ACG CASE REPORTS JOURNAL

IMAGE | ESOPHAGUS

Barium in the Bronchi: A Tracheoesophageal Fistula

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CASE REPORT

A 55-year-old-man with squamous cell carcinoma of the esophagus who was recently on palliative radiation presented with increasing cough productive of copious secretions. He reported feeding himself primarily through a gastrostomy tube and also eating by mouth for pleasure. He reported cough and difficulty in breathing, which was associated with feeding through either route. He was admitted for further evaluation. A chest radiograph was unrevealing. He underwent chest computed tomography with contrast, which showed the esophageal mass with areas of necrosis and a small gas-filled tract extending toward the left mainstem bronchus (Figure 1). There was no definitive evidence of a fistulous tract in the computed tomography. Following that, he was subject to an esophagram with oral barium contrast. There was pooling of barium in the mid-esophagus that was tracking into the bronchial tree at the proximal left main bronchus leading to opacification of the bronchi bilaterally (Figure 2). No reflux of contrast was visualized, and very minimal amount was seen passing into the distal esophagus. This led to the definitive diagnosis of tracheoesophageal fistula (TEF) causing aspiration. He was planned for a joint procedure by the gastroenterology and intervention pulmonology teams to stent the esophagus and left mainstem bronchus. However, during esophagogastroduodenoscopy, the guidewire could not be passed through the completely occluded esophagus and persistently ended up in the left lower lobe of the lung through the fistulous tract. Bronchoscopy revealed a necrotic area in the posterior wall of the left mainstem bronchus with the fistula opening. A covered metal stent was deployed. Later, the gastrostomy tube was replaced with a gastrojejunostomy tube for feeding.

Fifty percent of all TEFs occur in patients with malignancies of the esophagus and lung. Esophageal cancer is the most common cause, especially following radiation or chemotherapy that promotes tumor necrosis.[1] In these patients, recurrent aspiration or

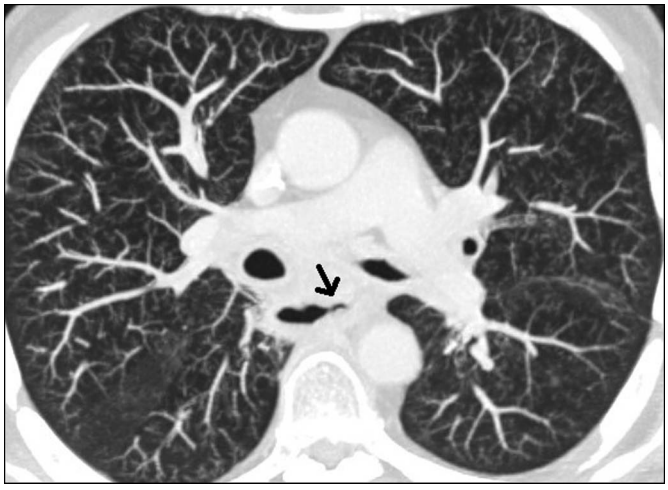

Figure 1. Chest computed tomography with contrast showing a gas-filled tract (arrow) extending from the esophagus toward the left main stem bronchus.

ACG Case Rep J 2019;6:e00189. doi:10.14309/crj.0000000000000189. Published online: August 21, 2019

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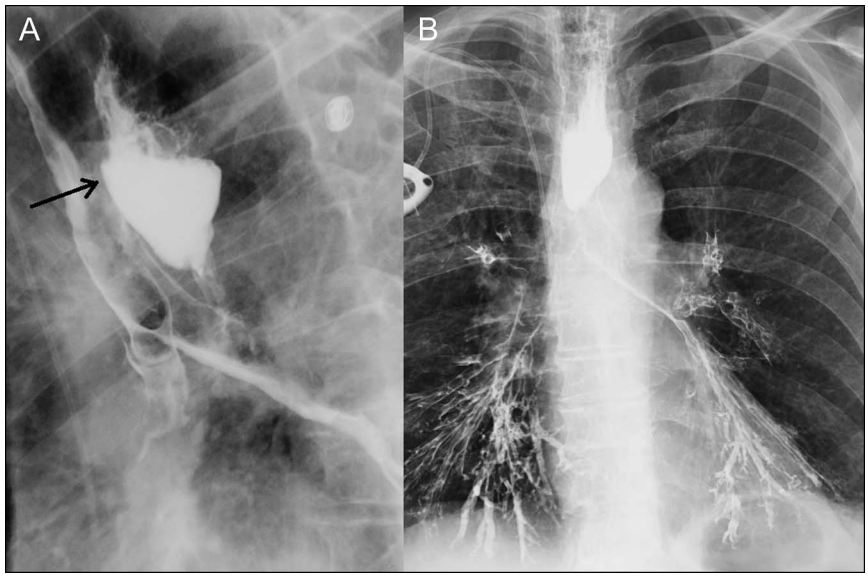

Figure 2. Barium esophagram demonstrating (A) pooling of barium in the mid-esophagus, tracking into the bronchial tree at the proximal left main bronchus (arrow) just distal to the carina, and (B) barium spread throughout the bronchial tree bilaterally.

coughing after feeding should raise the suspicion and prompt workup for a TEF. Esophagram and esophagogastroduodenoscopy are the most useful diagnostic tests. Aspiration prevention measures should be instituted. Malignant TEFs are generally managed with palliative stenting. Those located in the distal esophagus are typically treated with an esophageal stent, whereas those at the mid or proximal esophagus require stenting of both the airway and the esophagus.[2] In some patients, esophageal stenting may not be feasible because of complete lumen occlusion. In these cases, it is best to stent the airway, maintain nil per oral status, and resort to alternative means of feeding.

DISCLOSURES

Author contributions: K. Gnanapandithan wrote the manuscript, reviewed the literature, and is the article guarantor. K. Bramley and PA Jamidar revised the manuscript.

Financial disclosure: None to report.

Informed consent was obtained for this case report.

Received March 8, 2019; Accepted June 26, 2019

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