

A Giant Esophageal Epiphrenic Diverticulum Causing Dysphagia, Fungal Infection and Aspiration Pneumonia in an Elderly Patient

Sabhita Shabir Shaikh and Raheela Khalid

National Institute of liver and GI diseases, Dow University of Health Sciences, Karachi, Pakistan

ABSTRACT

Esophageal epiphrenic diverticulum is a rare condition. We present a case of a 70-year male with no known comorbidities who presented with dysphagia, cough, fever, and weight loss for 3 months. CT chest with contrast showed an out-pouching arising from the distal dorsal oesophagus, 15.6 cm long with 0.9 cm neck, containing food particles causing compression and consolidation of adjacent lung segments. His upper gastrointestinal endoscopy showed a large diverticulum arising at 30 cm from incisors with overlying ulcerated and necrotic mucosa. A biopsy of diverticular mucosa showed fungal hyphae and spores and was negative for malignancy. The patient was given antifungals and showed significant improvement of symptoms but considering the huge size of the diverticulum, he was referred to a thoracic surgeon.

Key Words: *Epiphrenic diverticulum, Dysphagia, Aspiration pneumonia, Fungal infection.*

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INTRODUCTION

Epiphrenic diverticulum is a mucosal outpouching of the distal oesophagus and is a rare cause of dysphagia in the elderly population. Its prevalence is different between countries and studies ranging from 0.015% to 2%.¹ Esophageal diverticula arise from the upper, mid and lower regions of oesophagus. Epiphrenic diverticulum usually develops from the distal esophagus within 10 cm of gastroesophageal junction (GEJ). The esophageal diverticula are further classified as traction and pulsion types depending upon aetiology.² Epiphrenic diverticulum is mostly idiopathic but sometimes is associated with underlying oesophageal motility disorder.

A pulsion diverticulum, such as epiphrenic, arises because of increased pressure in oesophageal lumen due to uncoordinated peristaltic movements which occur in motility disorders.³ Historically, epiphrenic diverticulum is described as a false diverticulum because it does not contain all four layers.⁴

Epiphrenic diverticulum can present with a wide variety of symptoms like dysphagia, chest pain, regurgitation, and aspiration pneumonia, depending on the size of diverticulum and whether there is an associated motility disorder or not.⁵

There are scattered case reports which show malignant changes causing significant morbidity and mortality. Herein, we report a case of a giant epiphrenic diverticulum causing dysphagia with superimposed fungal infection leading to aspiration pneumonia.

CASE REPORT

A 70-year male with no known comorbidities presented to our endoscopy unit for upper gastrointestinal endoscopy because of dysphagia. On questioning, he reported that he had progressive dysphagia for three months, associated with significant but undocumented weight loss, productive cough with yellowish sputum and fever for the last 2 weeks. On examination, he was mildly anaemic. On chest examination, he had decreased air entry over the right mid-lower chest with no added sounds. Abdominal examination was unremarkable. Investigations showed hypochromic normocytic anaemia with haemoglobin of 8.8 g/dl, mean corpuscular volume of 84.7 fl, white blood cell count, $13.38 \times 10^9/L$ with 71% neutrophils, and platelets, $576 \times 10^9/L$. Sputum culture showed heavy growth of candida species. Sputum cytology revealed the growth of bacterial colonies and fungal hyphae with budding yeast cells, squamous and few columnar epithelial cells and dust cells against muco-proteinaceous background. There were no malignant cells in cytology.

CT scan chest with contrast showed a large outpouching seen arising from the right posteromedial wall of the distal dorsal esophagus starting at subcarinal level corresponding to D6 vertebral level with a neck of 0.9 cm, containing food particles

Correspondence to: Dr. Raheela Khalid, National Institute of liver and GI diseases, Dow University of Health Sciences, Karachi, Pakistan
E-mail: dr.raheela.khalid@gmail.com

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and measuring 15.6 × 7.6 × 7.6 cm (CC × AP × TS) causing consolidation and collapse of adjacent medial and posterior segments of right lung and minimal thickening of right crus of diaphragm (Figure 1). GEJ and stomach appeared unremarkable, located at normal anatomic location. Few prominent lymph nodes were seen in para-esophageal and right retrocrural regions (Figure 1).

His upper gastrointestinal endoscopy showed a large diverticulum arising at 30 cm from incisors with overlying ulcerated and necrotic mucosa, causing compression of esophageal lumen; however, the scope was negotiated easily (Figure 2 a & b). GEJ appeared normal (at 36 cm). Gastric mucosa and duodenum also appeared normal (Figure 2c). Biopsy was taken from wall of diverticulum to rule out malignancy.

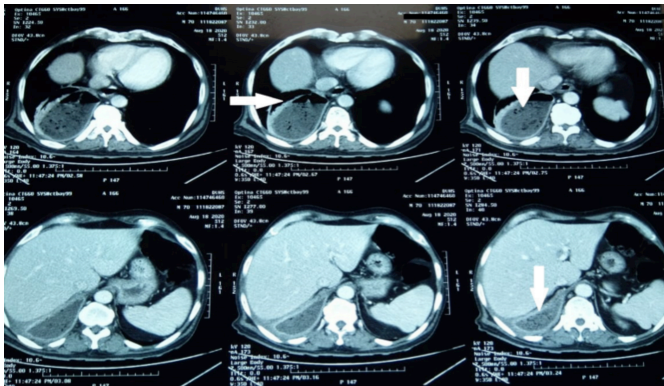


Figure 1: CT scan chest with contrast showing a large outpouching seen arising from right posteromedial wall of distal dorsal esophagus starting at subcarinal level with a neck of 0.9 cm, containing food particles and measuring 15.6 × 7.6 × 7.6 cm causing consolidation and collapse of adjacent medial and posterior segments of the right lung.

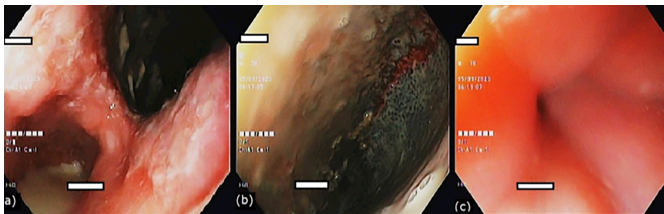


Figure 2: Endoscopic findings: (a) showing both diverticular opening on the right side and normal esophagus on the left side, (b) blind-ending epiphrenic diverticulum with overlying ulcerated and necrotic mucosa, (c) normal gastroesophageal junction.

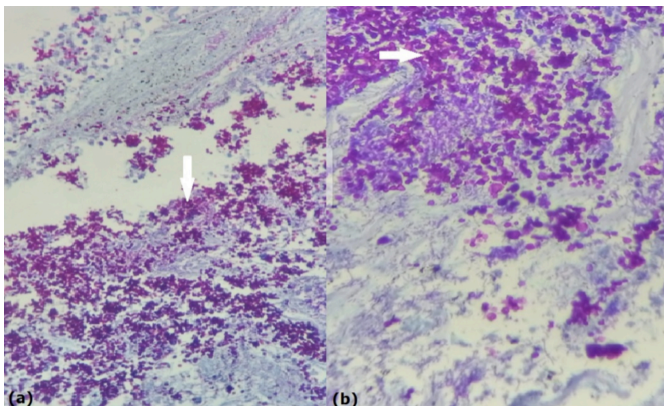


Figure 3: Histopathology showing (a) fungal spores and hyphae on Periodic Acid Schiff stain at ×20 magnification and (b) ×40.

Biopsy showed only fungal spores and hyphae with no evidence of dysplasia and malignancy (Figure 3). The patient was given antifungals and showed significant improvement of symptoms but considering the huge size of the diverticulum, he was referred to a thoracic surgeon.

DISCUSSION

Epiphrenic diverticulum can be small and incidental but the largest diverticulum reported is 9 cm to the best of our knowledge.⁶ In this case, the diverticulum was giant measuring 15 cm, which is not reported before. In Pakistan, it is a rare condition. In one study conducted in Karachi from 2011 to 2016, the frequency of epiphrenic diverticulum was 0.025%.⁷

Epiphrenic diverticulum presents with a wide variety of symptoms from asymptomatic to complete dysphagia and malignancy. Studies have shown that only 15% to 20% of patients become symptomatic.⁸ This is because most of the epiphrenic diverticula are small in size and incidentally diagnosed. This patient presented with new-onset dysphagia due to the large size of diverticulum leading to passage of food into its lumen and compression of esophageal lumen. Regurgitation of food particles led to superimposed candida infection and due to aspiration of this, he also developed a fungal infection in the chest.

Epiphrenic diverticulum can be a life-threatening condition. In one of the case reports, a patient developed upper gastrointestinal bleeding because the patient had developed carcinoma in the diverticulum which was actively bleeding. Though this patient was mildly anaemic, he did not give history of hematemesis and/or melena, nor the endoscopic findings were suggestive of gastrointestinal bleeding. Prolonged inflammation in the walls of diverticulum can later on cause metaplasia, dysplasia and ultimately malignancy. The incidence of malignancy in epiphrenic diverticulum is 0.6%.⁹ In this patient, biopsy of diverticular wall showed only necrotic slough and candida spores and hyphae.

Different imaging modalities are used for the diagnosis of epiphrenic diverticulum. Barium swallow is the best initial investigation because it also shows associated motility disorder including achalasia and nutcracker esophagus. As this patient was advised CT scan chest, based on respiratory symptoms in addition to dysphagia, so barium swallow was not done.

Esophageal manometry helps in diagnosing underlying motility disorder.¹⁰ In this patient, manometry could not be done as the patient declined further work-up.

Upper gastrointestinal endoscopy provides a definitive diagnosis of epiphrenic diverticulum, its origin and association with lax lower esophageal sphincter and achalasia, which is common in these patients. In this patient, GEJ was normal. No lax lower esophageal sphincter or achalasia was noted. So short of manometry and barium studies, we can still presume that there was no associated motility disorder in this patient.

Epiphrenic diverticulum, if symptomatic, requires treatment; sometimes, conservative management is all that is needed if

mild symptoms occur. The need for surgery depends upon size and symptoms. Diverticulectomy is the definitive treatment of epiphrenic diverticulum. Minimally invasive laparoscopic diverticulectomy with myotomy and fundoplication is the surgery of choice nowadays, as it lowers perioperative and postoperative complications.

This patient was advised surgery considering giant epiphrenic diverticulum but as his symptoms started improving with oral antifungals, he refused surgery. Therefore, he was advised to close follow-up for the recurrence of symptoms and complications like upper gastrointestinal bleeding and development of malignancy.

PATIENT'S CONSENT:

We have taken informed consent from the patient to publish this data. All his queries were addressed.

COMPETING INTEREST:

The authors declared no competing interest.

AUTHORS' CONTRIBUTION:

SSS: Procedure and diagnose the case. She has written the discussion part of the manuscript and did editing and review of the manuscript.

RK: Collected data, and wrote the introduction and case summary of the manuscript.

Both authors have read and approved the final version of the manuscript to be published.

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