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ESOPHAGEAL DIVERTICULUM AS A CAUSE OF ASPIRATION PNEUMONIA: A CASE REPORT

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ABSTRACT

Aspiration pneumonia is a clinically significant condition that may result from unrecognized structural or functional abnormalities of the upper gastrointestinal tract. Esophageal diverticula, although often asymptomatic, can predispose patients to recurrent aspiration and serious pulmonary complications. This case report describes a 59-year-old female patient admitted with recurrent lower respiratory tract infections of unclear etiology. Comprehensive clinical assessment, laboratory testing, and radiological imaging revealed aspiration pneumonia secondary to a large esophageal diverticulum. Targeted antibiotic therapy was initiated, and the patient was referred for definitive surgical treatment. This case highlights the importance of considering gastrointestinal causes in patients with recurrent pneumonia and emphasizes the role of an interdisciplinary diagnostic approach.

KEYWORDS

Aspiration Pneumonia, Esophageal Diverticulum, Case Report, Recurrent Respiratory Infections

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Introduction

Aspiration pneumonia accounts for approximately 5–15% of community-acquired pneumonia cases and is associated with increased morbidity, prolonged hospitalization, and higher mortality compared to other forms of pneumonia [1]. It develops as a result of aspiration of gastric contents, food particles, or oropharyngeal secretions into the lower respiratory tract. Common risk factors include neurological disorders, impaired consciousness, dysphagia, and advanced age; however, gastrointestinal structural abnormalities are less frequently recognized as underlying causes [1,2].

Esophageal diverticula are outpouchings of the esophageal wall that may arise through pulsion or traction mechanisms. While many diverticula remain asymptomatic, larger lesions may lead to food retention, regurgitation, dysphagia, and recurrent aspiration [3]. Zenker's diverticulum and epiphrenic diverticula are particularly associated with respiratory complications due to chronic microaspiration [4].

Due to non-specific or absent gastrointestinal symptoms, esophageal diverticula may remain undiagnosed for years, resulting in repeated episodes of pneumonia and inappropriate antibiotic therapy. This case report presents aspiration pneumonia caused by an esophageal diverticulum and underscores the importance of a holistic diagnostic approach in patients with recurrent lower respiratory tract infections.

Case Report

A 59-year-old female patient was admitted to a tertiary pulmonary center with a history of recurrent lower respiratory tract infections over several months. She reported progressive fatigue, low-grade fever, persistent non-productive cough, dyspnea, postprandial vomiting, retrosternal burning sensation, and unintentional weight loss of approximately 6 kg. The symptoms had gradually worsened despite multiple outpatient treatments.

One month prior to admission, the patient had been diagnosed with community-acquired pneumonia and offered antibiotic therapy, which she declined due to several antibiotic courses received during the preceding months. Her medical history was otherwise unremarkable. She had no known chronic diseases, denied smoking, and reported no known allergies. An esophageal diverticulum had been diagnosed endoscopically three years earlier but remained asymptomatic and untreated.

On admission, physical examination revealed a body temperature of 38.1°C, respiratory rate of 26 breaths per minute, oxygen saturation of 93% on room air, and non-productive cough. Auscultation revealed vesicular breath sounds with wheezing and fine crackles over the left lower lung field. No abnormalities were noted in other organ systems.

Laboratory investigations demonstrated leukocytosis (WBC 10×10^9/L) with neutrophilia, elevated C-reactive protein (200 mg/L), increased procalcitonin (1.2 ng/mL), and elevated erythrocyte sedimentation rate (35 mm/h). Arterial blood gas analysis showed mild hypoxemia (PaO_2 70.8 mmHg).

Chest radiography revealed extensive inflammatory infiltrates predominantly affecting the left lower lobe. Given the recurrent nature of infections and the known history of esophageal diverticulosis, aspiration pneumonia was suspected. Contrast esophagography demonstrated a large esophageal diverticulum measuring approximately 5 cm in diameter, located above the gastroesophageal junction, with significant retention of contrast material.

Based on clinical, laboratory, and imaging findings, aspiration pneumonia secondary to an esophageal diverticulum was diagnosed. The patient was treated with intravenous azithromycin and supportive therapy, including oxygen supplementation and intravenous fluids. Following clinical stabilization, she was referred for surgical management of the diverticulum.

Discussion

Aspiration pneumonia is a distinct clinical entity with a multifactorial pathogenesis and often requires identification of the underlying cause to prevent recurrence [1]. While neurological impairment remains the most commonly recognized risk factor, gastrointestinal disorders such as esophageal diverticula represent an important and underdiagnosed etiology [2,3].

Esophageal diverticula are classified based on their anatomical location and pathophysiology. Cervical and epiphrenic diverticula typically arise through a pulsion mechanism related to esophageal motility disorders, whereas mid-esophageal diverticula are usually traction-related [3,5]. Large diverticula may lead to food stasis, regurgitation, nocturnal aspiration, and recurrent respiratory infections [4,6].

Several studies have demonstrated that patients with aspiration pneumonia have longer hospital stays, higher severity scores, and increased need for intensive care compared to patients with other forms of

pneumonia [1,7]. In the present case, delayed recognition of the gastrointestinal source led to repeated infections and unnecessary antibiotic exposure.

Definitive management of symptomatic esophageal diverticula includes surgical resection or minimally invasive endoscopic techniques such as diverticulotomy or peroral endoscopic myotomy (Z-POEM), which have shown favorable outcomes in selected patients [8,9]. Early identification and treatment are essential to prevent recurrent aspiration and improve quality of life.

Conclusions

This case demonstrates that esophageal diverticula, even when previously asymptomatic, may lead to serious pulmonary complications such as aspiration pneumonia. In patients with recurrent lower respiratory tract infections, especially when standard treatment fails, gastrointestinal causes should be actively considered. A multidisciplinary diagnostic approach is crucial to ensure timely diagnosis, rational antibiotic use, and definitive treatment.

Disclosure

Authors' contributions

Conceptualisation: SK
Methodology: ZK
Software: OR,NS
Check: ZK, NS
Formal analysis: SK
Investigation: OR
Resources: SK
Data curation: SK,NS
Writing-rough preparation: ZK
Writing-review and editing: OR
Visualization: SK,OR
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