

CASE REPORT

Atrial tachycardia treated by coil embolization of a giant coronary artery fistula



Yusuf Izzettin Alihanoglu^{a,*}, Burcu Uludag^a, Ismail Dogu Kilic^a, Bekir Serhat Yildiz^a,
Ali Kocyigit^b, Harun Evrengul^a

^a Department of Cardiology, Pamukkale University Medical Faculty, Denizli, Turkey

^b Department of Radiology, Pamukkale University Medical Faculty, Denizli, Turkey

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KEYWORDS

Coronary artery
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Abstract Coronary artery fistulas are the second most frequently seen coronary anomaly following abnormalities of coronary artery origin and distribution. A coronary fistula is defined as a direct communication between a coronary artery and any cardiac chamber or vessel. Treatment options include percutaneous embolization and surgical intervention. Herein, we present a case of a giant coronary artery fistula and right atrial tachycardia that was induced during a diagnostic electrophysiologic study but was not inducible after the successful treatment of the fistula. This is the first case indicating this association.

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PALAVRAS-CHAVE

Fístula arterial
coronária;
Taquicardia auricular;
Embolização com coil

Taquicardia auricular tratada por embolização de fístula coronária gigante com coil

Resumo As fístulas coronárias são a segunda anomalia mais frequente das artérias coronárias a seguir às anomalias coronárias da câmara de saída. A fístula define-se como uma comunicação direta entre as artérias coronárias e uma cavidade cardíaca ou estrutura vascular. As opções terapêuticas incluem a embolização percutânea e o tratamento cirúrgico. Apresentamos aqui um caso de uma fístula coronária gigante e taquicardia auricular direita induzida durante um estudo electrofisiológico diagnóstico e que não foi possível induzir após o tratamento bem sucedido da fístula. Este é o primeiro caso que reporta esta associação.

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* Corresponding author.

E-mail address: aliizyu@mynet.com (Y.I. Alihanoglu).

Introduction

Congenital coronary artery fistula (CAF) is defined as a direct communication between a coronary artery and any cardiac chamber or vessel.¹ Although rare, they are the most common hemodynamically significant congenital coronary artery anomaly.^{1,2} Patients may be asymptomatic, but may also present with symptoms such as angina, exertional dyspnea, fatigue, or heart failure depending on the hemodynamic significance of the fistula.² Transcatheter embolization has been an increasingly popular treatment following the first fistula occlusion by Reidy et al. in 1983.³ Following reports in the literature, we present a successful transcatheter occlusion of a giant fistula by coil embolization in a patient who presented to our outpatient clinic with complaints of exertional dyspnea, chest pain, fatigue, and paroxysmal palpitations.

Case report

A 49-year-old woman was admitted to our outpatient clinic with complaints of exertional dyspnea, exertional chest pain, paroxysmal palpitation attacks, and fatigue. She had been treated for diabetes for two years but had no additional risk factors for coronary artery disease. On physical examination, her blood pressure was 130/80 mmHg and heart rate 85 bpm. No pathological sounds were heard during pulmonary and cardiac auscultation. Routine biochemical and hemogram values were within normal ranges. Ejection fraction was 60%, and no serious valve disease was detected on transthoracic echocardiography. Electrocardiography showed sinus rhythm. Right atrial tachycardia was induced with programmed atrial stimulation during a diagnostic electrophysiologic study (Figure 1). Coronary angiography was also performed in order to clarify potential ischemic etiology. While the left coronary and right coronary arteries were found to be normal, a giant fistula was detected from the proximal portion of the right coronary artery to the right atrium (Figure 2). Qp/Qs was 1:1 by oximetry and all right heart pressures were within normal ranges during right heart catheterization. Computed tomography (CT) angiography was also conducted for a detailed



Figure 2 A giant coronary fistula originating from the proximal portion of the right coronary artery and draining into the right atrium, seen on the angiogram, left anterior oblique cranial view.

anatomical assessment, which showed a fistulized artery about 8 mm in diameter originating from the right coronary artery 2 cm distal to the orifice and draining into the intersection of the inferior vena cava and right atrium after following a tortuous course (Figure 3). The patient's symptoms were considered to be related to a coronary steal phenomenon in addition to the arteriovenous shunt caused by such a large fistula. A percutaneous occlusion procedure was preferred for the patient's comfort and to avoid complications likely to be caused by surgery. During the procedure, a Judkins guiding catheter was placed in the right coronary artery ostium and the fistulized artery was selectively catheterized via microcatheter, then multiple coils with different sizes ranging from 9 mm to 3 mm were sequentially placed in a suitable location in the mid portion of the fistulized artery until total occlusion was achieved (Figure 4). The patient's atrial tachycardia could not be induced again during the control electrophysiologic study repeated at the end of one month. Finally, progressive improvement was observed in exertional capacity, and other

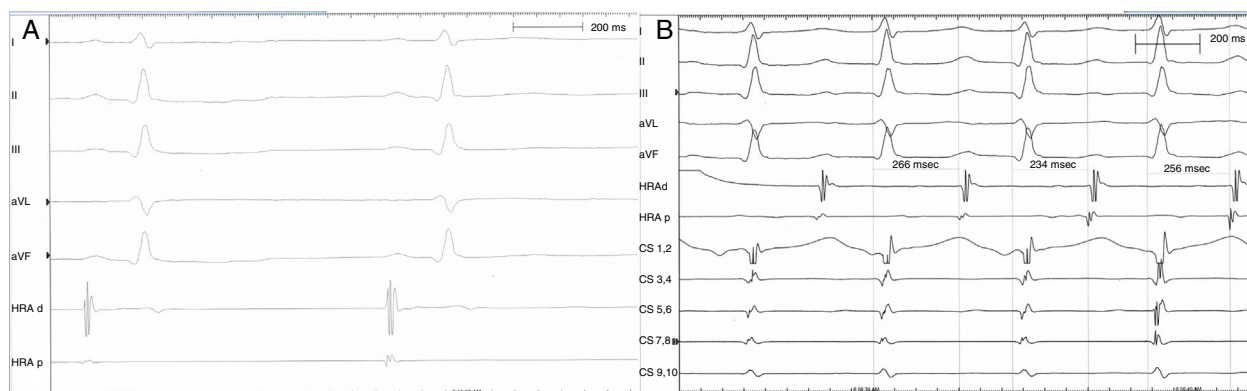


Figure 1 Electrocardiographic tracings during sinus rhythm (A) and atrial tachycardia (B). Variability of ventricular activity duration and the first atrial activity seen on proximal coronary sinus recordings indicate left atrial tachycardia (B). Recording speed 150 mm/s, tachycardia cycle length 420 ms.

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