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Case Report

# Coronary-to-bronchial artery fistula in a patient with dyspnea on exertion

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## Abstract

Coronary-bronchial fistula is a very rare congenital anomaly. We report an interesting patient with dyspnea on exertion since several months ago, who finally diagnosed in angiography as coronary-bronchial fistula.

**Key words:** coronary artery, bronchial, fistula.

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## 1. Introduction

Coronary-bronchial fistula is a very rare congenital anomaly of the coronary artery [1]. Most patients with coronary-bronchial fistulas are asymptomatic; however, some patients present with congestive heart failure, infective endocarditis, myocardial ischemia that induced by a coronary steal phenomenon [2]. Coronary artery fistula is the most common type of congenital anomalies of the coronary arteries [3].

The incidence of coronary artery anomalies has been estimated at 1.3% in the population undergoing coronary arteriography and coronary fistulas accounted for 13% of these anomalies [4]. More than 90% of fistulas open into right heart chambers or their connecting vessels. True AV fistulas (Coronary sinus or its major branches or venae cava) are uncommon. Thus, about 40% connect to the right ventricle, 25% to right atrium, 15% to 20% to pulmonary artery, 7% to coronary sinus, and only 1% to superior vena cava [5]. Fistulas to the LV are very rare, with an incidence of only 3% [6].

Coronary artery fistulas are usually asymptomatic in younger patients. But with increasing age, symptoms begin to appear, and the incidence of complication rises; some people may experience the following symptoms: fatigue, dyspnea, palpitations and ischemic chest pain [7]. Heart failure is the most common complication [8]. Coronary artery fistula may also be incidentally found during diagnostic coronary angiography [9, 10].

Cardiac catheterization has been the best diagnostic method for the identification of such communications [11]. Besides angiography, computed tomography can

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also be a reliable diagnostic method for noninvasive detection of this disorder [1,12].

Computed tomography coronary angiography can play an important role in evaluation of the extent and drainage paths of these fistulas [13]. Echocardiography is a primary diagnostic modality in most patients under 20 years of age, but not for the patients older than 20 years old [14].

The treatment of coronary artery fistula is essentially medical with continued follow-up. Surgical or percutaneous correction is exceptional and may be considered only in symptomatic patients unresponsive to medical therapy [15].

Transcatheter occlusion of coronary artery fistula was a safe and effective procedure in the presence of symptoms of congestive heart failure, significant left-to-right shunt or refractory to medical treatment [16]. In cases of severe coronary artery disease, bypass surgery plus surgical ligation can be a more definitive treatment [17]. Closure of the coronary-bronchial fistula using a vein-covered stent is an effective alternative to the traditional surgical approach and should be considered for the treatment of congenital coronary anomalies [18].

## 2. Case Presentation

We report a patient with dyspnea on exertion since several months ago; she had uncontrolled hypertension and dyslipidemia.

When she was admitted in our hospital, his blood pressure was 175/95 mmHg, heart rate was 87 beats/min, respiratory rate was 19 breaths/min, and body temperature was 37.6°C. The laboratory test results revealed: FBS:105,TG:150,CHOL:265,HDL;29,LDL:206

The electrocardiogram on admission showed normal sinus rhythm and chest radiography was normal. Echocardiography was performed and showed mild LVH with good LV function. Myocardial perfusion scan with dipyridamole was requested for her that showed septal ischemia (Figure 1); so she was candidate for coronary angiography (Figure 2).

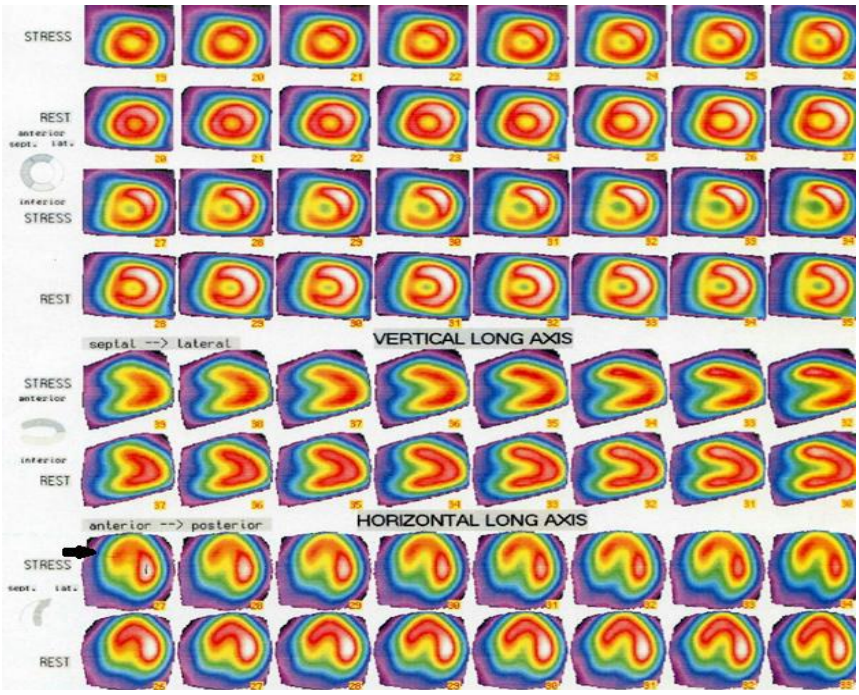



**Figure 1. MPI(myocardial perfusion imaging) showed septal ischemia**

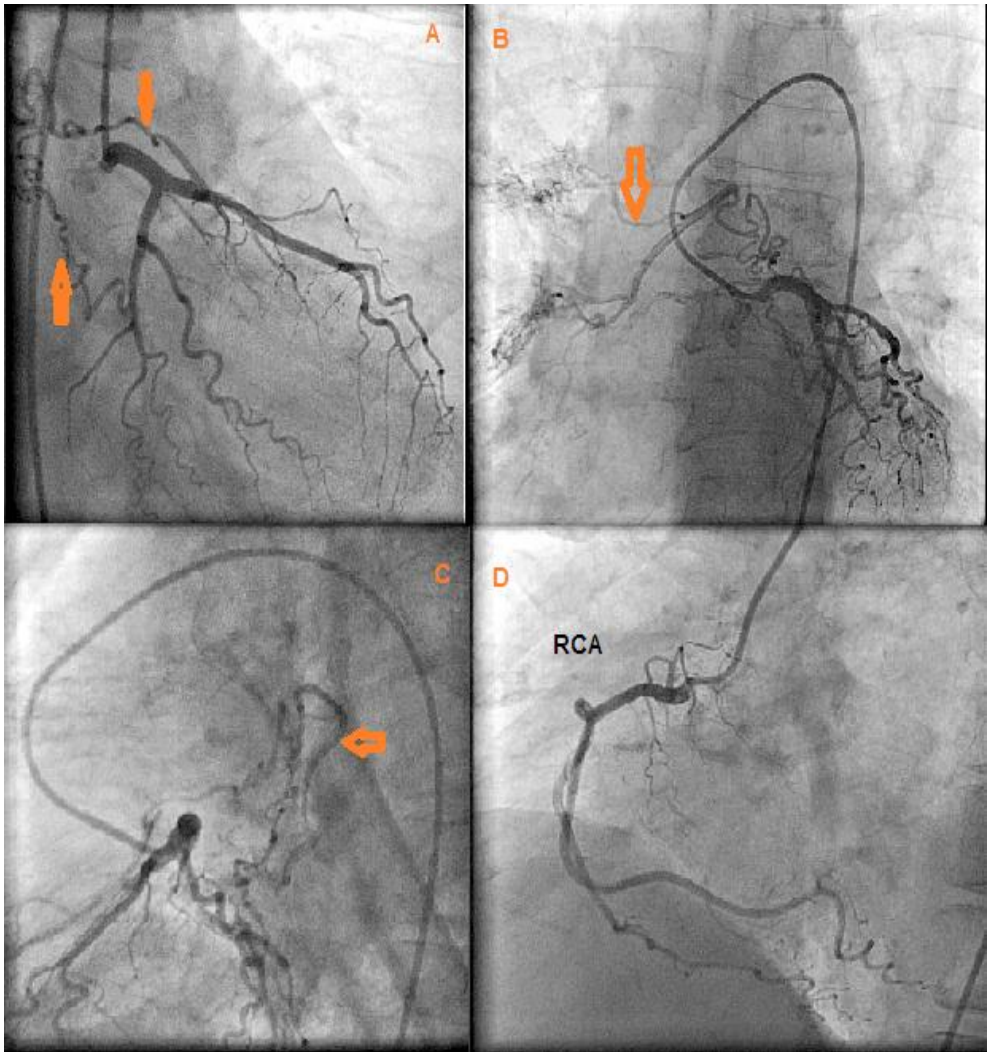



**Figure 2. Extra-cardiac collaterals from septal and LA branch to right bronchial artery (A-C)and normal RCA (right coronary artery) were showed in coronary angiography(D)**

Right & left Coronary angiography via the right femoral artery and vein was done and revealed following data;
PAP=30/18 mmHg, RVP=30/0-8 mmHg, RAP=8 mmHg, LVP: 110/0-15 mmHg, Aortic pressure: 110/70 mmHg.
Cardiac oximetry performed and ruled out significant O2 step up:
SVC sat: 53%, RA sat: 45%, RV sat: 53%, MPA sat: 50.9%, PA sat: 52%, LPA sat: 51.2%, LV sat: 80%, AO sat: 76.9%.
LMT was normal. LAD had no significant lesion and showed extra-cardiac collateral from septal branch to right bronchial artery. LCX showed no significant lesion and showed extra-cardiac collateral from LA branch to right bronchial artery. Left ventriculography showed normal LV size with good systolic function of 70%, no RWMA and no MR.
So she was candidate for risk factor modification and medical follow up, and after 4 years follow up she is asymptomatic with no significant complaint.

## Conclusion

Because our case did not have any pulmonary disease, the fistula in the presented patient was judged to be congenital in origin. .Cardiac catheterization has been the best diagnostic method for the

identification of such communications .In some patient's, symptoms are not related to these anomalies and risk factor modification is the best option.

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