

Video-assisted thoracic resection of a rare ectopic mediastinal bronchial artery aneurysm

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To the Editor: Bronchial artery aneurysm (BAA) is a rare but potentially fatal disease. BAA is reported in less than 1% of all selective bronchial arteriographies.^[1] The primary treatment is endovascular therapy, including transcatheter arterial embolization or aortic stent-graft placement. Surgical treatment can be considered for patients with treatment failure, recurrence or contraindications to endovascular therapy. Herein, we present a rare case of an ectopic mediastinal bronchial artery aneurysm that was successfully resected via video-assisted thoracic surgery (VATS).

A 54-year-old asymptomatic male patient had an abnormal hilar shadow in the right lung detected on a routine computed tomography (CT) examination. His past medical history and laboratory data were unremarkable. Subsequent 3-dimensional CT and angiography revealed a mediastinal BAA, 29 mm in diameter, with a dilated and tortuous bronchial artery originating from the right subclavian artery [Figure 1A]. We performed thoracoscopic BAA resection rather than endovascular therapy due to the long and tortuous afferent artery. The patient was placed in a left lateral decubitus position, and three-port VATS was performed. The BAA was found between the right bronchus and inferior pulmonary vein. We ligated the afferent and efferent branches of the BAA and completely resected the aneurysm from the adjacent connective tissues [Figure 1B–D]. Additionally, we cut the origin of the bronchial artery from the right subclavian artery (not shown). The total operation time was 80 min. The patient was discharged on the second day with no signs of recurrence after three months.

There are approximately 110 cases of BAA reported. The etiology of BAA is unclear. Many patients are idiopathic with a clean medical history. Some patients are diagnosed with bronchiectasis, chronic obstructive pulmonary disease, infectious disease, and tuberculosis. However, many other patients have an unremarkable medical history.^[1]

The clinical presentations of BAA vary from asymptomatic to hemoptysis, chest pain, hemomediastinum and shock symptoms and depend on the size and location of the BAA or whether the aneurysm has ruptured. Enhanced 3-dimensional CT and angiography are recommended to evaluate the aneurysm. Most of the afferent arteries originate from the aorta, and ectopic or multiple bronchial artery aneurysms are much more rare.

Because of the potential risk of mortality after rupture, bronchial artery aneurysms should be treated immediately after diagnosis. Endovascular intervention therapy has recently become the first-line treatment for BAA. However, there are some limitations, including treatment failure, air emboli caused by artery embolization and spinal cord ischemia in aortic stent-graft cases. In patients with aneurysms in multiple branches of the bronchial artery, missed vessel embolization may cause a recurrence of BAA. Thus, surgical treatment is considered for patients with treatment failure, recurrence or contraindications to endovascular therapy. In previous studies, most patients received thoracotomy or lobectomy, and only two patients received VATS treatment.^[2,3] The patient in this study presented with an extremely rare ectopic mediastinal bronchial artery aneurysm, which was successfully resected by VATS. The afferent artery originated from the right subclavian artery, was tortuous downward along the mediastinum, and entered the right pulmonary artery, which made endovascular artery embolization impossible. There are many advantages of the VATS procedure. Recently, VATS has become less invasive with improvements of surgical instruments. The morbidity rate is especially low in patients with a clean medical history. Surgeons may achieve total resection of the BAA along with its branches to avoid recurrence. Preoperative 3-dimensional CT and angiography clearly demonstrate the location and branches of the BAA, leading to a safe and complete resection. During surgery, it is necessary to

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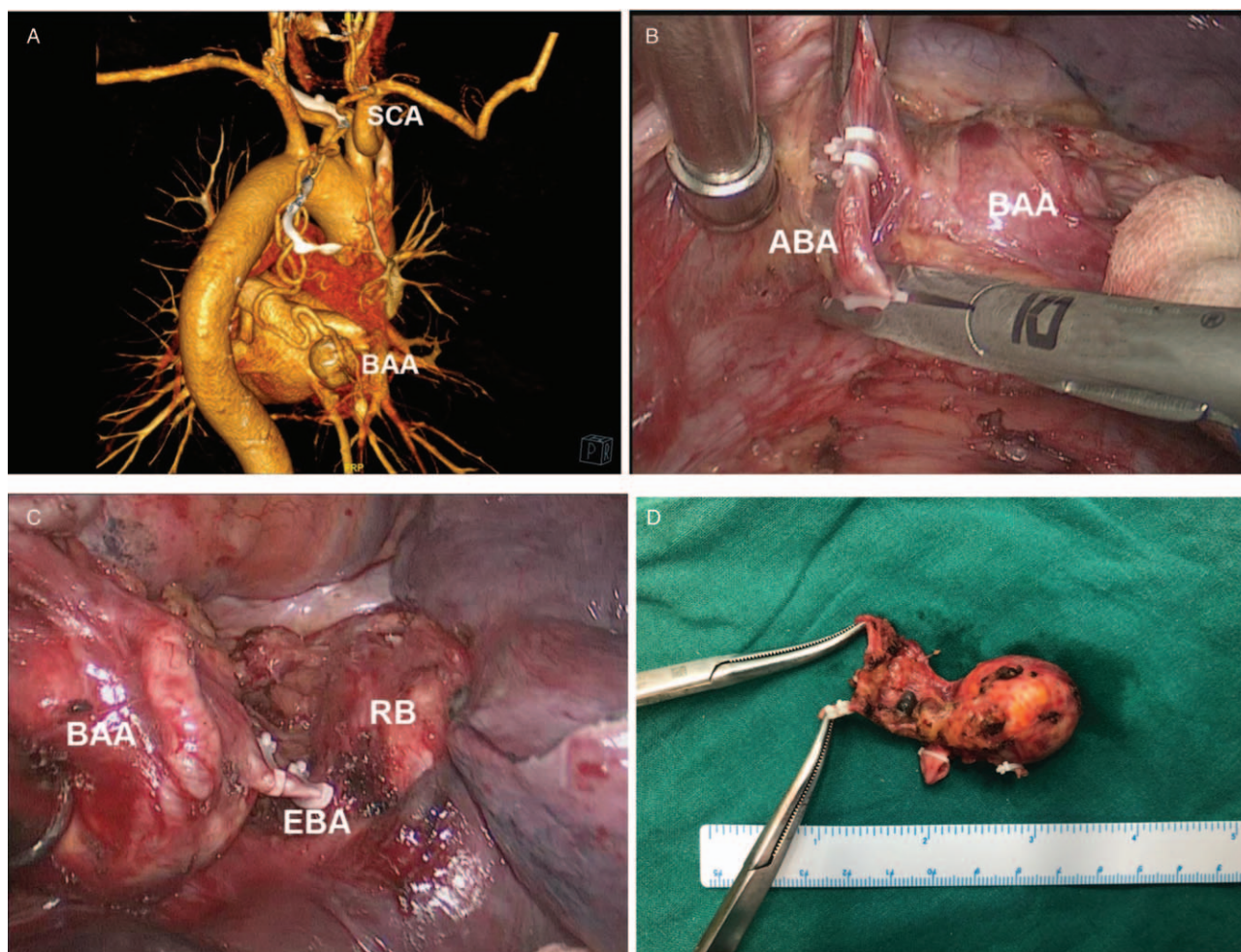


Figure 1: Representative image of the patient. (A) Three-dimensional computed tomography (CT) shows the bronchial artery aneurysm (BAA) location and a tortuous afferent bronchial artery originating from the right subclavian artery. (B) Afferent branches of the BAA were ligated. (C) The efferent branch of the BAA was ligated. (D) The aneurysm was completely resected. SCA: Subclavian artery; BAA: Bronchial artery aneurysm; ABA: Afferent bronchial artery; EBA: Efferent bronchial artery; RB: Right bronchus.

carefully distinguish the afferent vessels from the efferent vessels of the aneurysm to avoid hemorrhage.

Therefore, VATS may be a novel and minimally invasive way to treat bronchial artery aneurysms in asymptomatic patients or patients with contraindications to endovascular therapy. Three-dimensional CT and angiography are crucial for evaluating aneurysms and helping us to decide the optimal treatment.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the article. The patient understands that his name and initial will not be published and due efforts will be made to conceal the identity of the patient, although anonymity cannot be guaranteed.

Conflicts of interest

None.

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