

Hyperacute anterior myocardial infarction in a patient with dextrocardia and situs inversus

Dekstrocardi ve situs inversus bulunan bir hastada hiperakut anterior miyokart enfarktüsü

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Summary - Dextrocardia with situs inversus is an uncommon congenital condition in which the major visceral organs are reversed. The clinical diagnosis and electrocardiographic localization of myocardial infarctions in these patients remain a great challenge unless dextrocardia is recognized. A 50-year-old male with known dextrocardia and situs inversus presented with acute chest pain radiating to the right arm. The reversed normalized electrocardiogram showed acute anterior myocardial infarction and cardiac catheterization showed a proximal occlusion of the left anterior descending artery. He underwent coronary angioplasty with stenting, resulting in relief of chest pain and improvement in his clinical condition.

Özet - Dekstrocardi ile beraber situs inversus temel iç organların ters yerleşim gösterdiği nadir bir doğumsal durumdur. Bu hastalarda miyokart enfarktüsünün klinik tanısı ve elektrokardiyografik olarak yerinin belirlenmesi, dekstrocardi varlığı bilinmiyorsa büyük bir sorun oluşturur. Daha önce dekstrocardi ile birlikte situs inversus olduğu bilinen 50 yaşında erkek hasta, sağ kola yayılım gösteren göğüs ağrısı ile başvurdu. Ters çekilmiş 'normalize' elektrokardiyografide akut ön miyokart enfarktüsü bulguları ve kalp kateterizasyonunda sol ön inen arterin proksimal kısmında tıkanıklık görüldü. Koroner anjiyografi ve stent uygulaması sonrasında hastanın göğüs ağrısı geçti ve klinik durumu düzeldi.

Dextrocardia with situs inversus is an uncommon anomaly affecting about 1 to 2 per 10,000 in the general population. Patients usually have structurally normal hearts (only 3-5% have congenital heart disease) and normal life expectancy.^[1] Acute myocardial infarction has been reported infrequently in these patients.^[2,3] The diagnosis of myocardial infarction in such patients could be difficult unless dextrocardia is timely recognized. Here we report hyperacute anterior myocardial infarction in a patient with mirror image dextrocardia and situs inversus.

CASE REPORT

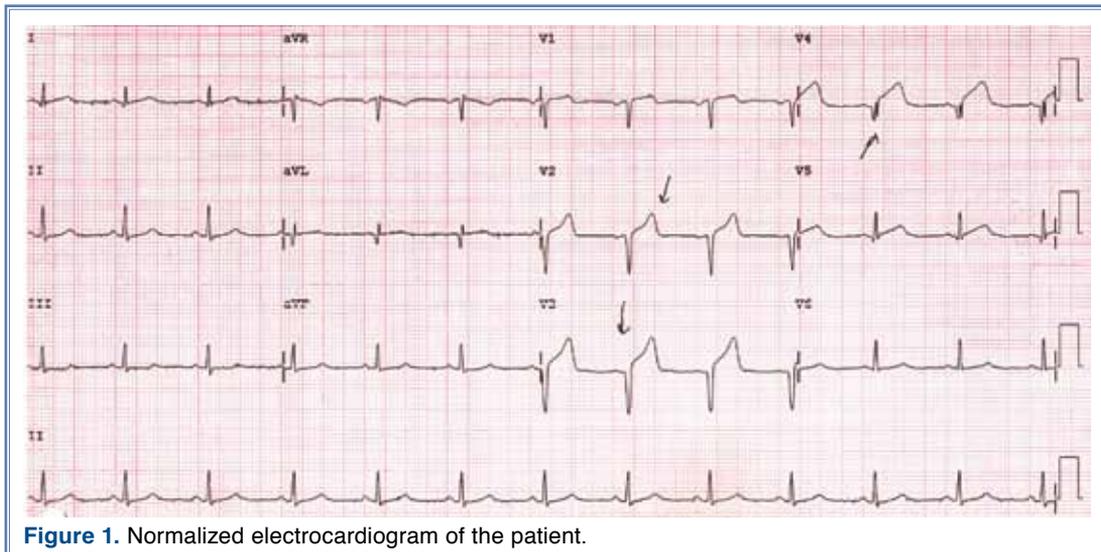
A 50-year-old Caucasian male with known dextrocardia and situs inversus totalis presented to our hospital emergency department with acute onset chest pain radiating to the right arm. He had no history

of hypertension, diabetes mellitus, smoking, or coronary artery disease. On physical examination, the patient seemed to be in a stable condition with no obvious heart failure findings. Chest auscultation was normal. On examination of the cardiovascular system, heart sounds were louder on the right side of the chest without any murmurs. A normalized electrocardiogram obtained with reversed left and right arm electrodes and right-sided placement of the precordial electrodes showed sinus rhythm with a normal P-wave axis, an intermediate heart axis, poor R progression across the precordial leads, ST elevations and high T waves in V1-V4, and minimal ST-segment depression in the inferior leads, suggestive of a left anterior descending artery lesion proximal to the septal and diagonal branches (Fig. 1).^[4] The patient was treated with aspirin, beta-blockers, clopidogrel, and heparin. Emergent cardiac catheter-

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ization was performed via the right femoral artery, showing an occlusion in the proximal part of the left anterior descending artery, with normal circumflex and right coronary arteries (Fig. 2a, b). Subsequent coronary angioplasty with stenting was performed successfully (Fig. 2c), resulting in TIMI III flow. The patient's chest pain relieved with improvement in his clinical condition. He was discharged in a stable condition three days after admission.

DISCUSSION

The first percutaneous angioplasty in a patient with dextrocardia was performed in 1987.^[5] The clinical diagnosis and electrocardiographic localization of myocardial infarction remain a great challenge in these patients, especially when dextrocardia is not

recognized. The most important modifications in performing coronary angiography in such patients are opposite-direction catheter rotations and mirror-image angiographic angles, i.e., anticlockwise rotation needed in the ascending aorta for the right coronary artery and reversed right/left anterior oblique angles, keeping the cranial/caudal tilts the same.^[6] A double-inversion technique normalizes all angiographic views to the standard conventional views as seen in a normally located heart, i.e., a combination of a right-left reversal of the image on the monitor using the horizontal sweep reverse function during acquisition and a reversed right/left anterior oblique angle selection.^[7] Here, we present an unusual case of hyperacute anterior myocardial infarction detected on a normalized electrocardiogram in a patient with dextrocardia, demonstrating the importance of

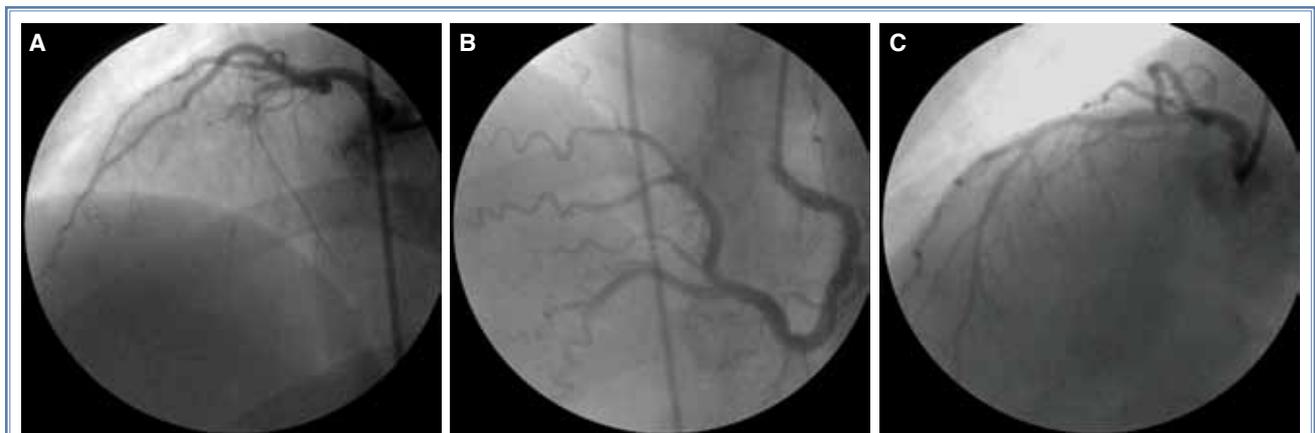


Figure 2. (A) The left coronary artery originating from the right sinus of Valsalva. Total occlusion is seen in the proximal part of the left anterior descending artery (LAD) with a normal circumflex artery. (B) Normal right coronary artery originating from the left sinus of Valsalva. (C) TIMI III flow of the LAD after stent implantation.

obtaining a reversed electrocardiogram in patients suspected to have dextrocardia.

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Key words: Angioplasty, balloon, coronary; dextrocardia; myocardial infarction; situs inversus; stents.

Anahtar sözcükler: Anjyoplasti, balon, koroner; dekstrocardi; miyokart enfarktüsü; situs inversus; stent.