

ENT Manifestations in Gastro - Esophageal Reflux Disease.

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ABSTRACT

Background: Gastro - esophageal reflux disease is a common problem in medical practice. There is increasing evidence that GERD causes laryngeal signs and symptoms. **AIM:** To identify and study the laryngeal manifestations in symptomatic patients with GERD. **Methods:** A prospective study was conducted in about 60 patients with GERD in a tertiary care medical college hospital for a period of one year. **Results:** The study was statistically evaluated using chi square test and there was strong statistical significance for the laryngeal manifestations in GERD. **Conclusion:** The incidence of laryngeal manifestations of GERD in our study was 68%, the common symptom being hoarseness and the common sign being inter-arytenoid erythema.

Keywords: GERD, Chronic laryngitis, endoscopy, LERD.

INTRODUCTION

Gastro - esophageal reflux refers to the effortless movement of gastric contents from stomach to the esophagus without associated belching or vomiting. It is a normal physiological process. GERD is a pathological condition with symptoms or with Histopathological alterations. Gastroesophageal reflux may affect the oropharynx, larynx and respiratory tract and has found to be associated with pulmonary, otolaryngologic, dental symptoms. These are collectively called as Atypical or Extra esophageal manifestations of GERD. Laryngopharyngeal reflux (LPR) refers to the backflow of stomach contents in to the laryngopharynx. LPR has been postulated to play a role in up to 50% of laryngeal complaints that are present in otolaryngological practice. Otorhinolaryngologic manifestations of GERD may be non-specific and high index of suspicion is essential for diagnosis and treatment of the condition. In our study, we evaluate the otorhinolaryngologic manifestations in patients who attend the gastroenterology clinic with symptoms of GERD and subjected to upper GI endoscopy.

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Aims and objectives

To identify and study about the otorhinolaryngological manifestations of Gastro-esophageal reflux disease.

MATERIALS AND METHODS

A prospective study was conducted in Department of ENT in a tertiary care hospital for a period of one year in about 60 patients. The patients attending Gastro-entology department between the age 20-60 years, of both the sexes and with symptoms of GERD such as heart burn, regurgitation, belching, odynophagia, non- cardiac chest pain (at least three out the six symptoms should be present) were included for study. These patients were subjected to upper GI endoscopy and grading of esophagitis was done according to Savary Millar and Demeester classification. The other findings such as lax lower esophageal sphincter, hiatus hernia or gastric mucosal prolapse were also noted. These patients were further evaluated in Department of ENT for symptoms such as sore throat, hoarseness, chronic throat clearing, cough, dysphonia, post-nasal drip, laryngospasm and halitosis and subjected to videolaryngoscopy. The findings such as granular pharyngitis, excessive throat mucus, arytenoid and inter-arytenoid erythema, vocal nodule, laryngeal edema, contact ulcer, subglottic stenosis and granulomas were noted. The patients with gastric outlet obstruction, occlusive lesion of the esophagus, motor disorder of the esophagus, chronic sinusitis, previous gastric surgery, pregnancy, asthmatic and hypertensive's on calcium channel blockers are excluded from the study. The factors such as age, sex, smoking, alcoholism, obesity were also considered.

RESULTS

The study consists of 60 symptomatic patients with Gastroesophageal reflux disease who were assessed for the presence of atypical laryngeal manifestations of GERD.

There were 23 male and 37 female patients (M:F ratio 1:1.5) [Table 1].

Table 1: Number of Cases.

Age	Male	Female	No of cases
20-30 Years	9	12	21
31-40 Years	8	17	25
41-50 Years	4	5	9
51-60 Years	2	3	5
Total	23	37	60

The mean age was 32.9 ± 10.02 years and ranged between 20-60 years. About 16 males were found to be alcoholics and 12 males were found to be smokers in the study group. About 7 males were non-alcoholics and 11 males were non-smokers. All 37 females were found to be non-alcoholics and non-smokers. In our study, 68.3 percent (24 patients in Class I Obese, 14 in Class II Obese and 3 in Morbid Obese) were in obese category and 16.7 percent (10 patients) were in overweight category.

On evaluating the symptoms of GERD, Heartburn was the common presenting complaint in 80% of patients followed by Regurgitation in 66.6%, Belching in 60%, chest pain 56% and dysphagia in 25% and odynophagia in 26% [Figure 1].

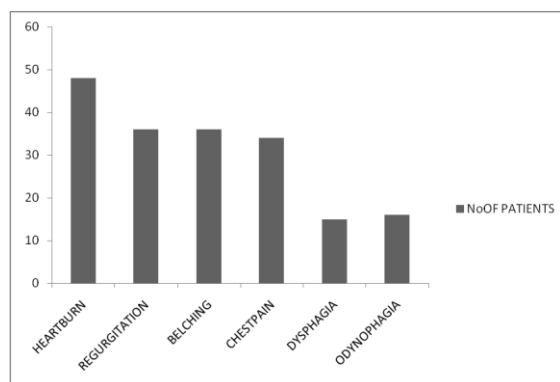


Figure 1: Symptoms of GERD.

Atypical laryngeal manifestations have been found in 68% of patient with GERD, 19 patients (32%) had no laryngeal symptoms. On symptom analysis, 63% had hoarseness of voice, chronic throat clearing in 53% and excess mucus in throat and sore throat in

half of patients. Approximately 10% of patients had dysphonia and post nasal drip [Figure 2].

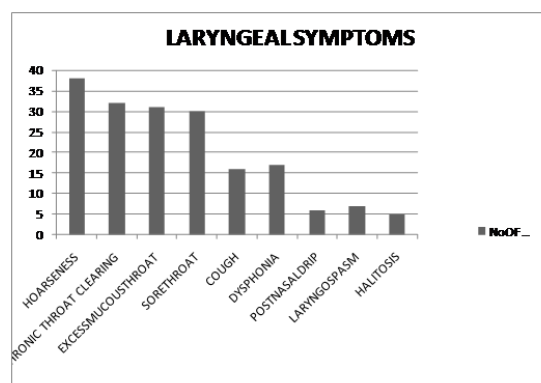


Figure 2: Laryngeal Symptoms.

On investigating these patients, in upper GI endoscopy, the features of esophagitis is noted in 66.7%, endoscopy was found to be normal in 20 (33.3%) patients. It was mild, grade I in 28 (47%), grade II in 11 (18.3%) and grade III in one patient. Other contributory findings pertaining to GERD include a patulous LES in 20% and gastric mucosal prolapse in 10%.

Video-laryngoscopy was performed in all patients and it was normal in 53.3% of patient. In the rest 33.3% had inter-arytenoid erythema, 21% had vocal cord erythema 10% had granular pharyngitis and 1% had vocal nodule.

From this analysis, it is found that a significant number of patients with gastroesophageal reflux disease have associated chronic laryngeal symptoms and signs suggesting one of the extra esophageal manifestation of GERD.

DISCUSSION

GERD is a common gastro intestinal disorder presenting with esophageal and extra esophageal manifestations. These atypical manifestations include bronchial asthma, noncardiac chest pain and otolaryngologic disease. The exact prevalence of extra esophageal symptom is not known; hence, it is very often go unrecognized and poorly managed.

Gastroesophageal reflux disease is believed to be associated with a variety of laryngeal conditions and symptoms of which chronic laryngitis is perhaps the most common. Laryngopharyngeal reflux is the terminology used to describe GER that reaches the structure above upper esophageal sphincter. Other terminologies used to describe this disorder are Acid laryngitis, Posterior laryngitis or Reflux laryngitis.

Ohmen et al., 1983 noted that 74% of patients with reflux laryngitis, 80% with paroxysmal laryngospasm, 80% with laryngostenosis, had abnormal esophageal pH study suggestive of GERD. In 1989, Weinert documented double blinded pH findings and was really able to show that there are

separate episodes of reflux that goes up to laryngopharynx. The incidence of GER related otolaryngologic symptom and finding in otolaryngologic practice has been estimated as 4-10%.^[11] Reflux laryngitis is associated with symptoms of hoarseness, vocal fatigue, chronic throat clearing, excessive throat mucus, chronic cough, dysphagia, globus sensation, halitosis & chronic cough. Laryngeal condition associated with GERD are reflux laryngitis, subglottic stenosis, carcinoma of larynx, contact ulcer and granuloma, paroxysmal laryngospasm, arytenoids fixation, globus pharynges, vocal nodule, pachydermia larynges and recurrent leucoplakia.^[9] Two Schools of thought has been put forward to explain the pathophysiology of GERD related otolaryngologic disorder.^[9]

These are

1. Direct acid peptic injury to the larynx and surrounding tissue via esophago-pharyngeal reflux due to reduced resting tone of UES, especially in night
2. Acid in the distal esophagus stimulates vagally mediated reflux resulting in chronic throat clearing and coughing which eventually leads to laryngeal symptoms and lesions.

Several others factors such as esophagogastric junction, esophageal acid clearance, esophageal mucosal resistance, and intactness of UES have been shown to be important in the pathophysiology of GER. In addition to this, functional interaction among pharynx, larynx, lung, and esophagus have also been involved in pathogenesis.^[12]

Kambic et al., biopsied the larynx in 44 patients and noted thickening of laryngeal epithelium due to hyperplasia of prickle cell layer and in some the epithelium was keratinized.^[4] In laryngeal ulcer, there were abundant lymphocyte and plasma cells infiltrating the epithelium. These were similar to esophageal biopsies of reflux esophagitis patients. Jacob et al., found no difference in time between proximal and distal reflux episodes^[3], Wo et al., (1997) found no significant differences in the amount of proximal reflux in typical and atypical symptoms group.^[15] Warning et al., found that proximal esophageal reflux had no predictive value in identifying patient with atypical reflux symptom and in those who would respond to therapy.^[14] It seem therefore the distribution of reflux episode may be different in typical and atypical GER. Esophago pharyngeal reflux can also occur in normal people with a prevalence of 16-21% but the frequency is more in patients with reflux laryngitis. Esophageal dysmotility in reflux laryngitis has been found in some studies and study by Ulualp et al., found that at least secondary peristalsis is preserved in patient

with posterior laryngitis versus controls.^[13]

The presence of heartburn, dysphagia, or regurgitation may indicate the presence of GERD. However because these disorder are so prevalent, it may be difficult to establish a causal relationship without further testing. Persistent symptom with or without GERD in these patients necessitates consultation with an otolaryngologist.

Diagnosis is based on 1) careful history and investigation, as many of them have chronic intermittent symptom. Because the differential diagnosis of symptoms of reflux laryngitis is broad, a careful history should include the risk factors like frequent voice use, concurrent tobacco use, ethanol, history of upper respiratory tract infection with coughing, chronic idiopathic cough, vomiting, nocturnal regurgitation, allergic type symptoms, pets, recent air condition use, postnasal drip, new environmental condition containing synthetic materials and medication.

Presence of Laryngopharyngeal complaint without a obvious laryngeal or pharyngeal disease should lead to a suspicion of associated GERD. Laryngeal examination can be performed using Indirect laryngoscopy, Fiberoptic laryngoscopy, Videostroboscopy or Microlaryngoscopy can identify an underlying otolaryngologic cause and eliminate a neoplastic process.

Indirect laryngoscopy is an inexpensive and invaluable technique to evaluate the hypopharynx and the larynx. A carefully performed IDL provides clue for the diagnosis and should be done in every patient with laryngeal symptom. Video laryngoscopy provides the direct examination of larynx and gives us a better information about laryngeal and laryngopharyngeal pathologies. The finding seen in classic posterior laryngitis is red arytenoids, piled up interarytenoid mucosa and edema of posterior third of vocal cord. The abnormalities are more often on the posterior aspect of larynx, as it is in close proximity to the esophagus and hence may be most exposed to acid peptic refluxate.

The other tests used as confirmatory tests are

1. Esophageal endoscopy provides the visualization of the esophageal mucosa and is commonly performed as an initial investigation for the evaluation of traditional reflux symptom. Esophagitis was documented in 50-67% of patient with laryngeal symptom with or without objective finding by endoscopy.^[11]
2. Radiologic Techniques
Radiographic imaging methods to evaluate include radionuclide scinti scanning and barium esophagogram. Radionuclide scinti scanning using a gamma camera is a simple and noninvasive method with minimal radiation exposure. The fraction of administered radioactive material refluxing into the esophagus is used as GER index. An abnormal GER was seen only in 11% patient with reflux laryngitis

and hence considered as less sensitive compared to esophageal endoscopy and 24 hr intra esophageal pH monitoring and thus has a limited role to demonstrate GER.

3. Ambulatory 24 hour pharyngo esophageal pH monitoring.

Ambulatory pH monitoring has been used to diagnosis GER associated otolaryngologic disorders. Dual sensor pH electrodes have been placed to monitor the acid reflux events in the proximal esophagus below the UES, in the pharynx above the UES, in the proximal esophagus and pharynx or at the level of UES. In manometric localization of the UES, the distal pH sensor is placed 5 cm above LES and the proximal sensor placed 2 cm above or immediately below the UES. Each sensor can record events that are analyzed independently. The occurrence of even small amount of acid reflux proximally suggests an association with GERD.

Esophageal acid exposure time is the most useful discriminator between physiologic and pathologic reflux. In patient with Laryngopharyngeal reflux the distal esophageal acid exposure time was not significantly different from GERD patients, but the proximal esophageal acid exposure time has been however to be greater to similar to that of GERD patient.^[4] Pharyngeal pH monitoring document the pharyngeal acid reflux events in patients with otolaryngologic disorders, and not in normal volunteer or GERD patients. The prevalence of pharyngeal acid reflux events are more in patients with reflux laryngitis.^[12] The reproducibility of pharyngeal pH monitoring is 65% in patients with reflux laryngitis.

The relative low reproducibility has been attributed to the heterogeneity of the etiology of posterior laryngitis patients and to the episodic and infrequent nature of pharyngeal and reflux events. The threshold pH 5 increase the reproducibility and therefore the use of pharyngeal pH threshold of 5 have been suggested in patients with high suspicion of GER associated otolaryngologic disorder.^[13]

Due to the non-availability of the advanced radiographic tests and 24 hours ambulatory pH monitoring, we have studied the laryngeal manifestations in patients with the positive endoscopic findings for GERD.

Kaufmann et al., reported the estimated prevalence of laryngeal symptoms in GERD was 4-10%.^[6] In our present study the prevalence of laryngeal symptom in GERD patients was 68%. Roy et al., reported the commonest laryngeal symptom as hoarseness of voice of more than 4 weeks duration, frequent sore throat, globus sensation, chronic throat clearing, halitosis and chronic cough. Among these hoarseness of voice alone is estimated to be prevalent in 55% of patients in the study conducted by McNally et al., and Koufman et al., In our study 63% of patients had hoarseness.

Klanser et al., and Walter et al found heartburn as the commonest gastrointestinal symptom in GERD patients, followed by regurgitation, dysphagia, odynophagia, and belching and chest pain. In our study, heartburn was present in 80% of patients (5).

Age was associated with an increase in esophageal acid exposure and its severity is related to degradation of the gastro esophageal junction and impaired esophageal clearance. In our study, most of the patients are in 30-50 years age group.

Reflux disease is more common in men than women in the ratio of 2-3:1. In our study there are 23 male and 37 female patients. (M.F. ratio 1:1.5).

GERD is aggravated by factors like alcohol, smoking, fatty food, excess tea, coffee, NSAID abuse Nebel et al.,^[7]. Locke *et al.*, performed a cross sectional study in age and gender matched controls to ascertain the risk factors associated with development of heart burn and showed its higher incidence in people with BMI >30kg/m², family history of heartburn, symptoms of esophageal or gastric disease, h/O smoking, h/O alcohol consumption and high psychosomatic symptoms. These were present in a small proportion of patients in our series -12 were smoker, 16 had a history of chronic alcohol abuse.

In our study, 68.3 percent (24 patient in Class I Obese, 14 in Class II Obese and 3 in Morbid Obese) were in obese category and 16.7 percent (10 patient) were in overweight category. Studies showed that obesity plays a role in the pathogenesis of reflux symptoms; a disruption of the esophago-gastric junction could allow reflux to occur. According to Frank K. Friedberg et, al^[2]. 53% of patients were obese and 39% were obese by El. Serg et.al.,^[1]

Endoscopy with histological evidence of esophagitis is considered as the gold standard in diagnosis when pH monitoring is not available. Endoscopy showed esophagitis in 53.3% and most of them are Grade I&II. Study by Young JL., and others reported endoscopic positivity in 30-40% of patients.^[16] Hence all the patients with GERD may not have a endoscopically detectable GERD and is called "Endoscopy Negative GERD." This is seen in 33.3 % of people in the present study and is supported by Sami et al., who reported 32-50% of patients having endoscopy negative GERD^[10]. Esophagitis was documented in 68.3% of patient in our series. 22.6% of patient had features suggesting acute esophagitis.

Video- laryngoscopy helps to confirm the laryngeal manifestation. Findings in the present study includes interarytenoid erythema in 33.3%. These results were similar to reported findings by Roy^[9], Fibreoptic laryngoscopy was performed in 40 patients and Wong et al.,^[16]. In a study by Jacob et al.,with GERD, persistent laryngeal symptoms was seen in 62.5% of them, symptoms include dysphonia, cough, globus sensation and frequent sore

throat (3). Laryngoscopy findings were consistent with reflux laryngitis in 40% of them.

In our study, laryngeal manifestations were present in 68% of patients. This high percentage clearly indicates the common occurrence of ENT manifestation as an atypical feature in GERD and necessitates the need to identify and document in reflux disease patients. The commonest laryngeal symptoms included are hoarseness of voice and chronic throat clearing, other symptoms found are globus sensation, cough, post nasal drip, halitosis and laryngeal spasm. Any of these symptoms when present for a significant period of time (>4 wks) should alert a clinician to a causal association of GERD in these Patients.

CONCLUSION

Gastroesophageal Reflux Disease (GERD) has varied manifestations in ENT, the most common being in the larynx; Indirect laryngoscopy/ Video-laryngoscopy and Upper GI endoscopy are indicated in these patients.

1. The incidence of laryngeal manifestations in our study is 68%.
2. Most common laryngeal symptom in our study - hoarseness of voice 63%.
3. Most common laryngeal finding in our study- interarytenoid erythema 33.3%.
4. Laryngeal manifestations are common in the age group 30-40 years.
5. Obesity, alcoholism, smoking and old age are risk factors, not only for GERD but also for laryngeal manifestations.

The study highlights two important facts namely

- The importance of identifying and documenting atypical manifestations such as hoarseness of voice, recurrent sore throat, chronic throat clearing etc. in patients with symptomatic GERD
- To consider the possibility of GERD as an etiological factor for chronic laryngitis refractory to routine treatment.

Early recognition and treatment for GERD will relieve patients suffering & prevents the development of laryngeal complications.

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