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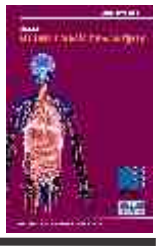

Research Article

Section: Otorhinolaryngology

Vocal Pathologies and "GERD" Association in a Tertiary Care Centre of Assam

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HIGHLIGHTS

- Vocal fatigue commonly observed with GERD
- Laryngoscopic signs indicate reflux-related changes
- Hoarseness linked to acid exposure
- GERD patients show vocal fold irritation
- Voice therapy improves GERD-related dysphonia

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ABSTRACT

Background: Vocal pathologies can arise due to multiple etiologies, with gastroesophageal reflux disease (GERD) emerging as a significant extralaryngeal factor. This study evaluates the epidemiological profile and the association between GERD and vocal pathologies in patients attending a tertiary care voice clinic in Assam. **Methods:** A cross-sectional observational study was conducted on 100 patients presenting with voice disorders. Demographic details, clinical history, systemic comorbidities, and laryngoscopic findings were recorded. The Reflux Symptom Index (RSI) was used to assess the presence and severity of GERD. **Results:** Among the 100 patients, 59% were females. GERD was present in 70% of cases. A strong correlation was observed between GERD and vocal fold pathologies, particularly vocal fold edema (41%), nodules (25%), and polyps (19%). The age group most affected was 46–60 years (30%). Lifestyle factors like tobacco (78%) and caffeine (89%) intake were prevalent.**Conclusion:** GERD is significantly associated with a spectrum of vocal cord disorders. Early diagnosis using RSI and fiberoptic laryngoscopy, along with GERD management, is essential in preventing chronic vocal injury.

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INTRODUCTION

Voice disorders represent a multifactorial clinical problem with anatomical, functional, and lifestyle contri butors. Among these, gastroesophageal reflux disease (GERD), specifically laryngopharyngeal reflux (LPR), plays a crucial role in vocal pathology development. Reflux of gastric contents into the larynx can cause chronic irritation, edema, and tissue changes affecting phonation [1–3].

The clinical diagnosis of LPR remains challenging due to its nonspecific symptoms, such as hoarseness, throat clearing, chronic cough, and globus sensation. However, diagnostic tools such as the Reflux Symptom Index (RSI), Reflux Finding Score (RFS), and fiberoptic laryngoscopic evaluation have improved the detection.

The identification of GERD-related laryngeal mani-festations has improved with tools like the Reflux Symptom Index (RSI) and fiberoptic laryngoscopy. This study aims to investigate the prevalence of GERD and its correlation with vocal pathologies in patients attending a tertiary care centre in Assam. The northeastern state of Assam, with its ethnically diverse population and unique lifestyle determinants, offers an important setting to explore the link between GERD and vocal pathologies.

This study aims to evaluate the prevalence of GERD among patients presenting with voice disorders and inves-tigate the correlation between GERD symptoms and endos copic laryngeal findings in a tertiary care voice clinic in Assam. By identifying GERD as a modifiable risk factor, this research seeks to guide early intervention, reduce long-term voice morbidity, and inform targeted voice therapy and reflux management protocols in otolaryngological practice.

MATERIALS AND METHODS

Study Design and Setting

A hospital-based cross-sectional observational study was conducted in the ENT department of a tertiary care centre in Assam.

Participants

A total of 100 patients with clinical voice complaints were enrolled.

Data Collection Tools

- Reflux Symptom Index (RSI)
- Endoscopic fiberoptic laryngoscopy

Parameters Studied

- Demographics (age, gender, geographical location)
- History of allergy, voice abuse, GERD, tobacco/alcohol/caffeine intake
- Comorbid systemic illnesses
- Clinical symptoms
- Endoscopic findings

Gender Distribution

Females: 59%, Males: 41% — indicating female predominance, pictorial representation is given in graph given below.(Figure 1)

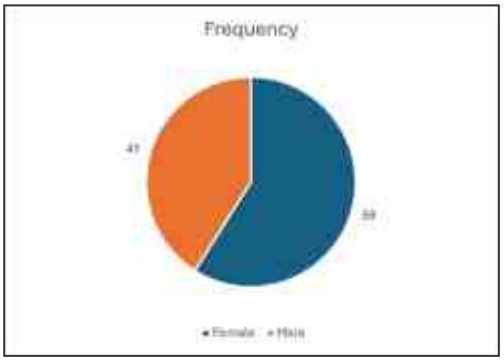

Figure :1

Age Distribution

Highest in 46–60 years (30%) and 31–45 years (29%).The graphical representation is given below .(Figure 2)

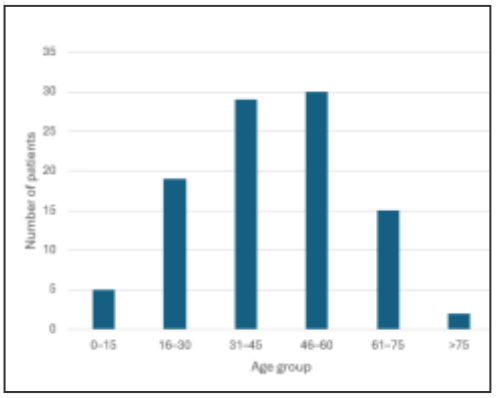

Figure :2

Risk factor association

Reflux prevalence: 67% of patients scored >13 on the RSI, indicating clinically significant reflux.The graphical represe - ntation is given in (Figure 3)

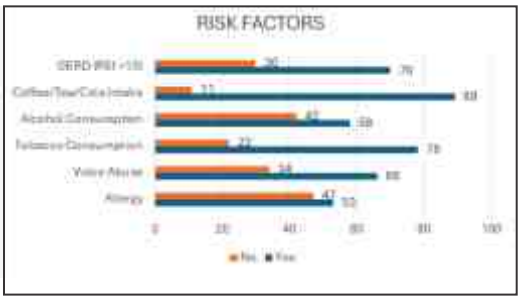

Figure :3

Here's the RSI distribution chart included in paper. Based on the data:

75.6% of patients (i.e., 76 out of 100) had RSI scores greater than 13, indicating clinically significant reflux. Grap - hical representation is given below, (Figure 4)

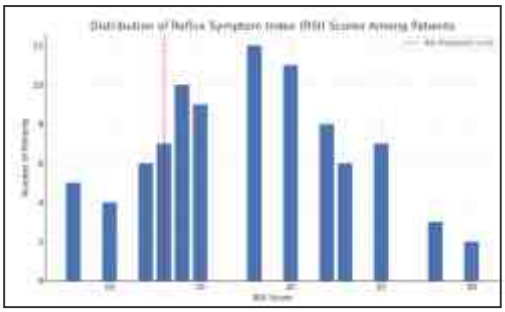

Figure :4

Most common: Hoarseness (24%), throat discomfort and coughing (13% each),graphical representation is given below,(Figure 5)

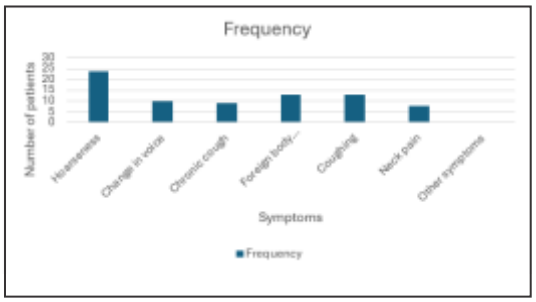

Figure :5

Endoscopic Findings: Most prevalent findings were

- Reinke's edema (7%)
- Papillomas (7%)

  Left vocal cord polyp (7%) along with pachyderma laryngitis, The graphica lrepresentation is given (Figure 6)

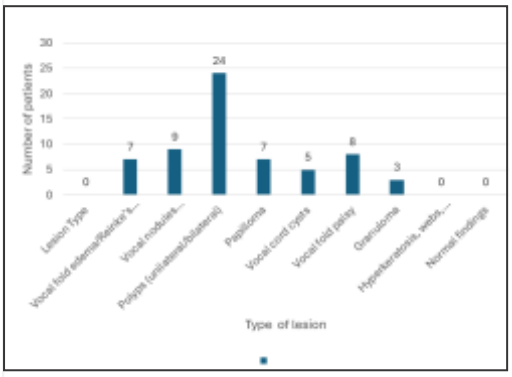

Figure :6

DISCUSSION

This study supports and expands upon the growing body of literature highlighting gastroesophageal reflux disease (GERD) as a major extralaryngeal factor in vocal pathologies. The role of laryngopharyngeal reflux (LPR), a subset of GERD wherein refluxate reaches the larynx and pharynx, has been increasingly recognized as a causative agent in a variety of voice disorders due to direct mucosal damage and inflammation [4,5,6].

Pathophysiological Mechanisms

The laryngeal mucosa is highly sensitive to gastric acid and pepsin, which can induce epithelial damage, inflammatory infiltration, and capillary dilation, particularly in the posterior larynx. This leads to edema, hyperemia, and the formation of contact lesions, as commonly observed in patients with high Reflux Symptom Index (RSI) scores [7,8]. These findings are consistent with studies showing significant morphological changes such as posterior commissure hypertrophy, interary - tenoid pachydermia, and vocal fold edema in patients with LPR [9].

In addition to direct chemical irritation, reflexogenic path ways may also play a role. Stimulation of esophageal receptors by acid can trigger vagal reflexes, leading to chronic cough, throat clearing, and ultimately phonotraumatic lesions such as nodules and polyps [10].

Gender Differences

Our study found a higher prevalence of GERD-associated vocal pathologies in females (59%), which aligns with previous research indicating gender-based differences in symptom reporting and visceral sensitivity [11]. Women are also more likely to engage in occupations that demand high vocal usage, further predisposing them to reflux-related vocal strain. Hormonal fluctuations may alter the tone of the lower esophageal sphincter, increasing reflux susceptibility in females [12].

Diagnostic Value of RSI and Endoscopy

The Reflux Symptom Index (RSI) proved to be an effective screening tool in our cohort, with 67% of patients scoring above the diagnostic threshold of 13. This corroborates its high sensitivity and specificity as demonstrated by Belafsky et al. [13]. When combined with rigid fiberoptic endoscopy, RSI becomes a powerful tool to assess both symptom burden and anatomical changes.

However, while endoscopic signs like posterior laryngeal erythema and vocal fold edema are often used to infer LPR, studies suggest these may also be seen in asymptomatic individuals, warranting cautious interpretation [5,14].

Clinical Implications

The findings emphasize the need for a multidisciplinary management approach, involving ENT specialists, gastroentero-logists, and speech-language pathologists. Lifestyle modifi cations such as avoiding caffeine, alcohol, and late meals, and weight management—form the cornerstone of conservative reflux management [15]. Pharmacologic therapy, particularly proton pump inhibitors (PPIs), remains a mainstay, although their efficacy in LPR specifically remains debated [6,16]. Additionally, integrating voice therapy and vocal hygiene education can lead to better outcomes by reducing compensatory hyperfunction and promoting optimal vocal technique [10].

Limitations and Future Scope

This study's cross-sectional design limits the ability to determine causality between GERD and vocal cord patho logies. Objective diagnostic modalities such as 24-hour dual-probe pH monitoring or impedance testing were not employed, which could have enhanced diagnostic accuracy [14].

Future research should focus on longitudinal designs to assess treatment outcomes and incorporate biomarkers like salivary pepsin or pH impedance testing. There is also scope to explore genetic or hormonal factors influencing gender susceptibility and the dose-response relationship between reflux severity and laryngeal damage.

CONCLUSION

GERD has a strong correlation with vocal cord patho-logies. Regular screening using the RSI and early otolaryn - gologic evaluation can help in identifying at-risk patients and preventing chronic vocal damage.

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