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## Case Report

# Triple vessel percutaneous coronary intervention in a patient with situs inversus dextrocardia using a transradial approach

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## ABSTRACT

Situs inversus dextrocardia is a challenging situation for an interventional cardiologist. This report presents a rare case where multivessel percutaneous coronary intervention was performed in a single sitting using transradial approach. The challenges encountered in the procedure and clues to successful outcome are discussed.

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## 1. Introduction

Situs inversus dextrocardia is a rare congenital anomaly characterized by a mirror image position of the heart and abdominal viscera to the right side. The estimated incidence is 1:8000 to 1:10,000 live births.<sup>1</sup> These individuals usually have structurally normal hearts, normal longevity and coronary artery disease frequency similar to the general population.<sup>2</sup>

There are isolated reports of coronary angiography (CAG) and percutaneous coronary intervention (PCI) in these patients.<sup>3-8</sup> This communication describes a case of situs

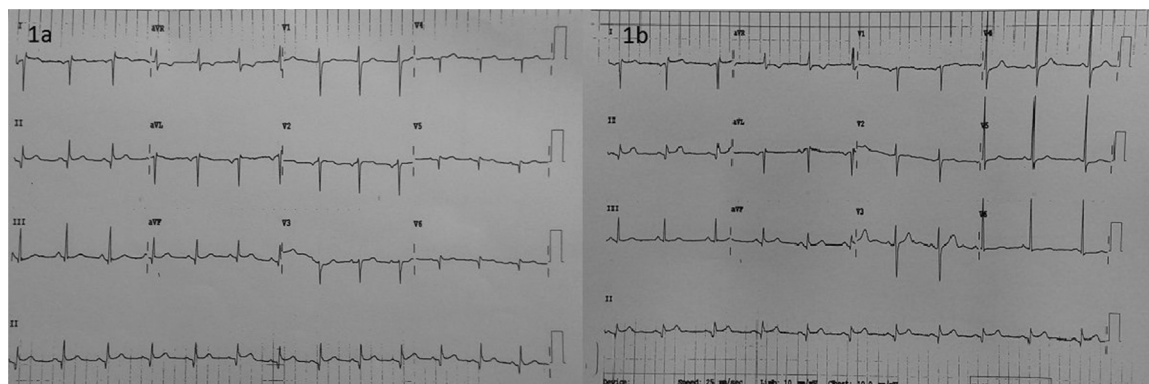
inversus dextrocardia presenting with unstable angina who underwent single stage multivessel PCI using transradial approach.

## 2. Case report

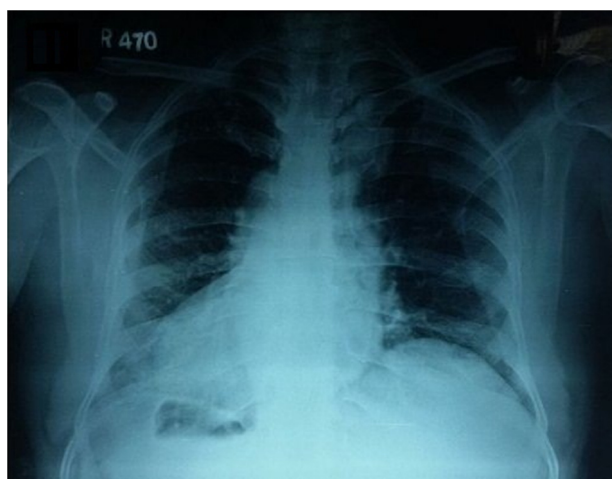
A 70-year-hypertensive male presented to a nursing home with precordial pain, perspiration and uneasiness of 6–8 h duration. Physical examination revealed right-sided apex beat with normal first and second heart sounds and no murmurs. Relevant blood investigations showed hemoglobin 14.3 gm%,

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**Fig. 1 – (a) A standard 12-lead ECG showing negative P wave in lead I and aVL, positive R wave in lead aVR, prominent S wave in left sided chest leads and a prominent R wave in right sided chest leads suggestive of dextrocardia. (b) A ECG of standard limb leads and right-sided chest leads suggestive of dextrocardia.**

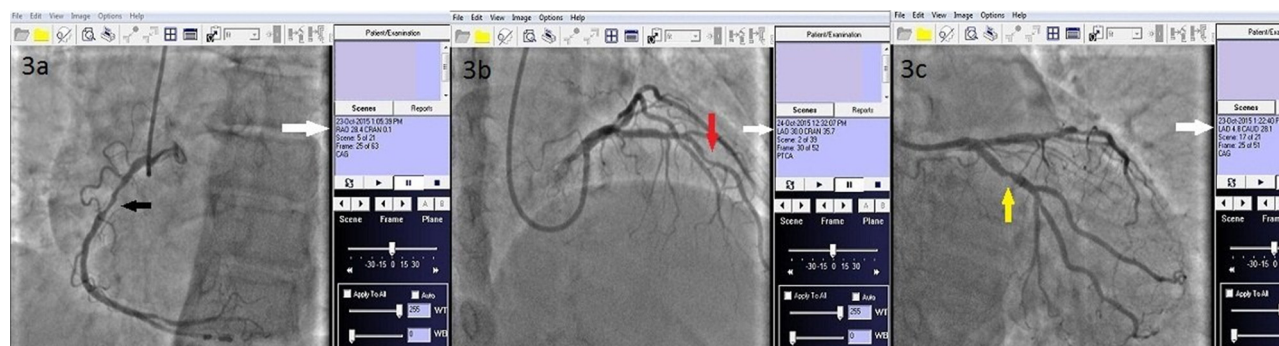


**Fig. 2 – Chest skiagram PA view showing major cardiac mass as well as stomach bubble on right side consistent with situs inversus dextrocardia.**

total leukocyte count  $7600/\text{mm}^3$ , serum creatinine  $1.1 \text{ mg/dl}$ , CPK-MB  $34 \text{ U/L}$  (normal up to  $24 \text{ U/L}$ ) and negative Troponin-T. A standard 12 lead electrocardiogram (ECG) (Fig. 1a) revealed sinus rhythm, negative P wave in lead I and aVL, positive R

wave in lead aVR, prominent S wave in left sided chest leads and a prominent R wave in right sided chest leads suggestive of dextrocardia. There was a minor ST segment elevation in leads I, II, aVF with q waves in inferior leads and T wave inversion in lead aVR. ECG of standard limb leads and right sided chest leads was consistent with dextrocardia (Fig. 1b). Chest skiagram PA view revealed major cardiac mass, aortic arch and stomach bubble on right side (Fig. 2). Ultrasonography of abdomen revealed inversion of abdominal viscera with liver and gall bladder on left and spleen on right side. Echocardiography using subcostal and right parasternal approach confirmed situs inversus dextrocardia and revealed inferior wall hypokinesia with left ventricular ejection fraction (LVEF) of 45%. Initial medical management included dual antiplatelet agents, aspirin and clopidogrel, atorvastatin, nitrates, and low molecular weight heparin. After 5 days of medical therapy, patient was referred to our center for invasive management.

CAG using right transradial access with 5F tiger catheter (Terumo Corporation, Somerset, New Jersey, USA) revealed a dominant right coronary artery (RCA) with proximal long segment lesion with maximum 80% stenosis and a plaque at posterior left ventricular (PLV) branch (Fig. 3a). Cannulation of left coronary ostia was difficult and was achieved using Judkins left 4 cm (JL 4) diagnostic catheter. There was a proximal segment plaque and a 80% stenosis in the mid



**Fig. 3 – Diagnostic coronary angiogram: (a) RAO view (white arrow) of right coronary artery showing proximal long segment lesion with maximum 80% stenosis (black arrow) which simulates conventional LAO view; (b) LAO cranial view (white arrow) showing 80% stenosis in mid portion of left anterior descending artery and (red arrow) which simulates conventional RAO cranial view; (c) LAO caudal view (white arrow) showing 80% stenosis in proximal left circumflex artery (yellow arrow) which simulates conventional RAO caudal view.**

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