

CASE REPORT

Imaging of large coronary fistula using echocardiography

Ekokardiyografi ile büyük bir koroner fistülün görüntülenmesi

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Summary– Coronary fistulas are defined as the presence of an abnormal connection between the coronary arteries and the low-pressure vascular area or the cardiac cavity. The clinical significance depends on the amount of blood flow through the fistula segment, the volumetric load on the right and left heart chambers, and whether it leads to a coronary steal phenomenon. Although fistula flow can be better visualized by angiographic methods, it can also be seen by echocardiography. In this case, the fistula flow draining to the left ventricle was demonstratively visualized.

Coronary artery fistula (CAF) is a relatively rare anatomical anomaly of the coronary arteries, representing 14% of all anomalies of the coronary arteries. The clinical relevance focuses mainly on the mechanism of “coronary steal phenomenon,” which causes myocardial functional ischemia, even in the absence of stenosis; hence a common symptom is angina or effort dyspnea. Most asymptomatic CAF cases are diagnosed incidentally on routine clinical examination.

During an echocardiography examination, coronary artery dilatation, termination chamber, turbulent flow, or chamber volume overload and alteration of the kinesis of the left ventricle wall segments are abnormal findings for which CAF should be suspected. Coronary angiography is the gold standard diagnostic tool to detect CAF.

CASE REPORT

A 22-year-old man was admitted with easily having fatigue, and shortness of breath. ECG was found as normal sinus rhythm, BP as 123/75, and heart rate as

Özet– Koroner fistüller, koroner arterler ile düşük basınçlı damar alanı veya kalp boşluğu arasında anormal bir bağlantının varlığı olarak tanımlanır. Klinik önemi, fistül segmentindeki kan akımı miktarına, sağ ve sol kalp odacıklarındaki hacim yüküne ve koroner çalma fenomenine yol açıp açmadığına bağlıdır. Anjiyografik yöntemlerle fistül akışı daha iyi görüntülenebilir olsa da, ekokardiyografi ile de görülebilir. Bu olguda sol ventriküle açılan fistül akışı açıkça gösterilmiştir.

67/min. Cardiac sounds were normal on physical examination, while 3/6 systolo-diastolic murmur

was detected in the left sternal border. The patient’s 2-D echocardiography revealed a slit-like defect in the septal area. Color Doppler showed a continuous flow originating from the septum, and draining into the left ventricle (Fig. 1, Supplementary Videos 1-4*). It was considered as a fistula. The patient underwent coronary angiography, which revealed a coronary fistula draining into the left ventricle from the LMCA (Fig. 2). It was decided to be surgically closed as the patient had severe symptoms.

Abbreviations:

CAF Coronary artery fistula
LMCA Left main coronary artery

DISCUSSION

Coronary fistulas are defined as abnormal communications between coronary arteries and vascular structures or cardiac chambers. The incidence ranges from 0.05% to 0.9% in several large selected series.^[1,2] According to previous reports, coronary fistulas most

Received: October 13, 2017 Accepted: November 27, 2017

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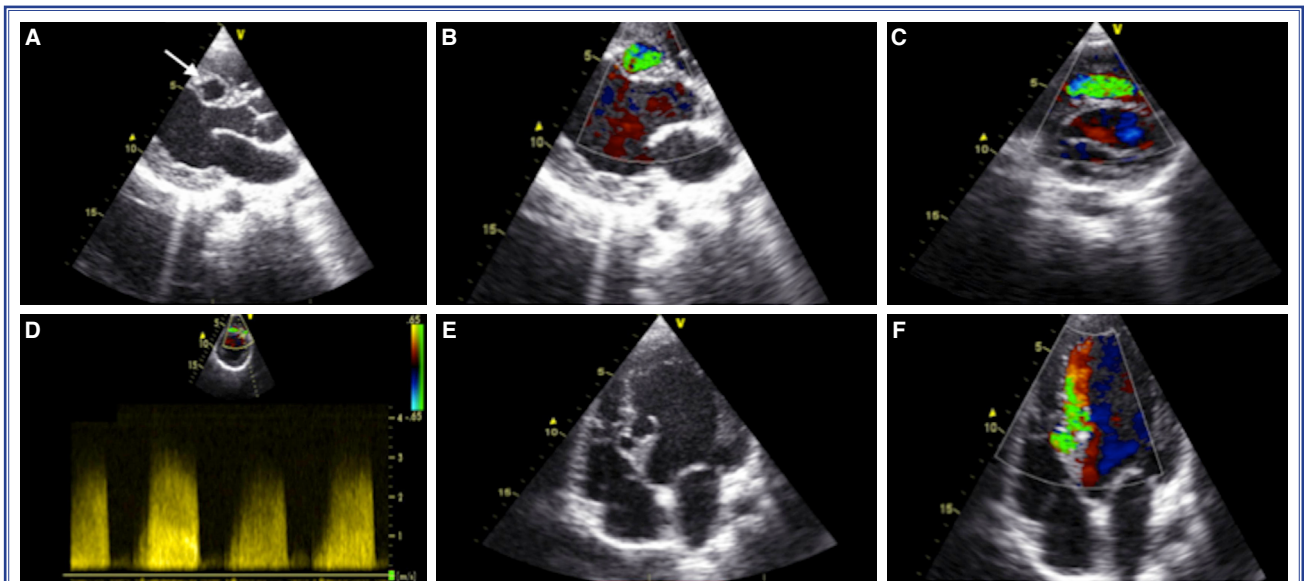


Figure 1. (A) Parasternal long axis view of the transthoracic echocardiogram (TTE) showing the fistula tract segment in the septal wall; (B) Color Doppler imaging demonstrating a high velocity jet in the septal wall of left ventricle; (C) Short axis view of the TTE, color Doppler imaging, and continuous wave Doppler (D) showing a high velocity jet in the septal wall; (E) Apical 4-chamber view of the TTE showing termination of the fistula segment in the left ventricle; (F) Apical 4-chamber view of TTE, color Doppler imaging demonstrating a high velocity jet directed to the left ventricle.

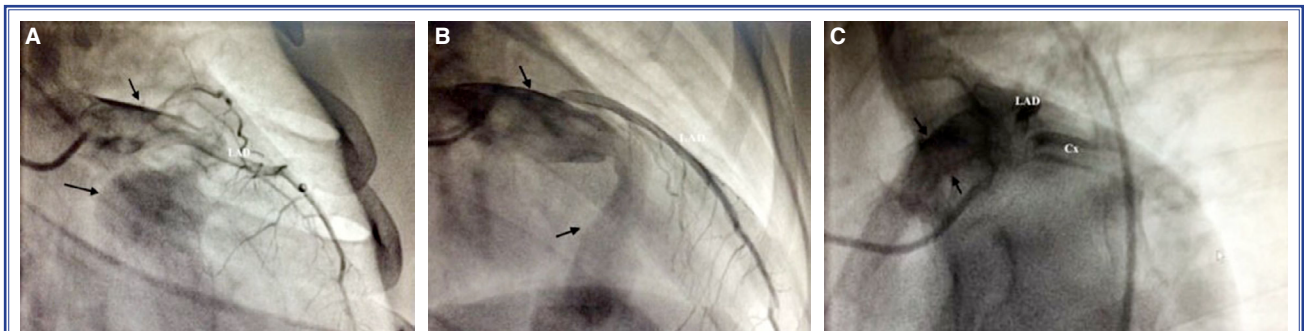


Figure 2. (A, B) Coronary angiography (right anterior oblique position) imaging shows the fistula draining from the left main coronary artery (LMCA) to the left ventricle; (C) Coronary angiography (left oblique caudal position) imaging illustrating the fistula connecting the LMCA and the left ventricle.

commonly originate from the LMCA and drain into the pulmonary artery.^[3] While small fistulas do not have as significant hemodynamic effect on the heart, wide fistulas and those with a high shunt flow may cause hemodynamic impairment. Coronary fistulas are often asymptomatic and continuous murmur on physical examination may be the first finding. Mostly, the diagnosis is made incidentally during coronary angiography. Today, coronary CT angiography has become the gold standard method since it shows better the width of the fistula segment, the space into which it drains, and the relationship between the fistula and surrounding tissues. However, in some cases

echocardiography can detect the flow in the space into which the fistula drains.^[4] In our case, a wide fistula flow draining into the left ventricle was detected by echocardiography and diagnosed by coronary angiography. Echocardiography, which can be applied quickly and easily, can contribute to diagnosis in some cases of coronary fistula.

Peer-review: Externally peer-reviewed.

Conflict-of-interest: None.

Informed Consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

Authorship contributions: Concept: Ö.C., M.Ş., Ç.G.; Design: Ö.C., A.G.; Supervision: S.G.; Materials: Ö.C., A.G.; Data collection: Ö.C., Ç.G., M.Ş.; Literature search: Ö.C., A.G.; Writing: A.G., Ö.C.; Critical revision: A.G., Ö.C., S.G.

*Supplementary video files associated with this article can be found in the online version of the journal.

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Keywords: Coronary angiography; coronary fistula; echocardiography.

Anahtar sözcükler: Koroner anjiyografi; koroner fistül; ekokardiyografi.