

## Percutaneous Coronary Intervention to Saphenous Vein Graft in a Patient with Dextrocardia Undergoing Coronary Artery Bypass Surgery

Koroner Arter Bypass Cerrahisi Geçiren Dekstrokardi Hastasında Safen Ven Greftine Perkütan Koroner Müdahale

Özge Çakmak Karaaslan, Sefa Ünal, Murat Oğuz Özilhan, Ahmet Akdi, Can Özkan

Department of Cardiology, Ankara City Hospital, Ankara, Turkey

### ABSTRACT

Dextrocardia is a rarely congenital anomaly. There are limited number of published case reports of percutaneous coronary intervention (PCI). A 60-year-old male patient was admitted to our hospital with complaints of dyspnoea and chest pain. Coronary angiography (CAG) viewed totally occluded left anterior descending artery (LAD) and totally occluded ramus circumflexus (RCX) which was filling antegradely. The LAD was perfused by the saphenous vein graft (SVG) and SVG to RCX was totally occluded. Aortocoronary SVG to the LAD was stenosis 95% and displayed hazy image. The SVG to the LAD was selectively cannulated with a guiding catheter and 3.0x15 mm drug eluting stent was implanted.

**Keywords:** Acute myocardial infarction, Dextrocardia, Saphenous Vein Graft

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### ÖZET

Dekstrokardi, nadir doğumsal anomalidir. Dekstrokardi hastalarında, perkütan koroner girişim (PKG) ile ilgili yayınlanmış sınırlı sayıda vaka raporu vardır. 60 yaşında erkek hasta nefes darlığı ve göğüs ağrısı şikayetleri ile hastanemize başvurdu. Koroner anjiyografide (KAG) sol ön inen arter (LAD), ramus sirkumfleksusu (RCX) tam tıkalı ve RCX antegrad doluşu izlendi. Safen ven grefti (SVG)-LAD açık, SVG-RCX tam tıkalı izlendi. LAD safen greftinde %95 darlık oluşturan hazy görünüm izlendi. LAD safen greftine, kılavuz kateter ile kanüle edilerek 3.0x15 mm ilaç salımlı stent implante edildi.

**Anahtar Sözcükler:** Akut miyokard infarktüsü, Dekstrokardi, Safen Ven Grefti

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**ORCID IDs:** Ö.Ç.K.0000-0003-0173-4017, S.Ü.0000-0003-1159-8004, M.O.Ö.0000-0003-4801-966X, A.A.0000-0002-3428-1977, C.Ö.0000-0001-6255-711X

**Address for Correspondence / Yazışma Adresi:** Özge Çakmak Karaaslan, MD Ankara City Hospital, Cardiology Clinic, Ankara, Turkey E-mail: ozgecakmak2323@gmail.com

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**INTRODUCTION**

Dextrocardia is a rarely congenital anomaly (1). Although, it is an unconventional, coronary artery disease (CAD) with dextrocardia is assumed to be of similar ratio as in the general population (2). The life expectancy is generally normal without in the absence of another heart disease (3). There are a small number of emitted case reports of PCI. We report a case of underwent emergency primary PCI of SVG in a patient with situs inversus totalis who underwent coronary artery bypass grafting (CABG) surgery

**CASE REPORT**

A 60-year-old male patient was admitted to our hospital with complaints of dyspnoea and chest pain. He was a known case of situs inversus with dextrocardia. ECG showed a negative P wave in the I and aVL limb leads, a positive R wave in the aVR limb leads, a prominent S wave in the left side chest leads. His routine biochemistry was normal and troponin was 3591 ng/L (0-45 ng/L). In 2012, this patient was performed CABG and the saphenous vein was anastomosed to the proximal LAD, the saphenous vein was anastomosed (also in situ) to the proximal part of the RCX.

CAG using right transradial access with 6F Judkins catheter revealed totally occluded LAD and totally occluded RCX which was filling antegradely. CAG demonstrated that the LAD was perfused by the saphenous vein graft (SVG). SVG to RCX was totally occluded. Aortocoronary SVG to the LAD was stenosis 95% and displayed hazy image. Written informed consent was obtained from the patient for percutaneous coronary intervention.

The SVG to the LAD was selectively cannulated with a guiding catheter (Judkins Right 3.5, 6F guide catheter), and this was successful following anti-clockwise rotation and changing the angulation from LAO 60° to mirror image RAO 60°. Thereafter, 3.0x15 mm drug eluting stent (Xience Pro) was implanted with 14 atm pressure. The final result of coronary angiography showed that there was no residual stenosis in the stent of the saphenous vein graft to the LAD with the TIMI 3 grade flow. No complications occurred during hospitalization. Patient was discharged on the 2st post procedure day (Video 1-4).

**DISCUSSION**

Situs inversus with dextrocardia is an uncommon clinical phenomenon with a presented incidence of 1 in 10,000 live birth (1). Coronary angiography for dextrocardia was first reported in 1974 in a patient (4). Coronary artery bypass surgery in a patient with dextrocardia was reported in 1982 (5). PCI in dextrocardia with situs inversus was first reported in 1987 (6). Blankenship reported a total of 10 patients with dextrocardia and coronary artery disease, on whom catheterizations were performed simplicity by using Judkins technique in 5 cases, and Sones technique in four, and only just 1 case needing additional catheters, in 1991 (7). Jauhar et al and Papadopoulos et al summarized respectively on circumflex artery intervention in acute coronary syndrome and right coronary artery intervention in dextrocardia patients (8, 9). As this is a rare congenital anomaly, there have been limited literature reports on coronary angiography and interventional procedures in these patients. However, published literature about PCI in underwent CABG patients with dextrocardia was not reported.

A few procedural analysis in dextrocardia coronary catheterization and intervention is important to value discussion. Technical strategies for successful PCI in dextrocardia contain left-right mirror-image inversion angiographic images and counter-directional torquing of the catheter. Compared to the normal heart position, election and operation of interventional equipment, including a guide catheter, angiographic catheter, guidewire, balloon and stent should be improved to the expected anatomy in emergency PCI for AMI in patients with mirror-image dextrocardia. Modification in angiographic view obtaining is necessary for making selective cannulation of coronaries and interpretation of images to avoid possible errors. In literature reports, Blankenship et al, and Gagliani et al showed that counter-directional torque of the catheter was instrumental in successful coronary engagement (7, 10). This method was in the same way successfully used in our procedure.

Transradial PCI in situs inversus dextrocardia has been reported for acute myocardial infarction, using different guide catheters. In the case, the SVG cannulation was tested in a conventional LAO 60° and so the mirror-image RAO 60° view, and with an anti-clockwise rotation of the catheter.

This case was presented successful PCI in situs inversus dextrocardia who underwent CABG using a transradial approach. We performed angioplasty for stenosis in the SVG with standard wire, balloons and stent, with a satisfactory angiographic outcome. To the best of our knowledge, this is the first case in the literature of SVG PCI in situs inversus dextrocardia using the transradial approach.

**Conflict of interest**

No conflict of interest was declared by the authors.

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