Rescue PTCA in a Patient with Single Coronary Anomaly

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Abstract
We present a case of rescue percutaneous coronary intervention (PCI) using right radial approach in a rare case of single coronary artery originating from the right sinus. Although these anomalies and stenosis of anomalous vessels have earlier been reported, treatment of atherosclerotic lesions by PCI has rarely been reported. There is a definite risk during PCI in patients with a single coronary ostium because dissection with the guiding catheter would result in a catastrophic event. Additionally, technical difficulties may occur due to the ostial configuration and course of the branch to be stented.

Introduction
There is a definite risk during PCI in patients with a single coronary ostium because dissection with the guiding catheter would result in a catastrophic event. Additionally, technical difficulties may occur due to the ostial configuration and course of the branch to be stented. Here we present a case of rescue PCI performed in a patient with single coronary artery.

Case Report
A 52 years old non-diabetic, normotensive male presented with complaints of sudden onset chest pain of one-hour duration and diagnosed at a peripheral hospital as Acute Anterior wall ST elevation myocardial infarction (STEMI) and managed with thrombolysis. He developed progressive breathlessness following that episode. He was intubated and kept on ventilator. Later he was shifted to our centre for further management. On examination he had stable vitals, afebrile with bilateral basal crepitations on auscultation. Two-dimensional echocardiography revealed regional wall motion abnormalities in Left anterior descending (LAD) artery territory with moderate left ventricle dysfunction with no mitral regurgitation. After proper informed consent, patient underwent coronary angiography via right radial route which revealed single coronary artery arising from right aortic sinus which further divided into right dominant coronary artery with Left main coronary artery arising from proximal part (Figure 1). Left main coronary artery had 80% thrombotic lesion and divided into two (Figure 2). LAD was type III vessel, normal vessel with normal diagonals. Left circumflex was non-dominant vessel and had 70% proximal stenosis, obtuse marginals were normal. RCA was dominant...
vessel with minor plaque in mid to distal part. He further underwent rescue percutaneous transluminal coronary angioplasty (PTCA) with stenting to proximal to mid Left main with a 3.5 X 18 mm third generation Everolimus drug eluting stent (Figure 3). Final angiogram showed good end results with TIMI III flow without any complications (Figure 4). He was subsequently extubated next day and discharged in a stable condition on fourth day.

Discussion

Several classification systems for coronary artery abnormalities exist. Lipton et al., classified coronary variations based on origin and anatomical course relating to the ascending aorta and pulmonary trunk.2 Type L represents an RCA originating from the left main stem and type R indicates that the left coronary artery originates from the RCA. These types are then classified as I-III. Class I follow the anatomical course of either an RCA or LCA. Class II indicates one coronary artery arising from the proximal part of the normally located opposite coronary artery. In class III, the left anterior descending (LAD) and left circumflex (LCx) arise separately from the proximal part of a normal RCA. Classes II and III are then designated as anterior (type A) to pulmonary artery or posterior (type P) to aorta, or interarterial (type B) if it courses between the ascending aorta and the pulmonary trunk. Type B morphology has been associated with a high risk of clinical consequences when associated with an intramural course.2 Angelini et al., proposed a slightly different classification according to the anatomical course within the interventricular sulcus and atrioventricular groove, as well as the location of penetrating side branches.3 According to Lipton’s classification, our patient had R II P subgroup (single coronary artery from the right sinus with LCA arising from the proximal part of RCA and a posterior course to aorta). Lipton’s classification has been modified by others, adding to this classification the “S” septal (through the interventricular septum) and “C” combined types.1 R II P subgroup is rare.4 Though there are several case reports of PCI in single coronary artery, most are through the femoral route.5,6 To the best of our knowledge, this case report is one of a few similar cases described in the literature. We did not have much difficulty during PCI as we were using right radial artery approach and Judkin’s right catheter. For right coronary cannulation, we always start with a JR curve. Other catheters like internal mammary artery (IMA), Multipurpose, and Amplatz left (AL) can also be used according to the situation.7

Conclusion

The present case merits mention because of several points. Intervention in a single coronary artery through radial approach has been rarely reported and in type R II, it is rarer. Radial PCI is as good as femoral PCI for anomalous coronaries, provided operator has experience in radial interventions. Meticulous attention should be given to pressure damping while doing PCI in cases with both coronaries originating from single ostium. We should take non-selective shoot if there is no coronary originating from either sinus (left/right).

References