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Gastrobronchial Fistula Presenting with Unexplained Chronic Cough

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Abstract

A gastrobronchial fistula (GBF) is a rare and life-threatening disease. The prognosis in patients with GBF is related to early diagnosis and urgent surgical intervention. We report a rare case of fistulous communication between the stomach and the residual pleural space, presenting with a 1-month history of coughing. The patient was initially misdiagnosed as having bronchitis. When patients present with a persistent long-term dry cough, we suggest that GBF should be included when making a differential diagnosis. We provide a review of the literature by discussing possible causes such as erosion into a bronchus after a perigastric abscess secondary to gastric ulcer perforation.

Keywords: Gastrobronchial fistula (GBF); Chronic cough; Dry cough; Acute bronchitis

Case Report

An 84-year-old man, who had been taking non-steroidal anti-inflammatory drugs for a compression fracture of the lumbar spine. His family reported a 1-month history of a progressive dry cough, abdominal distension, and poor appetite. He had been given antimicrobial therapy under the diagnosis of acute bronchitis at the local medical center, prior to the sudden onset of chest pain, epigastric pain, and breathlessness and change in consciousness for 1 day. He did not have a history of allergic rhinitis, gastroesophageal reflux disease, postnasal drip syndrome, or asthma. He had an operative history of the perforation of a gastric ulcer 6 years previously. On admission, his temperature was 36.8°C, pulse was 142 beats per minute, respiratory rate was 50 breaths per minute with subcostal and intercostal retractions, and blood pressure was 102/72 mmHg. Laboratory investigations, including complete blood count and blood biochemistry, were all normal, except a C-reactive protein count of 33.2 mg/dL (reference range, <0.8). Abdomen computed tomography (CT) was performed and indicated hydropneumoperitoneum, consistent with hollow organ perforation and gastrobronchial fistula (GBF) formation (Figure 1a). He was subsequently taken to the operating room while still on a ventilator. During operation, a gastric ulcer perforation was found on the fundus with a localized subphrenic abscess with stomach content and possible fistulous connection between the gastric fundus and the left lower lobe (LLL) bronchus (Figure 1b). The waterproof test demonstrated the escape of an air bubble in water. He undwewent total gastrectomy and repair of diaphragm. The patient succumbed to his illness 64 days after surgery because of multiple organ dysfunction syndrome.

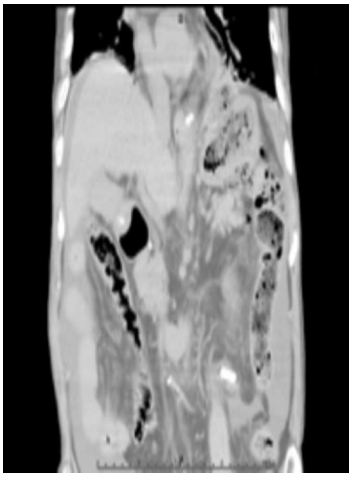

Figure 1a: Non-contrast-enhanced abdomen CT of an 84-year-old male patient showing hydropneumoperitoneum, consistent with hollow organ perforation and fistulous communication between the stomach and the residual pleural space.

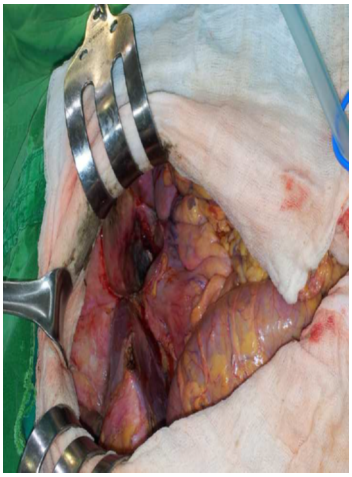

Figure 1b: During exploratory surgery on an 84-year-old male patient, a gastric ulcer perforation was found over the fundus region with expelled stomach content. The diaphragm was perforated with further LLL micro perforation and air leakage (dotted line: subphrenic abscess; solid line: diaphragm perforation with LLL micro perforation).

Comment

Any type of GBF followed by a perigastric abscess secondary to PPU is extremely unusual, and ours is only the fourth case to be reported in the English literature. The typical presentation is that of fever, epigastric pain, vomiting, dysphagia, reflux, and chest discomfort. A dry cough as the initial presentation of GBF is very rare. In the present case, the mechanism was considered secondary to perforation of the stomach, intra-abdominal abscess formation, and its subsequent transdiaphragmatic erosion into the thoracic space, where it causes

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irritation of cough receptors [1]. When an unexplained cough develops in an elderly man with no underlying lung disease, particularly during the winter and fall, acute bronchitis is the most common illness among outpatients, as previously reported [2]. Plain chest radiography often raises suspicion, but is often indirect and inconclusive. The diagnosis of GBF is confirmed by the presence of an oral contrast agent in the chest cavity after radiographic contrast examination, measurement of bronchial secretion pH, barium study, and CT. Unfortunately, our case did not receive a series of standard study for making a definite diagnosis, because of unstable vital signs and emergent surgery. Although GBF is rare, its prognosis is good in patients with GBF with early diagnosis and surgical intervention, emphasizing the importance of making a definite diagnosis. Optimizing the patient for surgery and controlling sepsis are always necessary when a diagnosis of GBF is made. The present case is a reminder to clinical physicians that GBF should be considered when patients present with an unexplained cough that fails to resolve with antimicrobial therapy for presumed pneumonia, especially with the past medical history of surgery on the stomach or gastrointestinal tract. Early surgical treatment of GBF may be associated with reduced early morbidity in these patients and should probably be considered as the initial procedure of choice.

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