*Images in Cardiovascular Medicine*

# Giant Aortopulmonary Collateral Artery in an Adult with Bronchiectasis

**Suleyman Cagan Efe, MD**
**Ahmet Guler, MD**
**Ahmet Seyfettin Gurbuz, MD**
**Semi Ozturk, MD**
**Alev Kilicgedik, MD**
**Cevat Kirma, MD**

A 56-year-old woman presented at our outpatient clinic with exertional dyspnea. She reported a more-than-20-year history of undiagnosed episodes of nocturnal coughing, and for 5 years she had been in treatment for hypertension and asthma. In spite of adequate medical treatment for asthma, her symptoms had not improved during that period. Physical examination revealed a grade 2/6 systolic murmur in the 2nd right intercostal space. Her arterial blood pressure was 130/66 mmHg; her heart rate, 118 beats/min; and her pulse oximetry value, 96% on room air. An electrocardiogram showed sinus tachycardia without ST-T–segment changes. A transthoracic echocardiogram displayed normal cardiac chamber sizes and mild tricuspid regurgitation (TR), with a right ventricular systolic pressure of 40 mmHg measured from the TR jet. On coronary angiography, the left anterior descending, the left circumflex, and the right coronary arteries appeared to be normal. However, an abnormal vessel was seen to arise from the aortic arch, to follow a tortuous course, and then to drain (apparently) into the pulmonary artery (Fig. 1).

Thoracic computed tomography showed bronchiectasis of the right lower pulmonary lobe (Fig. 2A). Subsequent computed tomographic angiography (with volume-rendered 3-dimensional imaging) depicted the bronchial artery as a large collateral vessel with a diameter of 5.5 mm. It originated from the distal aortic arch and did indeed drain into the right-lower branch of the pulmonary arterial system (Figs. 2B and C).

## Comment

It is essential in cases such as this to make differential diagnoses of communications between arterial or venous system fistulae and major aortopulmonary collateral arter-

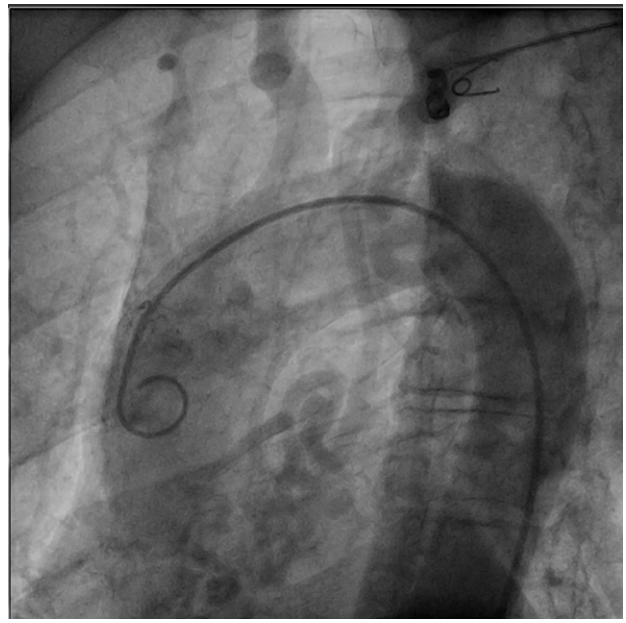

***Fig. 1*** *An aortic angiogram shows a tortuous vessel originating from the aortic arch and apparently draining, after multiple curves, into the pulmonary artery.*

***Section Editor:***
*Raymond F. Stainback, MD, Department of Adult Cardiology, Texas Heart Institute, 6624 Fannin St., Suite 2480, Houston, TX 77030*

***From:*** *Department of Cardiology (Drs. Efe, Guler, Gurbuz, Kilicgedik, and Kirma), Kosuyolu Kartal Heart Training and Research Hospital, 34860 Istanbul; and Department of Cardiology (Dr. Ozturk), Haseki Training and Research Hospital, 34096 Istanbul; Turkey*

*This case was presented at the 30th Turkish Cardiology Congress with International Participation; Antalya, Turkey; 23-26 October 2014.*

***Address for reprints:***
*Suleyman Cagan Efe, MD, Department of Cardiology, Kosuyolu Kartal Heart Training and Research Hospital, 34860 Istanbul, Turkey*

***E-mail:***
*scaganefe@gmail.com*

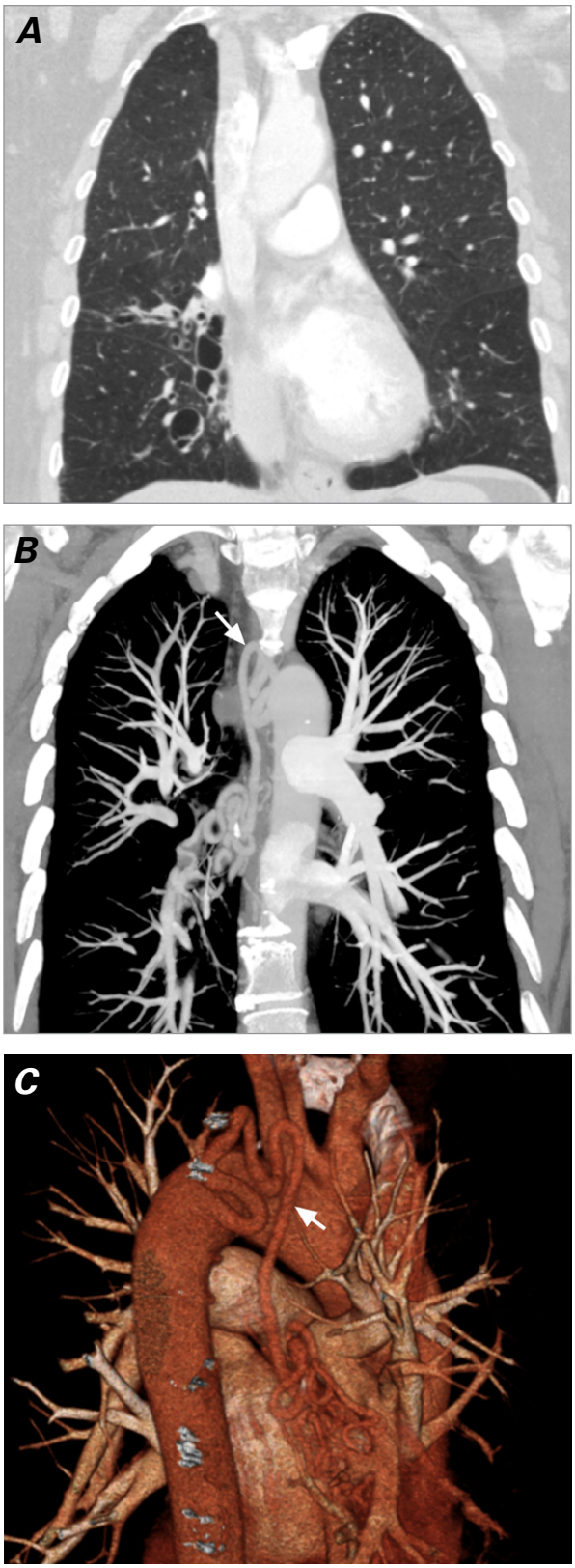


***Fig. 2*** *Computed tomograms.* ***A****) Image of the thorax shows right-lower-lobe bronchiectasis.* ***B****) Contrast-enhanced image displays bronchial artery (arrow).* ***C****) Volume-rendered 3-dimensional image depicts the bronchial artery (arrow) nourishing the right-lower lobe.*

ies (MAPCAs). The MAPCAs usually support pulmonary circulation in congenital pathologic conditions in which pulmonary circulation is restricted because of stenosis or atresia. Our patient, however, had no congenital defect. Chronic pulmonary diseases, such as tuberculosis and cystic fibrosis, can greatly enlarge MAPCAs, as bronchiectasis did in our patient.[1] Bronchial artery enlargement in cases of bronchiectasis is thought to be due to the increased metabolic demand associated with granulation tissue.[2] Treatment decisions depend upon symptoms and include surgical and percutaneous options. Because echocardiographic and clinical findings in our patient did not imply heart failure as a result of shunting, we decided to treat the patient with medical therapy.

## References

1. Fleck R, McPhail G, Szczesniak R, Knowlton J, Radhakrishnan R, Clancy J, Amin R. Aortopulmonary collateral flow in cystic fibrosis assessed with phase-contrast MRI. Pediatr Radiol 2013;43(10):1279-86.
2. Liebow AA, Hales MR, Lindskog GE. Enlargement of the bronchial arteries, and their anastomoses with the pulmonary arteries in bronchiectasis. Am J Pathol 1949;25(2):211-31.