Takayasu Arteritis with Multiple Coronary Artery Fistulas to Bronchial Arteries

Kanber Ocal Karabay, MD¹ Emine Altuntas, MD¹ Ender Uysal, MD² Ahmet Ozkara, MD³
Vedat Aytekin, MD⁴

¹ Department of Cardiology, Istanbul Bilim University, Istanbul, Turkey

² Department of Radiology, Sisli Etfal Training and Research Hospital, Istanbul, Turkey

³ Department of Cardiovascular Surgery, Sisli Florence Nightingale Hospital, Istanbul, Turkey

⁴ Department of Cardiology, Sisli Florence Nightingale Hospital, Istanbul, Turkey

Address for correspondence Kanber Ocal Karabay, MD, Department of Cardiology, Istanbul Bilim University, Istanbul, Turkey (e-mail: ocalkarabay@hotmail.com).

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Abstract

Takayasu arteritis (TA) is an inflammatory disease that commonly occurs in young females. Coronary involvement occurs rarely and mostly with stenosis. Here, we present a case of TA associated with fistulas between the coronary arteries and the bronchial arteries.

Keywords

- Takayasu arteritis
- coronary artery
- aortic insufficiency

Takayasu arteritis (TA) is an inflammatory disease that commonly occurs in young females.¹ The aorta and its major branches are affected most often.¹ Coronary involvement occurs rarely.² Herein, we present a case of TA associated with fistulas between the coronary arteries and the bronchial arteries.

Case Report

A 35-year-old female who was diagnosed with TA 15 years ago was hospitalized because of New York Heart Association Class 2 heart failure. Her medical history was remarkable for hypertension, total occlusion of the left carotid and left subclavian arteries diagnosed in 1998, and renal artery stenting in 1998. Her father died at 46 years of age. She was taking aspirin, spironolactone, furosemide, doxazosin, enalapril, folic acid, prednisone, and methotrexate. Physical examination revealed a diastolic murmur along the right sternal border and the absence of a left brachial pulse. Her electrocardiogram showed left ventricular hypertrophy and ST-segment depressions in leads V4–V6, I, and AVL. Her echocardiogram showed moderate-to-severe aortic insufficiency, thickened aortic leaflets, an enlarged ascending aorta (3.9 mm) and left atrium (60 mm), mild mitral insufficiency, left ventricular hypertrophy, and

normal left ventricular ejection fraction (60%). During conventional invasive coronary angiography, coronary fistulas (CFs) from the right coronary artery (RCA) (►Fig. 1), left anterior descending (LAD) artery (►Figs. 2 and 3), and ramus intermedius artery (IM) (►Figs. 2 and 3) to the bronchial arteries were noted. Multislice cardiac computed tomography (MSCT) confirmed the presence of CF from the RCA, LAD, and IM to the bronchial arteries (►Fig. 4). No severe stenosis was observed in the coronary arteries.

Discussion

TA is a chronic vasculitis of unknown etiology and mostly affects aorta and its branch.

The cardiac complications of TA include aortic insufficiency, hypertension, and coronary artery involvement. The coronary lesions produced by TA include coronary aneurysm, coronary ostial stenosis, and CF.³

CFs in patients with TA have been reported between coronary arteries and pulmonary, bronchial or even intracranial arteries.^{4–6} CF between pulmonary and coronary arteries have been found to be related to extensive pulmonary involvement.⁷ The changes on the pulmonary vessels' wall have been found to be similar to those seen in systemic

Fig. 1 Fistulas from the right coronary artery to bronchial arteries in cranial view.

Fig. 3 Fistulas from the left anterior descending (arrow 1) and intermedius arteries (arrow 2) to bronchial arteries in cranial view.

vessels and included inflammation with granulomatous lesions in the elastic, medial, and adventitial layers, often with thrombus formation with newly formed arterioles and small vessel dilatation.⁸ CF can be diagnosed with invasive angiography or computed tomography.⁹ Although CF to bronchial arteries are mostly asymptomatic, angina due to coronary steal phenomenon, congestive heart failure, infective endocarditis, and rupture of an aneurysmal fistula can be developed.⁹ Coronary steal phenomenon due to the fistulas in TA is always associated with occlusive pulmonary arteries causing pulmonary hypertension.¹⁰ CF causing coronary steal phenomenon can be treated with stent, coil embolization, or surgically.^{11–13} Our patient had CF from the LAD, RCA, and IM

Fig. 2 Fistulas from the left anterior descending (arrow 1) and intermedius arteries (arrow 2) to bronchial arteries in caudal view.

Fig. 4 Thoracic computed tomography image showing the fistulas between bronchial arteries and the right coronary artery (arrow 1), the left anterior descending artery (arrow 2), and the ramus intermedius artery (arrow 3).

to the bronchial arteries. Nevertheless, she did not have any chest pain, and the ratio of total pulmonary blood flow to total systemic blood flow was 1. Hence, medical follow-up has been chosen.

In conclusion, TA might cause CFs to bronchial arteries, and MSCT is very useful in determining the CF anatomy.

Conflict of Interest

The authors have no conflicts of interest to disclose.

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