

DUODENO-PULMONARY FISTULA; A RARE CONDITION WITH AN UNUSUAL PRESENTATION

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Abstract—Duodeno-pulmonary fistula is a rare condition amongst fistulous communications between abdominal and thoracic organs. Typically patients have pulmonary symptoms preceded by abdominal complaints. We present a case of Duodeno-pleural fistula with an atypical presentation.

Keywords—*Duodeno-pulmonary fistula; sub-diaphragmatic abscess*

1. Introduction

A 77 year-old male with past medical history of hypertension, hyperlipidemia and gout presented with hemoptysis and chest pain. Symptoms started about 4 weeks earlier with onset of fatigue, fever, chills and cough productive of clear sputum. He was evaluated at an urgent care clinic and was prescribed a five days course of Azithromycin. Patient remained symptomatic, saw his primary care physician. Chest X-ray at the time was unremarkable but he had leukocytosis of 25,000. He was then prescribed a course of Levofloxacin and tapering dose of steroids. Over a course of few days patient began to feel much worse with onset of hemoptysis and severe chest pain that prompted admission.

On examination, patient was afebrile had sinus tachycardia, tachypnea but oxygen saturation was normal on room air. Auscultation of the chest revealed reduced air entry right base, no rales or wheezes were heard. Abdomen was soft, non-distended, non-tender with normoactive bowel sounds. Upon review of systems patient denied abdominal pain, nausea or vomiting. Laboratory data showed leukocytosis of 30,000 with left shift. Chest x-ray was consistent with right middle lobe pulmonary abscess. CT imaging was ordered which confirmed right middle lobe abscess but surprisingly the abscess was contiguous with a right sub-diaphragmatic cavity with further continuation of linear gas along the anterior margin of the liver to the gallbladder fossa and extended to the first portion of the duodenum. There

appeared to be a diverticulum in the first portion of the duodenum as well (Figure 1,2). Patient was started on intravenous antibiotics, kept NPO. Pulmonary, Infectious disease and Cardiothoracic services were consulted. Radiographic findings were consistent with Duodeno-pulmonary fistula that evolved from a possible duodenal ulcer or diverticulum perforation leading to sub-diaphragmatic and eventually lung abscess formation. The recommendations were to manage this condition conservatively with antibiotics.

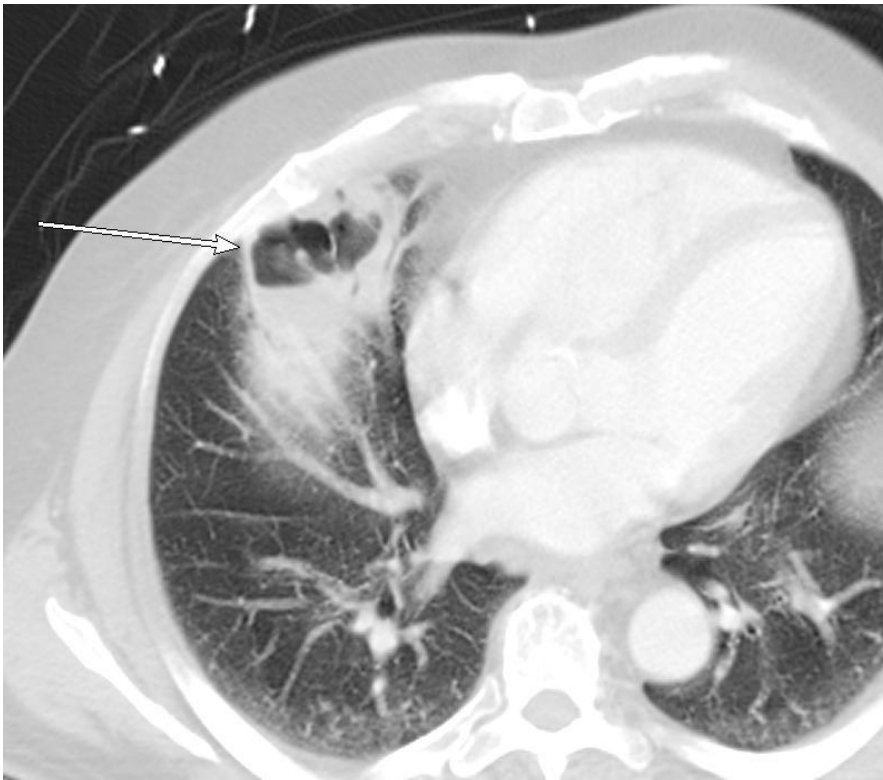


Figure 1: A single axial CT image in lung window shows the right middle lobe intrapulmonary abscess

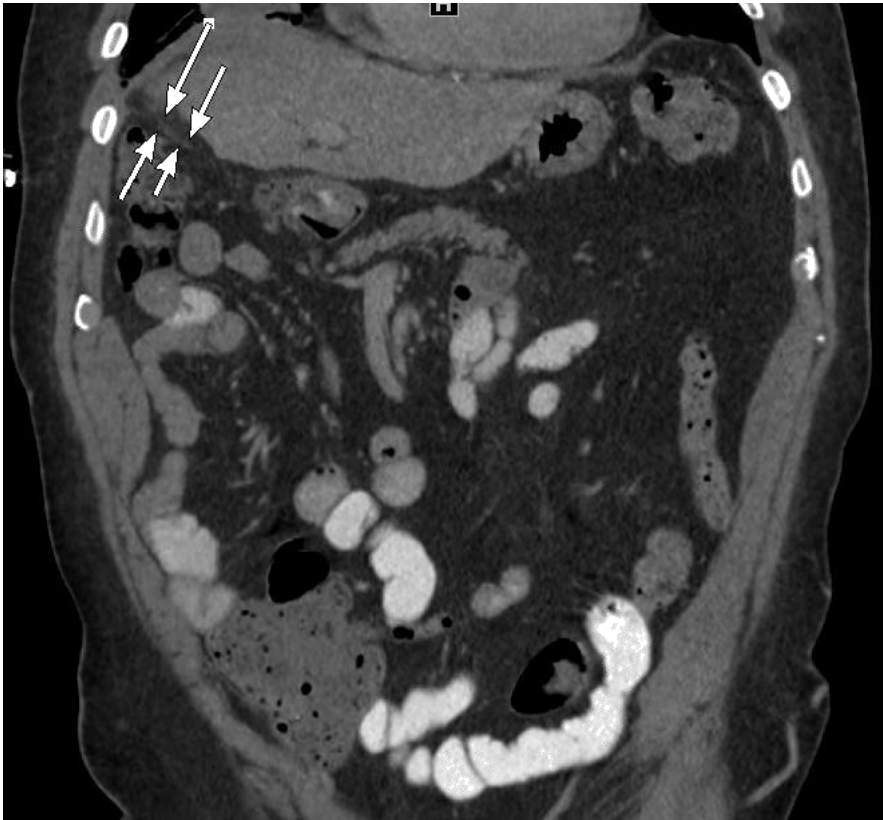


Figure 2: Coronal contrast-enhanced CT image demonstrating a fistulous tract from the duodenal bulb, coursing beneath the right hemi-diaphragm, leading to a sub-diaphragmatic abscess. This process extends through the diaphragm, into the right lung

Sputum and blood cultures remained negative for any microbial growth. Fungitell and Galactomannan were within normal limits. ANCA related serology was unremarkable. TB spot test was negative as well. Small bowel follow through series did not show any leak but did reveal duodenal diverticulum. Over the course of few days patient had improvement in symptoms with downward trend to leukocytosis. CTS performed Esophagoduodenoscopy (EGD) and bronchoscopy with normal bronchial anatomy, unable to visualize fistula, normal esophageal and gastric mucosa with inflamed duodenal mucosa.

Biopsy results were unremarkable. No *H. Pylori* was detected. There was no microbial growth on broncho-alveolar lavage fluid. Patient completed 6 weeks of antibiotics. Repeat CT imaging confirmed resolution of abscess.

2. Discussion

Fistulous tracts between abdominal and thoracic organs are uncommon¹. The primary pathology initiates in the abdomen with typically an ulcer in the gastro-intestinal tract complicated by perforation, development of sub-diaphragmatic abscess, which ultimately leads to pulmonary

involvement across the diaphragm². Abdominal organs commonly involved include stomach and colon with duodenum being rarely the source of fistula¹. This explains only a handful of cases described in the literature pertaining to Duodeno-pulmonary fistula with etiology being perforated duodenal ulcer, Crohn's disease and complication of radiofrequency ablation for hepatocellular carcinoma^{1,3,4}.

The patient described here not only had a rare condition but also remarkable for atypical presentation as he did not have any abdominal symptoms despite having duodenal perforation at some point which likely self sealed over the course of disease as no ulcer found on EGD. Typically sub-diaphragmatic abscess from gastric or duodenal perforation would lead to thoracic empyema as pulmonary involvement but our patient had lung abscess².

His primary symptoms were of hemoptysis and fever that would indicate towards a primary pulmonary disease which likely lead to a late diagnosis. However his symptoms improved only with medical management and did not require any surgical intervention.

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