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Research Article

Endoscopic Evaluation of Patients Presenting with Heartburn

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Abstract: Gastroesophageal reflux disease (GERD) is a common disorder affecting a large section of the community. In addition, the numerous complications of chronic GERD especially Barrett's oesophagus necessitate adequate diagnosis and treatment of this common entity. This study was designed to analyze the spectrum of GERD based on presenting symptoms and endoscopic findings, and analyze the contributory factors. A prospective study was conducted on the patients visiting the medicine OPD at Department of Medicine, G.R. Medical College, Gwalior (M.P.) between July 2013 to November 2014 with symptoms suggestive of GERD. The clinical symptoms, possible risk factors and endoscopic findings were studied and analysed. A total of 100 patients were included in the study. The numbers of male patients (59%) was more than females. Most of the patients were in the age group 21-60 years (81%). The most common symptoms) other than heartburn (100%) were belching (89%), regurgitation (83%), abdominal pain (60%), vomiting (26%) and water brash (24%). History of smoking was present in 27% and alcohol consumption in 17%. BMI was <25 in 90% of the cases whereas on considering the waist to hip ratio (WHR), 31% were classified as obese. 52% of the patients had endoscopy positive lesions. 23% patients have esophagitis and 17% have gastritis 5% patients had hiatus hernia and 2% showed associated lesions like duodenitis/duodenal ulcers, 2% had sessile nodule and 2% had Barrett's oesophagus out of them 1 patients had adenocarcinoma proven by histopathology. There were one patient each with oesophageal growth and oesophageal phlebectasia with candidiasis, diffuse esophageal spasm, upper esophageal obstruction. An unusual cause for heartburn was found which showed live worm in stomach. Symptomatic GERD may not be associated with endoscopic evidence of oesophagitis and reinforced the fact that NERD is a common entity, which forms a considerable proportion of patients seeking medical attention for reflux symptoms. However since the patients with Barret's oesophagus are at a higher risk of developing adenocarcinoma, it is suggested that all patients with reflux symptoms should be subjected to UGI endoscopy and biopsy.
Keywords: Gastro oesophageal reflux disease (GERD), Upper GI endoscopy, Barrett's oesophagus.

INTRODUCTION

Heartburn, also known as pyrosis, cardialgia, or acid indigestion is a burning sensation in the chest, just behind the sternum or in epigastrium, the upper central abdomen. The pain often rises in the chest and may radiate to the neck, throat, or angle of the jaw [1]. Heart burn is an intermittent symptom that is most commonly experienced after eating, during exercise and while becoming recumbent. The discomfort is relieved with drinking water or antacid [2]. Heartburn is usually found to be associated with regurgitation of gastric acid (gastric reflux), the major symptom of GERD [1]. It may also be a symptom of ischemic heart disease but can occur frequently and interfere with normal activities including sleep.

The association between heartburn and GERD is so strong that empirical therapy for GERD has accepted for management. However term heartburn is often misused and referred to with other term like indigestion or repeating and it important to clarify the intended meaning [2]. Extraesophageal symptoms with an established association to GERD include chronic cough, laryngitis, asthma, and dental erosion. A multitude of other conditions such as pharyngitis, chronic bronchitis, pulmonary fibrosis, chronic sinusitis, cardiac arrhythmias, sleep apnea, and recurrent aspiration pneumonia have proposed associations with GERD [3]. Endoscopy is an important investigation tool for diagnosing a patient presenting with heartburn and screening hemorrhage, strictures, non-erosive reflux diseases, erosive reflux diseases, and barret's esophagus.

MATERIALS AND METHODS

To conduct endoscopic study on 100 patients of heart burn visiting medical OPD/ admitted in medical ward JAH Hospital, Gwalior from a period of July 2013 to November 2014. All patients attending medical OPD/admitted in medical ward JAH Hospital at

G.R.M.C., Gwalior with spectrum of symptoms of heartburn, acid regurgitation, belching, dyspepsia and water brash and chest pain will be taken for the study. Inclusion criterias were Patients with symptoms of GERD- heartburn, acid regurgitation, Belching, dyspepsia, vomiting, chest pain. Exclusion criteria were Patients who had prior UGI endoscopy and found to have disease like Carcinoma oesophagus, peptic ulcer, Barretts Oesophagus, Inability to complete UGI endoscopy, Failure to give informed consent, Patients with cardiac chest pain on basis of history clinical examination and ECG findings.

RESULTS

A total of 100 patients were included in the study. The numbers of male patients (59%) was more than females (Table 1). Most of the patients were in the age group 21-60 years (81%).

The most common symptoms (Table 2) other than heartburn (100%) (Table 7), were belching (89%), regurgitation (83%), abdominal pain (60%), vomiting (26%) and water brash (24%) (Table 2). History of smoking was present in 27% (Table 9) and alcohol consumption in 17%. BMI was <25 in 90% of the cases whereas on considering the waist to hip ratio (WHR), 31% were classified as obese (Table 4). 52% of the patients had endoscopy positive lesions (Table 5). 23% patients have esophagitis and 17% have gastritis 5% patients had hiatus hernia and 2% showed associated lesions like duodenitis/duodenal ulcers, 2% had sessile nodule and 2% had Barrett's oesophagus out of them 1 patients had adenocarcinoma proven by histopathology. There were one patient each with oesophageal growth and oesophageal phlebectasia with candidiasis, diffuse esophageal spasm, upper esophageal obstruction. An unusual cause for heartburn was found which showed live worm in stomach (Table 6). Among the symptoms acid regurgitation (p=0.034) and abdominal pain (p=0.018) showed significant correlation with endoscopic findings. Smoking (p=0.001) and alcohol consumption (p=0.058) both showed positive association with endoscopic findings.

Table 1: Sex Distribution

Sex	Frequency	Percentage (%)
Female	41	41.0
Male	59	59.0
Total	100	100

Table 2: Symptomatolgy

Symptoms	Frequency	Percentage (%)
Heart burn	100	100
Belching	89	89
Regurgitation	83	83
Abdominal pain	60	60
Vomiting	26	26
Water brash	24	24
Dysphagia	4	4

Table 3: Regurgitation Grade

Regurgitation Grade	Frequency	Percentage (%)
1	44	44
2	33	33
3	5	5
Absent	17	17
Total	100	100

Table 4: Classification of patients based on BMI (Body Mass Index)

BMI	Frequency	Percentage (%)
< 25	90	90
>25	10	10
Total	100	100

Table 5: Classification of patients based on UGI endoscopic findings

Endoscopic Report	Frequency	Percentage (%)
Lesion Absent (LA)	48	48
Lesion Present (LP)	52	52
Total	100	100

Table 6: Associated lesions / findings found on UGI endoscopy

Endoscopic Report	Frequency	Percentage (%)
Oesophagitis	23	23
Gastritis/Gastric Ulcer	17	17
Hiatus hernia	5	5
Duodenitis / Duodenitis Ulcer	2	2
Oesophageal Candidasis with phlebectesia	1	1
Oesophageal Growth	1	1
Difusse Oesophageal spasm	1	1
Barretts Oesophagus	2	2
Live worm in oesophagus	1	1

Table 7: Heart Burn Grade vs Endoscopy

Heart burn _Grade	LA	LP	Total
Mild	28	28	56
Moderate	20	23	43
Severe	0	1	1
Total	48	52	100

Table 8: Regurgitation grade vs Endoscopy

Regurgitation	LA	LP	Total
Mild	24	20	44
Moderate	15	19	33
Severe	00	5	5
Absent	12	5	17
Total	51	49	100

Table 9: Smoking Vs Endoscopy

Smoking	LA	LP	Total
Non Smoker	43	30	73
Smoker	5	22	27
Total	48	52	100

DISCUSSION

Symptomatic gastro-oesophageal reflux is one of the commonest problems encountered by physicians. The prevalence of reflux and its primary symptom, heartburn in general population is extremely difficult to obtain as many patients consider this sensation as normal and do not seek medical attention [4]. The magnitude of the problem is further increased by the observation that GERD can masquerade as typical chest pain of angina or present with pulmonary symptoms particularly in children [5].

In this particular study, we sought to explore the endoscopic findings and relation to symptomatology and correlation with endoscopic findings along with contribution of risk factors to endoscopically proved erosive lesions and also the incidence of Barretts oesophagus in the population group that was selected for the study.

Most of the observations made in this study correlated well with earlier studies.

Several studies in the past have suggested that the relation between symptoms of GERD and endoscopic findings are highly variable. Endoscopic findings in patients with GERD have ranged as widely as from 10% to 70% and, interestingly, these findings have been recorded even in 8% of asymptomatic individuals (108). In our study which involved 100 patients, 52 patients (52%) had oesophageal lesions on endoscopy.

The most common symptoms associated are heartburn, belching and regurgitation. The present study also showed heartburn, belching and regurgitation in 100%, 89% and 83% of the patients respectively. Most patients described heartburn as burning sensation in retrosternal area spreading from epigastrium. In the study of Salunkhe *et al*. [5], heartburn was noted in all patients and regurgitation in 74%. The symptoms of heartburn is believed to be caused by acid stimulation of the sensory nerve ending located in the deeper layers of the oesophageal epithelium. These nerve endings are normally protected by impermeable epithelium but with epithelial changes caused by reflux, they may be stimulated by H+ ions or spicy foods [6]. However, the fact that heartburn can be observed in patients with achlorhydria suggests that it is likely that other mechanisms may be important such as oesophageal dysmotility. However studies by Zuberi Badar Faiyaz *et al*. [7] showed a much lower prevalence of these symptoms, i.e. heartburn in 41.8% and reflux in 36.7%. Both the above studies were done in South Asian population, to which our study group also belongs to. Another important symptom which was seen in majority of the patients was belching (89%) which cannot be taken as a discriminatory symptom of GERD as it can also be seen in dyspepsia of all causes. Abdominal pain, especially in the epigastric region was reported in nearly half of our patients, which is very similar to the study by Zuberi Badar Faiyaz *et al*. [11], where the Prevalence was 42.9%. Water brash was observed in 24% of our patients. Water brash is supposed to be induced by acid reflux wherein oesophageal acid triggers an oesophagosalivary reflux. Although increase of salivation accompanies acid reflux in most patients with reflux oesophagitis, the response is markedly exaggerated in some patients.

GERD accompanied by regurgitation and aspiration may cause respiratory symptom such as nonseasonal asthma, recurrent pneumonia, nocturnal choking and morning hoarseness. In some cases the symptoms occur in the absence of any histological abnormality of the oesophageal mucosa. Studies have shown that an oesophagobronchial reflux may exist thereby acid reflux reflux may stimulate the receptors and damage the Oesophageal mucosa to elicit bronchoconstriction. Another contributory factor could be the use of bronchodilator drugs which also cause relaxation of the lower oesophageal sphincter [8-10]. In the present study respiratory symptoms were observed in 13 cases, 10 of which had chronic obstructive pulmonary disease and 3 of them had bronchial asthma.

In the present study of gastro-oesophageal reflux disease, 2 cases (2%) were diagnosed as Barrett's oesophagus based on histopathological reports. In the presence of Barrett's oesophagus, changes of oesophagitis were usually severe as it was seen in 2 of our cases. Endoscopic examination indicates Barrett's oesophagus by the presence of velvety red mucosa in the distal oesophagus. This epithelium can be either circumferential extending for various distances above the lower oesophageal sphincter or appear as isolated islands or tongues of red mucosa in the distal oesophagus.

Dysplasias and adenocarcinomas of the oesophagus have been described in patients with Barrett's oesophagus [11]. In our study one of the patient had adenocarcinoma, which was proved by histopathology. This is comparable with the study by Yasser M Fouhad *et al*. done in Egypt among chronic GERD patients where the prevalence of Barrets oesophagus was 7.3% [12].

Obesity is considered to be a predisposing factor for GERD [13] and weight reduction is usually helpful in reducing the symptoms. In the present study however only 10 patients (10%) were found to be overweight (i.e., BMI>25). Waist to hip ratio (WHR) measurements, which is considered a better indicator of obesity, showed 31 patients (31%) in the obese category. Although the relationship between GERD and obesity has been the subject of several studies, conflicting results have been obtained. Studies by Nocon *et al*. [15], Ha4pel *et al*. [15] and Corley *et al*. [16] showed relation whereas studies by Zagari *et al*. [17], Andersen *et al*. [18] and Talley *et al*. [19] showed no relation. This could be explained by the multiple pathogenic mechanisms of GERD and their relation to obesity [20]. Difference between ethnic groups with regard to association between GERD and obesity is also mentioned [21, 22].

Smoking and alcohol are considered to have inhibitory effect on lower oesophageal sphincter (LES) thus promoting reflux. In this study, 27 patients (27%) were smokers and 18 (18%) gave history of alcohol consumption (Table - 9).

The role of drugs like NSAID's, steroids and anti-platelet drugs on causing oesophageal erosions leading to GERD symptoms is well known [23, 24]. However in our study, only a small proportion of patients had history of chronic drug use (10%).

The relationship between sliding hiatus hernia and the genesis of oesophagitis remains slightly controversial. The consensus is however that most patients with moderate to severe oesophagitis have sliding hiatus hernia, whereas the substantial majority of the individuals with sliding hiatus hernia donot have reflux oesophagitis. In the present study, 5 patients (5%) had sliding hiatus hernia which is slightly lower in comparison to the study by Hyun Joo Song *et al*. [25] where the prevalence was 17.8%.

Although a direct causal relationship do not seem to exist between hiatus hernia and GERD, nevertheless the possibility remains that mechanical or

functional aberrations associated with a sliding hiatus hernia may contribute to reflux disease in some patients [26].

On correlating the symptoms with endoscopic findings, it was found that only regurgitation and abdominal pain showed a positive relation in our study. This result is almost similar to the Zuberi Badar Faiyaz *et al*. study [7] where among all the symptoms only acid regurgitation and epigastric pain had significant correlation. Both the above outcomes reinforce the fact that there exists a poor relation between symptoms and endoscopy positive lesions in GERD.

Smoking and alcohol showed a positive effect on oesophageal lesions. However, it is beyond doubt that both alcohol and smoking have erosive effect on the oesophageal mucosa [27, 28].

Both raised BMI and WHR indicators of obesity did not showed significant correlation with endoscopic findings in our study. Even though multiple mechanisms has been proposed, the most important reflux mechanism in obese subjects seems to be TLESR [29]. In fact in a recent study, a direct correlation between increasing BMI, an increased number of TLESR episodes, and an increased number of TLESR episodes associated with acid reflux was identified [30].

The main drawback of our study was the relatively small sample size, the results of which cannot be applied to the community as a whole. Another important drawback was the subjective nature of the symptoms and their severity, which comes in the way of interpreting them by the examiner.

CONCLUSION

- The common presenting symptoms of GERD are heartburn (100%), belching (89%), acid regurgitation (83%), and abdominal pain (60%).
- There is poor association between the severity of symptology and endoscopic findings. Among the symptoms acid regurgitation (p=0.034) and abdominal pain (p=0.018) showed significant correlation with endoscopic findings.
- Increased WHR (Waist to Hip ratio) (p=0.959) and increased BMI (p=0.0594) did not had significant correlation with endoscopic findings.
- Among other risk factors, alcohol consumption (p=0.058) and smoking (p=0.001) both showed a positive relation with endoscopic findings.
- Barrett's oesophagus (gastro-oesophageal junction metaplasia) was seen in 2% of the GERD patients in this study out of them 1% had esophageal adenocarcinoma.
- There was one patient each of following endoscopy findings :
  - Esophageal candidiasis with phlebectesia,
  - A fungal infection,
  - Esophageal obstruction
  - Esophageal growth
  - Diffuse esophageal spasm.
- Hiatus hernia was present in 5% of the total patients and 2% showed had sessile nodule.
- One patient showed Live Ascaris worm in stomach an unusual cause of heartburn.

Finally by this study, it is concluded that:

NERD (non-erosive reflux disease) is a common entity, which forms a considerable proportion of patients seeking medical attention for reflux symptoms. Smoking and alcohol consumption showed significant association and majority of patients had esophagitis and gastritis.

However since the patients with barretts oesophagus are at a higher risk of developing adenocarcinoma, it is suggested that all patients with gastro-oesophageal reflux symptoms should be subjected to upper GI endoscopy and biopsy to determine the presence of barretts oesophagus.

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