Al-Mukhtar Journal of Sciences 39 (1): 20-27, 2024
Doi: https://doi.org/10.54172/g62ecx82

Research Article

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Clinical Manifestations of Gastro-esophageal Reflux among Patients with Chronic Laryngitis in Benghazi, 2018

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Received:
11 December 2023

Accepted:
16 March 2024

Publish online:
31 March 2024

Abstract

Gastroesophageal reflux disease is a chronic, complex condition that may present with atypical symptoms, including laryngitis. The study aims to demonstrate the relationship between signs of reflux laryngitis in patients with typical manifestations of gastroesophageal reflux disease (GERD). The present study included a total of 60 patients suffering chronic laryngitis with an age range of 23 to 88 years in a descriptive study in Benghazi Medical Center in the year 2018. History was collected, indirect laryngoscopy was done for cases, and data were analyzed using SPSS 23.0. Results: the most common symptoms were hoarseness of voice, throat clearing, dysphagia, throat discomfort, and globus sensation, and no significant association of symptoms with the gender of the patients. The most common laryngeal findings were hyperemia, vocal cord changes, and posterior commissure hypertrophy. The significant association included only posterior commissure hypertrophy and infraglottal edema. Conclusions and recommendations: many patients didn't seek medical advice, and most had no diagnostic procedure. Stronger study designs using proper diagnostic techniques and patient education with staff training are recommended.

Keywords: Gastroesophageal reflux disease, Chronic laryngitis, Hoarseness of voice.

INTRODUCTION

Gastroesophageal reflux disease (GERD) is a chronic, complex condition that carries a risk of morbidity and complications. Gastroesophageal reflux disease clinical features present mainly as heartburn and regurgitation. It may also present with atypical features known as extraesophageal symptoms. Atypical manifestations include chronic cough, hoarseness, chronic sore throat, laryngitis, dental erosions, asthma, and noncardiac chest pain (Heidelbauget al, 2008).

There is not much information that describes the exact cause of gastroesophageal reflux disease, and the data on how it occurs remains very limited. Symptoms could be classical (heartburn and regurgitation) or unusual nonesophageal symptoms such as coughing, dyspnea, and sore throat. Signs of inflammation may be absent or severe, such as esophageal stricture or ulceration (Parsons et al., 2010). GERD should be strongly considered in the differential diagnosis in patients presenting with atypical symptoms when other diagnoses have been excluded. Suspected patients should

undergo prompt endoscopy regardless of whether other symptoms are typical or atypical (Heidelbaugh et al., 2008). laryngopharyngeal reflux (LPR) was first reported in 1968 by Cherry and Margulies. There are debates regarding LPR on whether to consider it as an atypical presentation of GERD or an entirely different disease. It could be defined as the reflux of gastric contents into the upper aerodigestive tract, with the absence of classical symptoms of GERD (heartburn and regurgitation). (Yazici et al, 2010 and Koufman et al, 2002).

The term laryngopharyngeal reflux disease (reflux laryngitis) refers to clinical manifestations of gastric reflux on the upper airways and was adopted in 2002 by the American Academy of Otolaryngology and Head and Neck Surgery (Koufman et al., 1991 and Dilen da Silva et al., 2015). With devices that are able to measure the acidity both on the proximal and distal esophagus and the pharynx and also using the fiber-optic laryngoscope, the effect of regurgitation on larynx is assessed (Pribuisiene et al., 2002). Even though many findings are nonspecific, some suggest that signs, such as edema, erythema, and congestion, seen mainly in the posterior parts of the larynx (posterior laryngitis), could be because of the effect of inflammation as a result of reflux (Koufman et al., 1991; Dilen da Silva et al., 2015).

Symptoms of LPR include cough, hoarseness of voice, sore throat, globus sensation, repetitive throat clearing, excessive sputum, odynophagia, heartburn, and voice fatigue (Yuksel et al., 2012). LPR signs include congestion and lymphoid hyperplasia of the posterior pharyngeal wall, edema and congestion of the larynx, vocal cord polyps, subglottic stenosis, granulomas, Reinke`s edema, and posterior glottic stenosis (Yuksel et al., 2012). In professional voice users with signs of chronic laryngitis, laryngoscopic changes such as arytenoid edema, inter-arytenoid edema, vocal folds edema, ventricular bands edema, and laryngeal edema may suggest the concomitance of GERD in professional voice users with dysphonia (Cobzeanu et al., 2012).

The study's aim demonstrates the relationship between signs of reflux laryngitis in patients with typical manifestations of GERD.

MATERIALS AND METHODS

Study Participants

Selected cases with chronic laryngitis who attended otolaryngology outpatient services in Benghazi Medical Center (BMC) during the period from 1/3/2018 to 31/6/2018 (spring season) were enrolled in this case series study. The patients were diagnosed based on symptoms and laryngoscopic findings. Inclusion criteria included adult patients aged 18 and older, both male and female, who presented with symptoms of chronic laryngitis for six weeks or more. Exclusion criteria include trauma, tumor, neurological abnormalities (e.g., bulbar or pseudo bulbar palsy, cerebrovascular accident, multiple sclerosis, *etc*.) as well as alcohol consumption.

Ethical statement

The following considerations were taken carefully during the conduction of the study: informed consent regarding study aims and methods, ensuring confidentiality and privacy of the data, and acknowledging co-investigators and data collectors in the study.

Data Collection

The data was collected using a history sheet, clinical examination, and reviewing patient files for important investigations. To avoid selection bias, questions such as age and original residency were asked. Additional questions on employment, marital status, smoking habits, alcohol consumption,

and past medical and surgical history were asked. The cases were questioned on the symptoms of chronic laryngitis in general, such as sore throat, hoarseness of voice, dry cough, symptoms of LPR such as frequent throat clearing, globus pharyngeus, and any symptoms suggestive of GERD, such as regurgitation and/or heartburn during laryngitis or within last three months or ever. The clinical examination was guided by the history's findings. Head and neck examinations were done, and patients with hoarseness were subjected to flexible nasopharyngoscopy and/or rigid laryngoscopy.

Sampling technique and sample size

A purposive sampling technique was used to get the required sample. The study population is the number of cases attending the otolaryngology outpatient services in Benghazi Medical Center during the study period. There were up to 3000. The sample size was calculated taking into consideration an accepted margin error of 5% and a confidence level of 95% with the above-mentioned data. The calculated sample size was 60 cases.

Statistical analysis

Descriptive statistics of study population characteristics were done using SPSS IBM 20.0. Analysis of data was performed including rate, means, medians, confidence intervals, and range values as appropriate, measurement of risk ratio confidence intervals for outcomes for the set of assigned events, analysis of associations using chi-square (Likelihood ratio) or its alternative and t-test (or Mann-Whitney U test for non-normally distributed data). Significant results would be indicated with $P \leq 0.05$.

RESULTS

A total of 60 patients with ages ranging from 23 to 88 years had a mean of 49.72 (SD= 15.077) and a median of 49.5 years. Males and females were nearly equal, with a slight predilection for males (Figure 1).

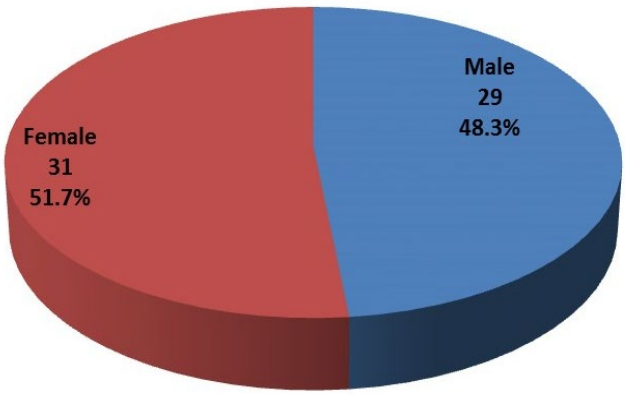

Figure (1): Gender distribution of the study population

Regarding most prevalent symptoms, 59 (98.3%) patients presented with hoarseness of voice and heartburn, and 58 (96.7%) had a clearing of the throat (figure 2). Other symptoms include globus sensation in 7 (11.7%) patients, dysphagia/odynophagia in 42 (70%) of patients, and throat discomfort in 27 (45%) patients (figure 3). Statically, gender shows no significant difference among different symptoms. (Table 1).

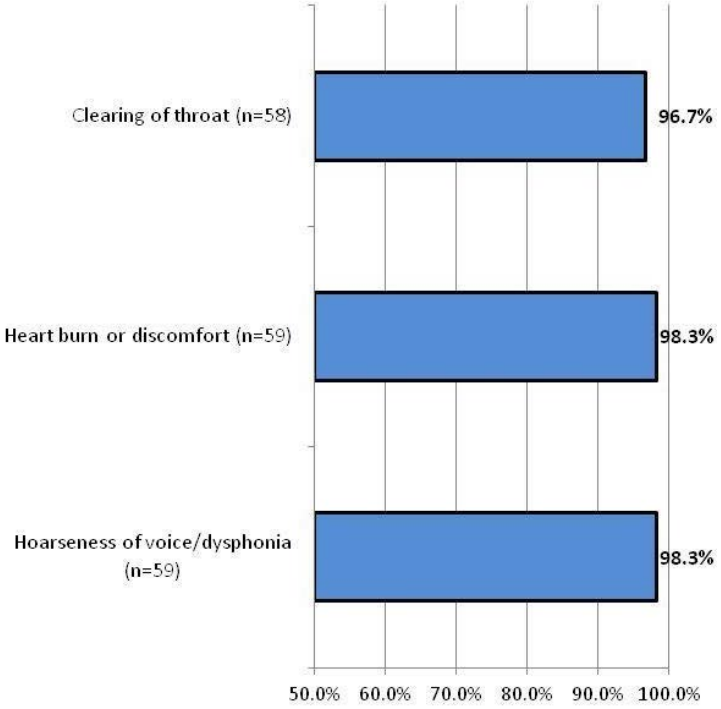

Figure (2): The rates of the most prevalent symptoms among the study population

Table (1): Gender differences across different symptoms

Gender	Globus	Dysphagia / odynophagia	Throat discomfort
Male	3	21	14
	10.3%	72.4%	48.3%
Female	4	21	13
	12.9%	67.7%	41.9%
Test statistic (*P*)	(1.000)	0.156 (0.693)	0.243(0.622)

Regarding laryngoscopic findings among the study population, vocal cord hyperemia was found in 56 (93%) patients, subglottic edema was found in 3 (5%) patients, vocal cord edema was found in 18 (30%) patients, posterior commissure hypertrophy was found in 15 (25%) patients and edematous arytenoids found in 4 (6.7%) patients, (figure 3). Statically gender shows no significant difference among different laryngoscopic findings. (Table 2).

Table (2): Gender differences across different laryngoscopic findings

Gender	Subglottal edema	Vocal cord edema	Posterior commissure hypertrophy	Edematous arytenoids
Male	3	10	9	3
	10.3%	34.5%	31.0%	10.3%
Female	0	8	6	1
	0.0%	25.8%	19.4%	3.2%
Test statistic (*P*)	(0.107)	0.537(0.464)	1.09(0.296)	(0.346)

***** Statistically significant according to a 95% confidence limit. †*P* value by Fisher exact test

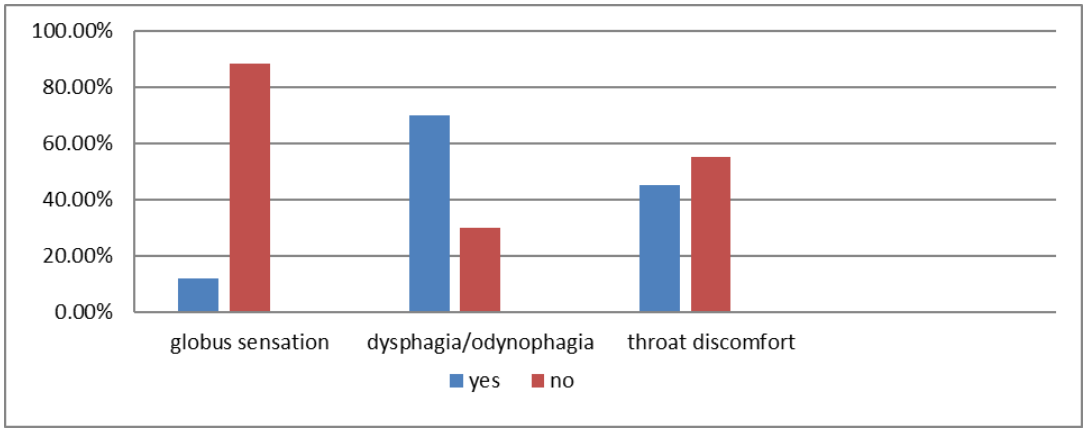

Figure (3): Distribution of other symptoms among the study population

Statistically significant according to a 95% confidence limit. †*P* value by Fisher exact test

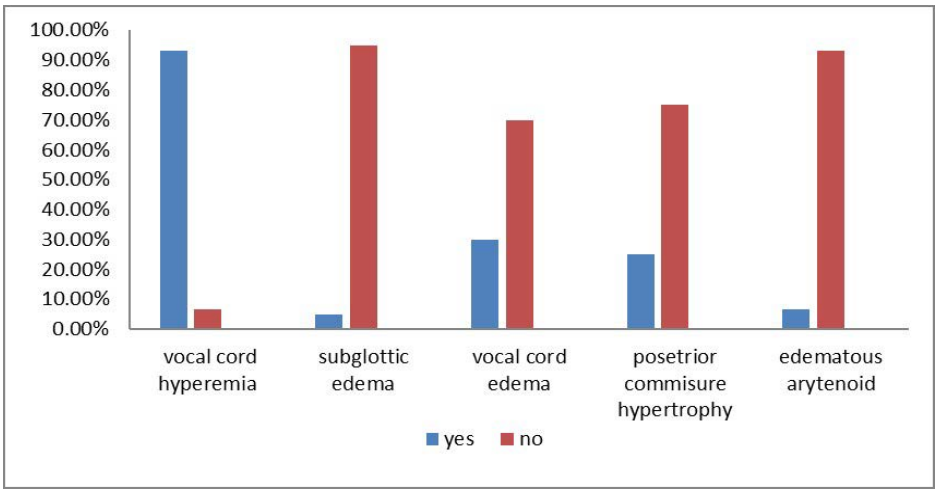

Figure (4): Distribution of most common laryngoscopic findings among the study population

DISCUSSION

Gastroesophageal reflux disease is a chronic, complex, and relapsing disease that presents as heartburn and regurgitation with atypical or extraesophageal symptoms, including laryngitis and chronic sore throat (Heidelbaugh et al., 2008). According to El-Serag, et al. (2013), in the Middle East, data show a prevalence of at least weekly heartburn and/or regurgitation that varied between 8.7% and 33.1%. The overall incidence was 0.84 – 5 per 1000 person-years. Obesity, smoking, and male gender are reported risk factors for GERD. The Global Consensus Group in Montreal in 2006 stated that chronic laryngitis is highly associated with gastroesophageal reflux disease (GERD). Among 42 patients with chronic hoarseness, LPR was confirmed in 35 patients (83.33%). The most frequent inflammatory changes noticed included erythema of the arytenoids and interarytenoid regions (posterior laryngitis). The most frequent symptom among patients with LPR was throat clearing, followed by hoarseness (Dymek et al., 2012).

The present study included a total of 60 patients suffering chronic laryngitis with an age range of 23 to 88 years, with a mean of 49.72 (SD= 15.077) and a median of 49.5 years. Males and females in this study were nearly equal, with a slight predilection for males. According to Koufman JA, et al.

(2002), the definition of LPR is signs of the effect of gastric contents into the upper aerodigestive tract with the absence of classical symptoms of GERD (heartburn and regurgitation).

Dilen da Silva, et al. (2015) stated that the term laryngopharyngeal reflux disease (reflux laryngitis) was adopted in 2002 by the American Academy of Otolaryngology and Head and Neck Surgery and refers to clinical manifestations of gastric reflux on the upper airways. According to De Bortoli N et al. (2012), atypical manifestations of GERD include chronic cough and laryngopharyngeal symptoms (LPS), like hoarseness of voice, feeling a lump in the throat, and throat discomfort. In this study, heartburn (98.3%: 59/60), hoarseness of voice/dysphonia (98.3%: 59/60), and throat clearing (96.7%: 58/60) were prevalent symptoms among the patients. According to Heidelbaugh J et al. (2008), classic reflux symptoms are present in 6.0 – 45.0% of patients with ear, nose, and throat (ENT) symptoms. The high rates of GERD symptoms are noticeable among the study population. Dymek A et al. (2012) also reported that in patients with chronic dysphonia, LPR was confirmed in 35 patients (83.33%). The most frequent inflammatory changes noticed included erythema of the arytenoids and interarytenoid regions (posterior laryngitis).

The most frequent symptom among patients with LPR was throat clearing followed by hoarseness. In the present study, the most common symptoms among patients with chronic laryngitis were hoarseness of voice/dysphonia (98.3%: 59/60), throat clearing (96.7%: 58/60), Dysphagia: 70.0% (42/60), Throat discomfort: 45.0% (27/60) and Globus sensation: 11.7% (7/60). There was no significant association of symptoms with any demographic characteristics of the patient. According to Alharethy S, et al. (2018), Dysphonia, frequent throat cleaning, and a globus sensation are common presentations of LPR and allergic rhinitis/ laryngitis. This might be explained by the fact that the co-existence of LPR can increase patients' self-perception of allergic problems. Vocal cord hyperemia 93.3% (56/60), vocal cord changes: 30.0% (18/60), and Posterior commissure hypertrophy: 25.0% (15/60) were the most common findings among the population of the study. Edematous arytenoids was 6.7% (4/60).

Posterior commissure hypertrophy is associated with advanced age ($P = 0.014$). Those findings were concordant with Dilen da Silva C, et al. (2015), who demonstrated posterior laryngitis due to acid reflux in up to 80% of cases. Gender in the present study showed no effect on findings suggesting that the role of smoking can be excluded. Those findings are concordant with Dilen da Silva C, et al. (2015). There was a strong positive correlation between the findings of indirect laryngoscopy and symptoms of reflux. According to Reiter R, et al. (2015), chronic laryngitis has an incidence of 3.5 /1000 in the general population and is a precursor of vocal cord cancer. Gastroesophageal reflux with laryngopharyngeal involvement is claimed to be a risk factor.

This warrants good assessment of patients with chronic laryngitis to explore reflux disease regarding comprehensive management.

CONCLUSION

The most common symptoms among patients with chronic laryngitis were hoarseness of voice/dysphonia, throat clearing, dysphagia, throat discomfort, and globus sensation. There was no significant association of symptoms with any demographic characteristics of the patient. The most common laryngeal findings were vocal cord hyperemia, vocal cord changes, and posterior commissure hypertrophy. Posterior commissure hypertrophy was significantly associated with advanced age, and subglottal edema was significantly associated with increased weight. Gender and other factors showed no significant association. Many didn't seek medical advice, and most had no diagnostic procedure.

RECOMMENDATIONS

Further works cover the point of patient recruitment with a better chronological design of the study and proper diagnostic procedure. Interventional trials, including treatment of reflux among patients with laryngitis, are needed from a clinical point of view. Patient education and staff training regarding reflux disease in patients suffering chronic laryngeal symptoms are warranted for better treatment.

Duality of interest: The authors declare that they have no duality of interest associated with this manuscript.

Author contributions: Contribution is equal between authors.

Funding: No specific funding was received for this work.

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