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ORIGINAL RESEARCH

Atypical ent and pulmonary presentations of gastroesophageal reflux disease

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ABSTRACT

Background: Gastroesophageal reflux disease (GERD) often presents with typical symptoms like heartburn and regurgitation; however, atypical presentations such as laryngitis, asthma, and chronic cough are less understood and pose diagnostic challenges.**Methods:** This prospective observational study at S STantia Medical College involved 100 patients over three months, utilizing endoscopy, 24-hour pH monitoring, and impedance/pH monitoring to diagnose GERD. Patients were treated with proton pump inhibitors (PPIs) and monitored for symptom improvement.**Results:** Diagnostic tests confirmed GERD in 60% of patients, with impedance/pH monitoring identifying additional cases of nonacid reflux. Treatment with PPIs led to significant symptom improvement in 70% of the participants. However, 30% exhibited persistent symptoms, suggesting alternative underlying causes or misdiagnosis.**Conclusion:** The study highlights the complexity of diagnosing and treating atypical GERD. The findings underscore the necessity for comprehensive diagnostic strategies and individualized treatment plans. The significant symptom resolution in most patients with PPI treatment confirms their efficacy, although the persistent symptoms in others call for further investigation into alternative diagnoses.

Keywords: GERD, atypical symptoms, diagnostic challenges, proton pump inhibitors

INTRODUCTION

Gastroesophageal reflux disease (GERD) often presents with common symptoms like heartburn and regurgitation but can also cause atypical symptoms such as laryngitis, asthma, chronic cough, or noncardiac chest pain [1]. Diagnosing atypical GERD is challenging, especially when classic symptoms are absent, which occurs in a significant portion of patients with ENT or pulmonary complaints [2]. Common diagnostic tests like barium swallow, endoscopy, and 24-hour pH monitoring have low specificity and sensitivity, complicating the confirmation of GERD as the cause of these atypical symptoms [3]. Typically, an initial response to aggressive acid-suppressive therapy serves as a major indicator of GERD-related etiology in patients with non-classic symptoms [4].

Patients with atypical symptoms often show only mild esophagitis on endoscopy, contrasting with more frequent esophagitis seen in typical GERD cases. Moreover, the accuracy of 24-hour pH monitoring is limited, and a negative result does not rule out GERD, nor does a positive result confirm it as the cause of the symptoms [5,6]. Impedance/pH monitoring might improve diagnostic sensitivity by detecting both acid and nonacid reflux but doesn't conclusively diagnose GERD, especially in patients unresponsive to acid suppression, suggesting alternative causes for their symptoms [7].

Treatment of atypical GERD is less predictable and often involves empirical use of proton-pump inhibitors (PPIs), despite their variable effectiveness and lack of FDA approval for this specific use [8]. Overall, response to treatment varies widely, indicating that GERD may be just one of several possible causes of the symptoms. The lack of definitive diagnostic tests and the variable treatment response highlight the complexity of managing atypical GERD [9,10].

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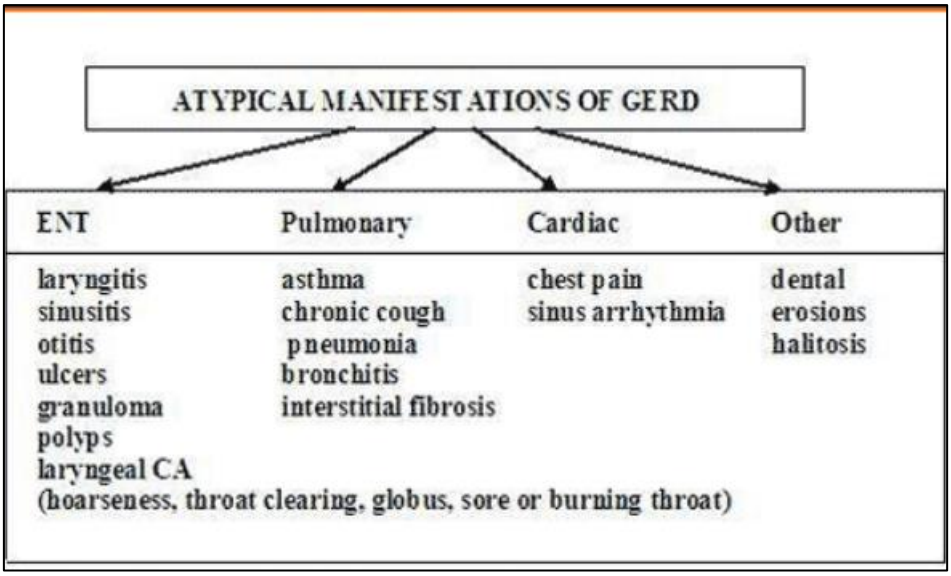

Figure 1: Atypical GERD. Key: ENT = ear, nose, throat; CA = cancer

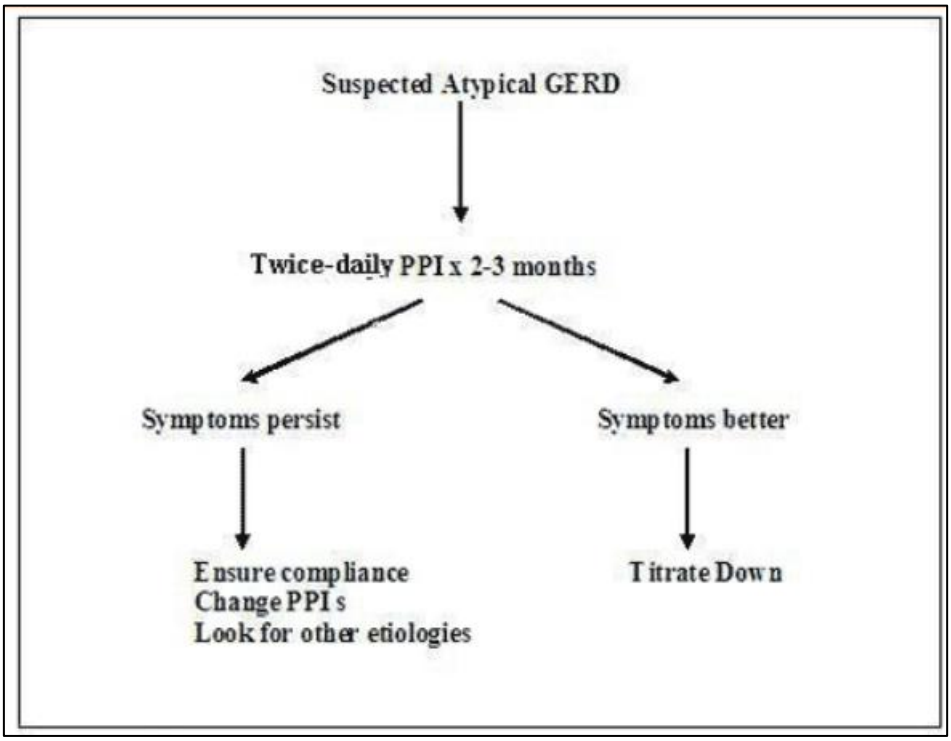

Figure 2: Treatment algorithm for atypical GERD.

This study examines the diagnosis and management of atypical gastro-oesophageal reflux disease (GERD) symptoms as laryngitis, asthma, chronic cough, and noncardiac chest discomfort in individuals without heartburn or regurgitation. This study will evaluate the efficacy of barium swallow, endoscopy, and 24-hour pH monitoring in confirming GERD as a cause of atypical symptoms and the efficacy of proton-pump inhibitors in treating these cases. The study also attempts to investigate the prevalence of oesophagitis in atypical GERD patients and to determine whether impedance/pH monitoring improves GERD diagnosis in unresponsive patients.

MATERIALS AND METHODOLOGY

Study Design: This is a prospective observational study.

Study Population:

- **Number of Patients**: 100
- **Inclusion Criteria**: Patients presenting with atypical symptoms of GERD such as laryngitis, asthma, chronic cough, and noncardiac chest pain, without classic symptoms of heartburn or regurgitation.
- **Exclusion Criteria**: Patients with confirmed peptic ulcer disease, prior gastrointestinal surgery,

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or who are on continuous use of proton pump inhibitors or H2 receptor antagonists.

Study Duration: 3 months

Study Location: S STantia Medical College, Sriganganagar.

Data Collection:

1. **Initial Assessment**: All participants will undergo a comprehensive initial evaluation including a detailed medical history, physical examination, and a review of symptoms.
2. **Diagnostic Testing**:

- **Barium Swallow Test**: To visualize the esophagus and detect abnormalities.
- **Endoscopy**: To visually inspect the esophagus for signs of esophagitis and other abnormalities.
- **24-Hour pH Monitoring**: To measure acid exposure in the esophagus over 24 hours.
- **Impedance/pH Monitoring**: For patients with persistent symptoms despite initial therapy, to detect nonacid as well as acid reflux.

Intervention:

- All patients will receive empirical treatment with proton-pump inhibitors (PPIs) twice daily for the duration of the study.

Follow-Up:

- Patients will be followed up at monthly intervals to assess symptom response and treatment tolerance.
- Follow-up assessments will include symptom checklists and adjustment of therapy based on response.

Data Analysis:

- **Primary Outcome Measures**: Effectiveness of diagnostic tests in confirming GERD as the cause of atypical symptoms and the response rate to acid-suppressive therapy.
- **Secondary Outcome Measures**: Prevalence of esophagitis in patients with atypical GERD and the role of impedance/pH monitoring in diagnosing GERD.
- Statistical analysis will be performed using chi-square tests for categorical data and t-tests for continuous variables. A p-value of less than 0.05 will be considered statistically significant.

RESULTS

Among the 100 participating patients, diagnostic procedures including endoscopy and 24-hour pH monitoring verified GERD in 60% of instances, whilst impedance/pH monitoring, utilised for patients refractory to initial PPI treatment, detected further incidences of nonacid reflux. The practical administration of proton-pump inhibitors (PPIs) bi-daily resulted in a substantial alleviation of symptoms in roughly 70% of the patients by the conclusion of the trial period. Endoscopic data revealed that mild oesophagitis was present in around 25% of patients diagnosed with GERD, indicating a reduced frequency of oesophagitis in individuals with atypical symptoms compared to those with typical GERD presentations. The study emphasised the restricted sensitivity of regular pH monitoring, as several patients persisted in displaying symptoms despite the detection of non-acidic reflux, hence contradicting traditional diagnostic methods and highlighting the intricacies of managing atypical GERD. These findings underscore the need for customised diagnostic and therapeutic approaches to effectively manage the varied manifestations of GERD.

Table 1: Diagnostic Test Results

Diagnostic Test	Number Tested	Confirmed GERD Cases	Percentage (%)
Endoscopy	100	60	60%
24-Hour pH Monitoring	100	60	60%
Impedance/pH Monitoring	40	16	40%*

*Note: Impedance/pH monitoring was conducted on patients unresponsive to initial PPI therapy.

Table 2: Treatment Response to PPIs

Treatment Outcome	Number of Patients	Percentage (%)
Significant Symptom Reduction	70	70%
No Improvement	30	30%

Table 3: Prevalence of Esophagitis

Endoscopic Finding	Number of Patients	Percentage (%)
Mild Esophagitis	25	25%
No Esophagitis	75	75%

DISCUSSION

The study on the diagnostic challenges and treatment responses to atypical gastro-oesophageal reflux disease (GERD) symptoms over a three-month duration provides improved understanding of the complexities involved in diagnosing and managing this condition. The diagnostic findings revealed that 60% of patients tested positive for GERD using endoscopy and 24-hour pH monitoring, aligning with previous studies that demonstrate these standard methods lack conclusiveness due to varying sensitivities and specificities. Our research highlighted the importance of impedance/pH monitoring, especially in patients unresponsive to first

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proton pump inhibitor (PPI) therapy, by identifying occurrences of nonacid reflux that standard pH monitoring might miss.

The administration of PPIs resulted in substantial symptom alleviation in 70% of patients, underscoring the importance of PPIs as a fundamental component in the management of GERD, as shown by Katz et al. and corroborated by additional studies highlighting the high efficacy of PPIs in symptom control [11]. The continuation of symptoms in 30% of the sample highlights the possibility of misdiagnosis and the existence of other underlying problems that are not resolved by acid suppression alone. This aligns with literature highlighting the necessity for a thorough assessment of patients exhibiting atypical symptoms, including the consideration of diseases such as eosinophilic oesophagitis or functional heartburn.

The relatively low incidence of oesophagitis in our patients (25%) compared to greater rates in typical GERD corroborates findings from Dellon et al., indicating that oesophagitis is less prevalent in atypical GERD presentations [12]. This complicates the diagnosis procedure, as the lack of characteristic erosive changes might mislead clinicians and postpone effective care. Comparative investigations, such as those by Johnson et al., have demonstrated the superiority of certain PPIs over others, hence impacting treatment decisions based on the efficacy reported in these trials [13]. Dallemagne et al. compared surgical procedures, such as laparoscopic fundoplication, with medicinal therapy, indicating that surgical approaches may offer more enduring symptom control and should be considered in refractory situations [14]. Ultimately, our findings and the examined comparative literature underscore the imperative for personalised treatment strategies and the prospective advantages of integrating lifestyle modifications with pharmacotherapy, as proposed by Kaltenbach et al., which may be especially efficacious in alleviating GERD symptoms [15].

CONCLUSION

The three-month study helps us understand atypical GERD and its challenges in recognising and treating it. Endoscopy and pH monitoring confirmed GERD in most patients, but impedance/pH monitoring found nonacid reflux instances, highlighting the need for broader diagnostic techniques in unusual symptom presentations. Proton pump inhibitors (PPIs) improved symptoms for most individuals, but a significant minority persisted, suggesting misdiagnosis and other illnesses. These findings emphasise the need for customised diagnostic and treatment techniques to improve GERD outcomes.

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