Case Report

Primary Percutaneous Coronary Intervention in a patient with Dextrocardia

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Abstract

The case of a 40-year-old male with dextrocardia who presented with ST Elevated Myocardial Infarction (STEMI) is reported. Coronary angiogram was performed after due manipulation and then successful primary percutaneous coronary intervention (PCI) of Left anterior descending (LAD) coronary artery was done. His 9 months follow up primary PCI in a patient with angiogram revealed patent stent in proximal LAD. There are very few published case reports of this rare congenital anomaly addressing technical details of successful primary PCI with dextrocardia.

Keywords: Primary Percutaneous Coronary Intervention, Dextrocardia.

Case Report

A 40 year old male, known case of hypertension presented to the Emergency Room(ER) at National Institute of Cardiovascular Diseases, Karachi with acute chest pain of 2 hours duration. His cardiac apex beat was palpated in the 5th Intercostal space mid clavicular line on the right side of his chest. His electrocardiogram (EKG) revealed findings suggestive of dextrocardia and ST elevation in V1-3, with reciprocal changes in II, III avF. His right sided EKG revealed ST elevation in V1-5. Echocardiography done in ER showed situs solitus dextrocardia with severely hypokinetic left ventricular anterior wall and apex and ejection fraction of approximately 40%. Primary PCI was planned. The patient was loaded with asprin and clopidogrel and shifted to the cath lab within 30 minutes.

Figure-1: LAO30 caudal20 (A) and RAO45 caudal45 (B) views showing total occlusion of left anterior descending artery filled with thrombus (arrow indicates).

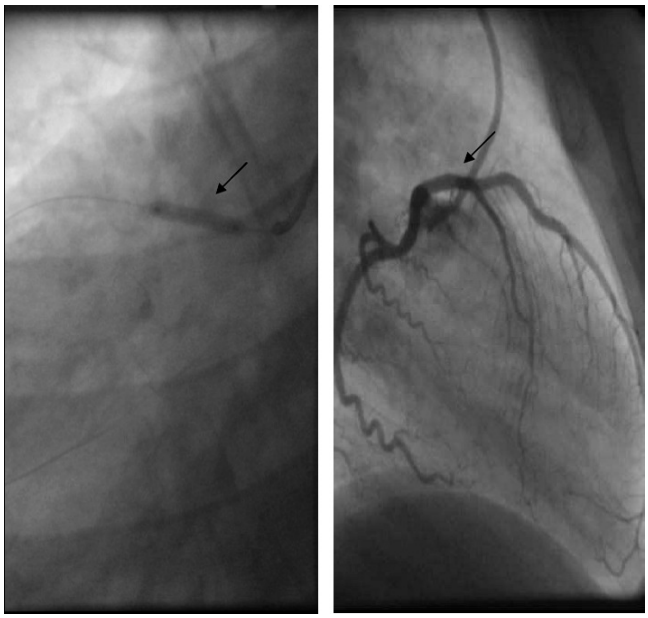

Figure-2: (A) stent is being deployed in proximal left descending artery (LAO30 caudal30). (B) Normal coronary flow is achieved after successful deployment of stent (RAO 90) (arrow indicates).

His angiogram revealed a right dominant system and total occlusion of proximal LAD (Figure-1). Intravenous heparin and eptifibatide was given. Judkins left 3.5, 6 french guiding catheter was used to engage the left coronary artery.Right coronaray artery was engaged with counter clockwise rotation of judkins right 4,6 french diagnostic catheter in left anterior oblique 45 view (LAO45). Working view was left anterior oblique 30 (LAO) with caudal 30angulation instead of the standard right anterior oblique (RAO) in view of dextrocardia. Lesion was crossed with a 0.014" 190cm long Balanced Middle Weight (BMW) guide wire. Export catheter 6 french was used to extract the clot. The lesion was then successfully stented with bare metal stent (Liberte 3.0mm×16mm) at 55 minutes post ER admission (Figure-3A). TIMI III flow with no residual lesion was achieved (Figure-3B). The patient was transferred to cardiac care unit for further management. The hospital course was uneventful. Patient was discharged on the 1st post procedure day. At 9 month follow up he was in NYHA functional class I. His follow up angiogram revealed patent stent in the proximal LAD.

Discussion

Dextrocardia (DC) is a rare cardiac condition which is defined as a right-sided heart with a rightward base-apex axis orientation, resulting from a variation in cardiac development. It occurs in approximately 0.01% of live births and can be discovered in various clinical settings and patient ages.[1] Its association with coronary artery disease is at the same frequency as in the general population.[2]

As the incidence of atherosclerotic disease is similar to that of the general population, there have been case reports of percutaneous coronary interventions (PCIs) in these patients.[3]

Role of Primary PCI, its feasibility, safety and effectiveness in acute MI is well established.[4] But some issues related to dextrocardia make primary PCI more challenging in this group of patients. First, inherent time delay due to catheter manipulations required to engage coronaries as already mentioned by Soofi MA[3] in his case report, especially when dextrocardia is an incidental finding. Secondly, it is difficult to find an appropriate angiographic view to visualize the lesion, which subsequently may also lead to a greater amount of contrast use.

In our report, despite the fact that dextrocardia was an incidental finding; a door to balloon time of < 90 minutes was

achieved. This reflects that as initially perceived with experienced operator such anatomical variation may not be very challenging. Although there were some difficulties in finding out an appropriate angiographic view for ostial LAD lesion, whole procedure was completed with < 200 ml of nonionic contrast. Proposed technical strategies for successful angiography and PCI in DC include counter-directional torquing of the catheter, as well as right-left mirror-image inversion angiographic views.[2] Moreover an excellent functional class and a normal follow up angiogram at 9 months with no angiographic in stent restenosis demonstrate the safety, feasibility and effectiveness of Primary PCI in the rare patient with DC.

References

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