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The Hemoptysis and the Subclavian Artery Pseudoaneurysm due to a Fishbone Injury

A Case Report

Yong Jik Lee, MD, Chang-Ryul Park, MD, Jeong Won Kim, MD, PhD, Yun Seok Kim, MD, Jae Cheol Hwang, MD, PhD, Kwang Won Seo, MD, PhD, and Jong-Pil Jung, MD

Abstract: Ingestion of a foreign body is a common cause of esophageal injury, but hemoptysis is a rare manifestation of the esophageal penetration by a swallowed foreign body. The swallowing of a fishbone is hard to diagnose and the definite diagnosis is usually made during surgery. We describe the case of a 50-year-old man with direct injury to the lung parenchyma, the azygos vein, and the subclavian artery pseudoaneurysm due to a fishbone penetration from the upper esophagus into the lung. To our knowledge, this is the first case report that we know of in which a swallowed foreign body that penetrated from the upper esophagus into the lung caused vascular injuries and lung damage and it was solved by minimally invasive surgery and an endovascular stent.

We successfully diagnosed and treated a case with the migration of the fishbone from the upper esophagus into the lung. A contrast-enhanced computed tomography (CT) scan is recommended to clarify the fact of vascular injury before surgery. Thoracoscopic operation (VATS) combined with endovascular treatment could be a safer and a more feasible treatment option in this rare condition.

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Abbreviations: CT = computed tomography, VATS = video-assisted thoracic surgery.

INTRODUCTION

Ingestion of a foreign body, such as a fishbone, a chicken bone, or a toothpick, is a common cause of esophageal injury. But hemoptysis is a rare manifestation of esophageal penetration by

a swallowed foreign body. We diagnosed and treated a case with the migration of a fishbone from the upper esophagus into the lung. The swallowing of a fishbone is hard to be diagnosed and the definite diagnosis is usually made during surgery. Also, a contrast-enhanced computed tomography (CT) scan is recommended to check if there are suspected vascular complications. To our knowledge, this is the first report in which a swallowed foreign body penetrated from the upper esophagus into the lung caused vascular injuries and lung damage. This is also the first case report in which it was solved by minimally invasive surgery and an endovascular stent.

CASE PRESENTATION

A 50-year-old man visited the local ear, nose, and throat clinic to receive treatment. He ate monkfish and felt a fishbone get stuck in his throat, but his upper esophagoscopy evaluation was normal. Two weeks later, he consulted the emergency department of his regional hospital because of chest pain and dyspnea. His chest x-ray revealed pneumothorax, and he was admitted for drainage for 3 days with closed thoracostomy and was discharged following treatment.

Two weeks later, he experienced a hemoptysis and was transferred to Ulsan University Hospital and admitted to the Pulmonary Medicine. The patient had no fever or chills at that time. Because in his recent history there was an event of a fishbone getting stuck in his throat, we performed the esophagoscopy evaluation. No abnormalities were found during the examination. A CT scan of the chest showed a linear high attenuated structure, associated with lung parenchymal hematoma. It was located within the apical segment of the right upper lobe (Fig. 1). Fiberoptic bronchoscopy revealed old blood clots and bloody secretion from the right upper lobe. Laboratory data were as follows: white blood cells, 9180/mm³, hemoglobin, 13.3 g/dL, and C-reactive protein, 0.12 mg/dL.

We decided to perform a video-assisted thoracic surgery (VATS) to treat the lung parenchymal consolidation and remove the foreign body. At the time of the surgery, the apex of the right lung was adherent to the mediastinum. After dissection of the pleural adhesion, a rigid foreign body that had penetrated the azygos vein was found (Fig. 2A). We performed a wedge resection on the apical segment of the right lung because there was lung parenchymal laceration. The penetrated azygos vein was repaired with pledgetted nonabsorbable sutures, the successful removal of the fishbone (Fig. 2B), and the tying of the injured azygos vein. The fishbone measured 3.5 cm (1.4 inches) in length (Fig. 3).

After the operation, his hemoptysis had disappeared, but just in case, we performed a contrast-enhanced CT scan to make sure there were no vascular complications. We discovered a pseudoaneurysm in the right subclavian artery, about 7 mm in

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From the Department of Thoracic and Cardiovascular Surgery, Ulsan University Hospital, University of Ulsan College of Medicine (JWK, YJL, YSK, C-RP, J-PJ); Department of Radiology, Ulsan University Hospital, University of Ulsan College of Medicine (JCH); and Division of Pulmonology, Department of Internal Medicine, Ulsan University Hospital, University of Ulsan College of Medicine (KWS), Ulsan, Korea.

Correspondence: Jeong Won Kim, Department of Thoracic and Cardiovascular Surgery, Ulsan University Hospital, University of Ulsan College of Medicine, Ulsan, Korea (e-mail: tcs98@hanmail.net).

ETHICS STATEMENTS: Ethical approval was not necessary for this report as it was focused on the patient hospital course and did in no way alter his treatment.

However, the patient provided informed consent for the publication of this case report.

The authors have no conflicts of interest to disclose.

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FIGURE 1. High-resolution CT of chest showed a linear radiopaque foreign body (arrow) at the right upper lobe apical segment and hematoma around the right subclavian artery. CT=computed tomography.

length. An endovascular covered stent graft was placed with a transfemoral access in the right subclavian artery to exclude the pseudoaneurysm by an interventional radiologist (Fig. 4). The patient recovered and was discharged uneventfully, given the medication of antithrombotic drugs aspirin (100 mg) and clopidogrel (75 mg) to be eaten once a day.

DISCUSSION

Shapes of the foreign body play an important role in determining the probability of perforation.¹ In general, long, slender, sharp-ended objects are more likely to lodge in the gastrointestinal tract and penetrate it than objects of other shapes. Swallowed foreign bodies tend to get stock in the upper and lower esophageal sphincter in the esophagus.²

Most foreign bodies lodge in the oropharynx and do not develop major complications. However, major complications



FIGURE 3. The fishbone measured 3.5 cm in length.

such as periesophageal abscess, mediastinitis, thyroid abscess, and vascular problems such as aorto-esophageal fistula were found in the esophagus 7.4% of the time.^{3,4} In a systematic review of ingested toothpicks, only 12% of the patients remembered the event of swallowing the foreign object and only 14% of cases of radiologic study detected toothpicks.^{5,6} Therefore, the definitive diagnosis is difficult and usually made during surgery (53%) and endoscopy (19%).^{5,6}

We described rare foreign body injury of the lung parenchyma, the azygos vein, and the subclavian artery. The swallowed fishbone penetrated the upper esophagus and injured the upper lobe of the right lung, the right subclavian artery, and the azygos vein, but the upper esophagus healed by itself. The reason why the endoscopy was negative could be explained by a fast migration of the fishbone through the wall of the upper esophagus.

Although diagnosis is made by routine CT scanning, a contrast-enhanced CT scan is recommended to clarify the fact of vascular injury.⁷ In this case, vessel injury was defined with a contrast-enhanced CT scan after operation. Zamora et al and Stringari et al both reported that vascular complications such as aorto-esophageal fistula were successfully treated by the endovascular stent graft.^{8,9} So we decided to exclude the injured pseudoaneurysm at the right subclavian artery with the covered stent graft.

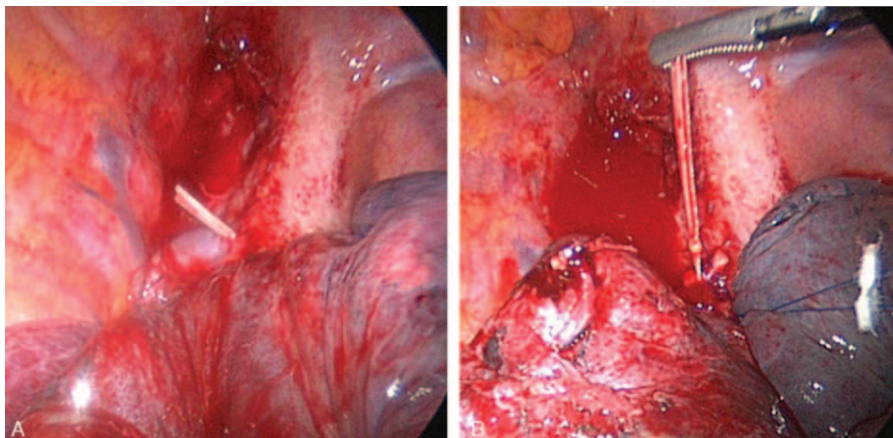


FIGURE 2. (A) Operative findings revealed the azygos vein is pricked with the foreign body. (B) After wedge resection on the apex of right lung, the penetrated azygos vein was repaired with pledgetted nonabsorbable sutures.

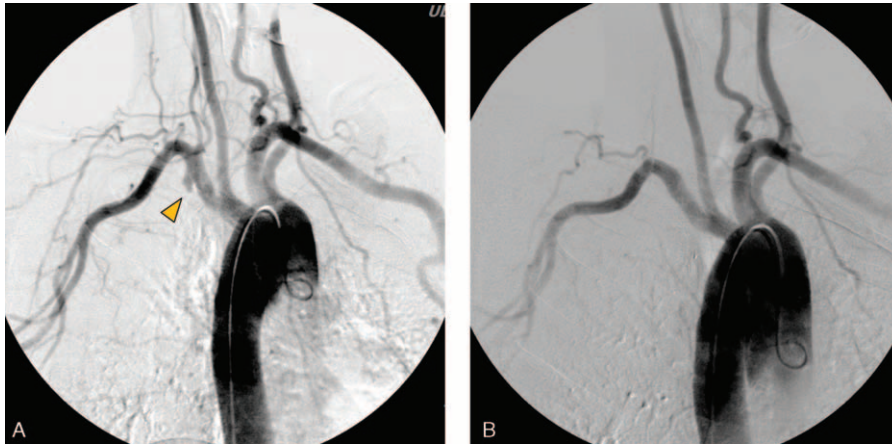


FIGURE 4. (A) The aortogram showed pseudoaneurysm (arrow head) at the right subclavian artery. (B) It was treated with the endovascular covered stent graft.

Lung injuries caused by ingested fishbones are very rare. Tan et al reported about treatment of an ingested fish bone in the lung with VATS, but there was no vessel involvement.⁷ This is the first case report that we know of in which a swallowed fishbone in the lung and caused vascular injuries without mediastinitis or empyema.

CONCLUSIONS

Conclusively, we successfully diagnosed and treated a case with the migration of the fishbone from the upper esophagus into the lung. A contrast-enhanced CT scan is recommended to clarify the fact of vascular injury before surgery. Thoracoscopic operation (VATS) combined with endovascular treatment could be a safer and a more feasible treatment option in this rare condition.

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