Total |
|---|---|---|---|---|
| **Female** | n | 32 | 18 | 50 |
| | % | 32.00% | 36.00% | 33.33% |
| **Male** | n | 68 | 32 | 100 |
| | % | 68.00% | 64.00% | 66.67% |
| **Total** | n | 100 | 50 | 150 |
| Chi Square Test ; p = 0.624 ; Not Significant | | | | |

**(total cases =100 & control = 50), n = number of patients**

According to sex distribution, male patients were 68 and female patients were 32; which make a male-female ratio of 2:1.

Maximum numbers of patients (48) had duration of symptoms since 1 to 6 months. 20 patients had duration of symptoms since 6 months to 1 year, and 32 patients had symptoms of more than 1 year.

All the 100 cases had complaint of epigastric pain during their period of symptoms; which shows high significant p value. 76 cases had reflux symptoms and 24 patients had no complaints of reflux; which shows a significant p value of 0.000.

**Table No-3**: **Distribution of cases according to duration of symptoms:**

| Duration | Number of patients | Percentage (%) |
|---|---|---|
| **1 - 6 months** | 48 | 48.0 |
| **6 months to 1 year** | 20 | 20.0 |
| **> 1 year** | 32 | 32.0 |

**(Total cases= 100 )**

Out of 100 cases, 88 had complaints of heart burning and 12 cases had no such complaints. Controls had no complaint of heart burn. Complaint of dysphagia was present only in 4 out of 100 cases. Out of 16 patients who had extra esophageal manifestations; 8 patients had recurrent oral ulcers, 4 patients were anemic and 4 patients had pharyngitis.

According to addiction habits ; 64 cases out of 100 had addiction habits and 36 cases had no addiction. And in control group 27 cases out of 50 had addiction habits and 23 cases had no addiction habits. According to tobacco addiction: 52 cases have found tobacco chewer and 48 cases had no tobacco addiction; which had a significant p value of <0.001.

Among cases, 56 were found smoker and 44 cases were non smoker. Smoker group had significant p value of 0.003. According to alcohol addiction table, 44 patients were found alcoholic and 56 patients were non alcoholic, which had significant p value of 0.004.

**Table No-4**: **Distribution of cases according endoscopic findings in Male and female patients**

| Endoscopic Findings | | Gender | | Total |
|---|---|---|---|---|
| | | Female | Male | |
| **Esophagitis** | n | 11 | 17 | 28 |
| | % | 34.38% | 25.00% | 28.00% |
| **Hiatus Hernia** | n | 3 | 11 | 14 |
| | % | 9.38% | 16.18% | 14.00% |
| **Barrett's Esophagus** | n | 3 | 5 | 8 |
| | % | 9.38% | 7.35% | 8.00% |
| **Hiatus with reflux esophagitis** | n | 5 | 19 | 24 |
| | % | 15.63% | 27.94% | 24.00% |
| **Normal UGI Endoscopy** | n | 10 | 16 | 26 |
| | % | 31.25% | 23.53% | 26.00% |
| Chi Square Test ; p = 0.495 ; Not Significant | | | | |

**(Total cases = 100), n = Numbers of patients**

Out of 28 patients of esophagitis, 17 patients were male and 11 patients were Female. Out of 14 patients of hiatus hernia 11 patients were male and 3 were female. Out of 24 patients of hiatus hernia with reflux esophagitis 19 were male and 5 were female patients. Out of 8 barrett's esophagus patients 5 were male and 3 were female and 16 male patients and 10 female patients had normal endoscopy.

**Table No-5: Distribution of cases according to histopathological findings**

| Histopathology | n | Percentage% |
|---|---|---|
| Basal Cell Hyperplasia | 8 | 8.0 |
| Inflammation | 24 | 24.0 |
| Dysplasia | 16 | 16.0 |
| Barrett's Pathology | 8 | 8.0 |
| Normal | 44 | 44.0 |

**(Total cases= 100, control = 50); n= number of patients**

According to histopathological findings:
44 patients had normal histopathology,
24 patients had inflammatory changes,
16 patients had dysplastic changes,
8 patients had metaplasia (Barrett's esophagus),
And 8 patients had basal cell hyperplasia.

## DISCUSSION

In our study all the cases have presenting complaint of epigastric pain, after endoscopy of these patients more than 50% of cases shown esophagitis out of which 28% cases had only esophagitis and 24% cases had hiatus along with esophagitis, 14% cases had only hiatus hernia, Barrett's esophagus was present endoscopically in 8 cases and 26 cases had normal endoscopy that means 26 cases had endoscopic negative GERD and after biopsy taken from endoscopy, histopathological reports shows normal pathology in 44% cases,24% cases had inflammation on histology, 16% shows dysplasia,and 8% shows basal cell hyperplasia and barrett's change. So our study shows strong association of epigastric pain with endoscopic findings of reflux esophagitis but not as associated histopathologically.

Out of 88 cases who presented as restrosternal burning, around 56% cases had positive endoscopy for esophagitis out of which 22 cases (25%) had reflux esophagitis along with hiatus hernia, 12.5% cases had hiatus hernia and 9% cases had barrett's esophagus on endoscopy and again 24% cases had endoscopic negative GERD, histologically 48% patients had normal histopathologic report, 25% cases had inflammation on biopsy and around 5% cases had hyperplasia and barrets change

Out of 76 cases who presented as reflux, around 44% cases had positive endoscopy for esophagitis out of which 16 cases (21%) had reflux esophagitis along with hiatus hernia, 15.7% cases had hiatus hernia and 7.8% cases had barrets esophagus on endoscopy and again 31.5% cases had endoscopic negative GERD, histologically 52.6% patients had normal histopathologic report, 25% cases had inflammation on biopsy and around 5.6% cases had hyperplasia and and 2.5% barrett's change.

Our results are comparable to the literature published in 2004 in Pakistan[9], in this study a total of 196 patients were studied they found that there was significant correlation between the clinical severity of epigastric pain with endoscopic findings (p = 0.002) and reflux (p = 0.0) but no correlation was observed with histological findings (p = 0.19). Out of 109 (55.6%) patients who had normal mucosa on endoscopy but on histology 70 (35.7%) of them had inflammation. Grading of endoscopic and histological findings showed significant correlation with each other (p = < 0.000).

Study group concluded that Endoscopic negative GERD is common; severity of clinical symptoms does not correlate with endoscopic findings while histopathological findings correlate with those of endoscopic findings.

In another study (Voutilainen M et al 2000)[10], the study group concluded that the correlation between reflux symptoms and endoscopy-positive GERD is poor and most GERD patients aged <50 years have endoscopy-negative GERD. Incomplete intestinal metaplasia at the gastroesophageal junction is associated with GERD.

**CONCLUSION**

We conclude that severity of clinical symptoms does correlate with endoscopic findings while histopathological findings correlate with those of endoscopic findings but not with clinical symptoms.

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