CASE REPORT

PARADOXICAL MYOCARDIAL INFARCTION REVISITED

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ABSTRACT

For many years, physicians have occasionally been puzzled by electrocardiographic (ECG) findings showing multiple areas of injury / necrosis in the classic diagnostic localization of myocardial infarction. One of the reasons for such findings may be due to the fact that the location of the coronary occlusion and the site of infarction do not always have a constant relationship. The differential diagnosis can be narrowed down with the further use of an echocardiogram and cardiac catheterization. In this article, we reviewed a case study with paradoxical myocardial infarction (infarction at a distance) which is a rare entity and discussed the findings.

Keywords: Paradoxical myocardial infarction, Infarction at a distance, Percutaneous coronary intervention, Outcome, Anticoagulation, ECG findings

PARADOKSİKAL MİYOKARD İNFARKTÜSU TEKRAR ZİYARETTE

ÖZET

Uzun yıllar, klinisyen hekimler, bazı durumlarda, miyokard infarktüsünun klasik diyagnostik lokalizasyonunda, birden çok alanda kendisini EKG lezyon / nekroz bulguları ile baş göstermesi karşısında hayrete düşmüşlerdir. Bu gibi bulguların bir sebebi koroner arter okluzyon yerinin infarktüs alanı ile her zaman ilişkili olmaması gerçeğinde yatmaktadır. Ayırıcı tanı ekokardiyografi, ve kardiyak kateterizasyon kullanımı ile daha da daraltılabilinir. Biz bu makalede ender görülen paradoksikal miyokard infarktüslu (uzakta oluşan infarktüs) bir vakayı ve bulgularını ayrıntılı olarak inceledik.

Anahtar Kelimeler: Paradoksikal miyokard infarktüsu, uzakta oluşan infarktüs, perkutanoz koroner girişim, sonuçlar, antikoagulasyon, EKG bulguları.

INTRODUCTION AND CASE REPORT

We are reporting a 59-year-old male admitted to our hospital's emergency ward with a history of diabetes mellitus, hypertension, hyperlipidemia, coronary artery disease, chronic renal failure, cerebrovascular accident, deep venous thrombosis who began to have left sided substernal chest pain and dyspnea radiating to left shoulder accompanied with diaphoresis. His family history was significant for cerebrovascular accident in his father. He smoked 1 pack of cigarettes per day for 40 years and also had a history of drug abuse in the past. The patient had no known drug allergies. On physical examination, his vital signs were stable without any significant findings in the cardiovascular exam. He had left sided hemiparesis as a residual from his previous stroke. His electrocardiogram (ECG) revealed

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both anterior and inferior (anterior > inferior) ST segment elevations (Fig. 1).

In addition, as initial medical therapy, the patient underwent emergency cardiac catheterization which showed 99% proximal and 35% distal Left anterior descending (LAD) artery stenosis, as well as 30% mid-left circumflex (LCX) stenosis. A proximal LAD lesion was dilated with a Maverick 2.5 X 9mm balloon catheter at 15 atm, and then stented with a Taxus 3.0 X 12mm paclitaxel drug eluting stent at 18atm (Figs. 2 and 3).

Following intervention in the LAD, his right coronary artery (RCA) diagnostic coronary angiography also showed 100% occlusion, which was an unexpected finding to us. This was stented with a Taxus 3.0 X 32mm paclitaxel drug eluting stent at 18atm (Figs. 4 and 5).

DISCUSSION

The total occlusion of the RCA in addition to the high grade LAD stenosis was a surprising finding based on ECG presentation. This has not been well defined in the literature although named as paradoxical myocardial infarction or infarction at a distance1-2. In this situation, an infarct was caused by sudden obstruction of an artery that had been supplying anastomotic channels and adequate nutrition to the affected area, which had formerly been supplied by another coronary artery that had undergone gradual occlusion in the past. Even though we do not have a viability test to support this in our patient, his ECG showed ST elevation and the presence of Q waves in more than one territory, all of which suggest injury and infarct to the affected areas. Since we initially intervened for the LAD (because of ongoing excruciating pain and borderlime blood pressure after intraprocedural vasodilators were applied), unfortunately we could not visualize his collaterals.

The day after his intervention, he had an echo that showed 30% ejection fraction with severe anteroseptal and anteroapical hypokinesis.

The differential diagnosis of such presentation with diffuse ST elevation includes pericarditis, early repolarization, acute thrombotic / embolic myocardial infarction in more than one vessel simultaneously, myocardial infarction in a wrap around LAD, myocardial infarction in two different vessels at the same time and paradoxical myocardial infarction. The last case is prognostically significant as it is related to two vessel diseases. Therefore, an echocardiogram may be helpful in this regard in differentiating from some of the other possibilities.

Our patient underwent a successful two vessel percutaneous coronary intervention using heparin, eptifibatide, and clopidogrel anticoagulation. A post-procedural hospital course was uneventful and the patient was discharged from hospital on the sixth day. Because of the extent of the myocardium involved, interventionalists should optimize anticoagulation in order to prevent thrombotic complications.

We dedicate this article to our mothers.

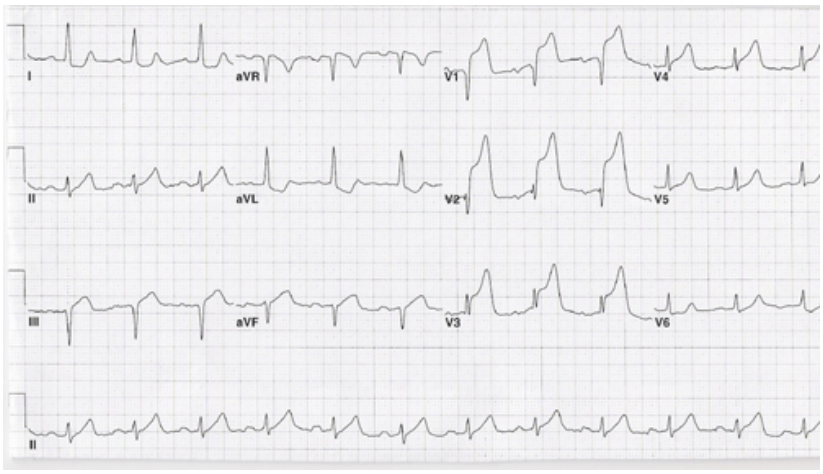

Fig. 1: ECG

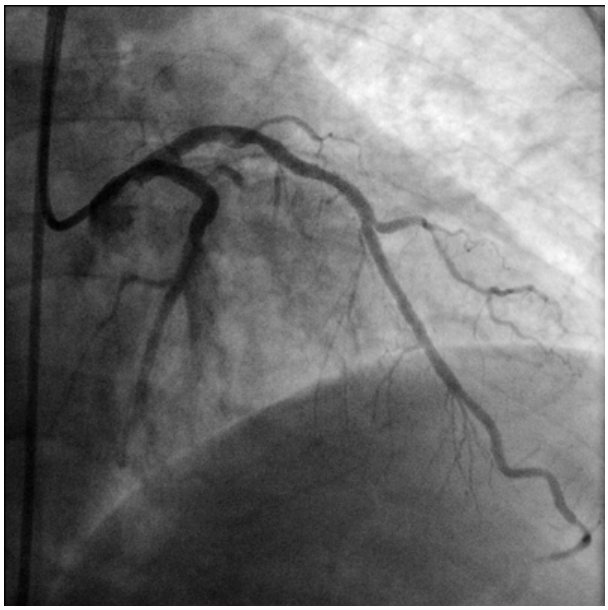

Fig 2: Pre-intervention LAD

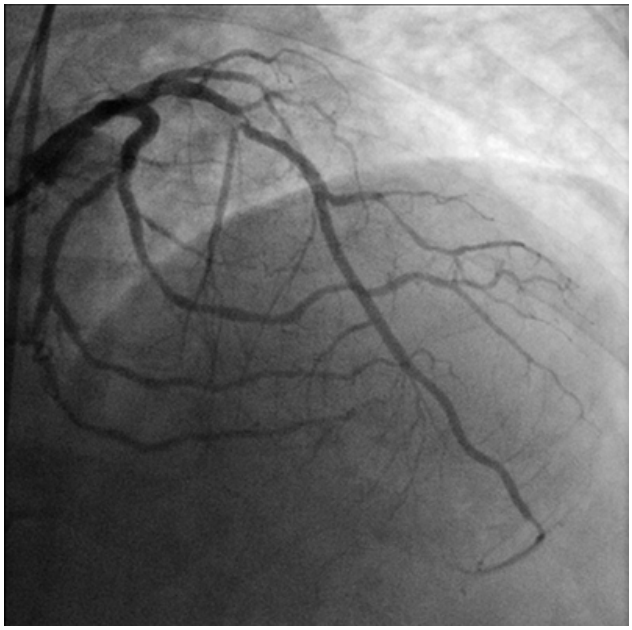

Fig 3: Post-intervention LAD

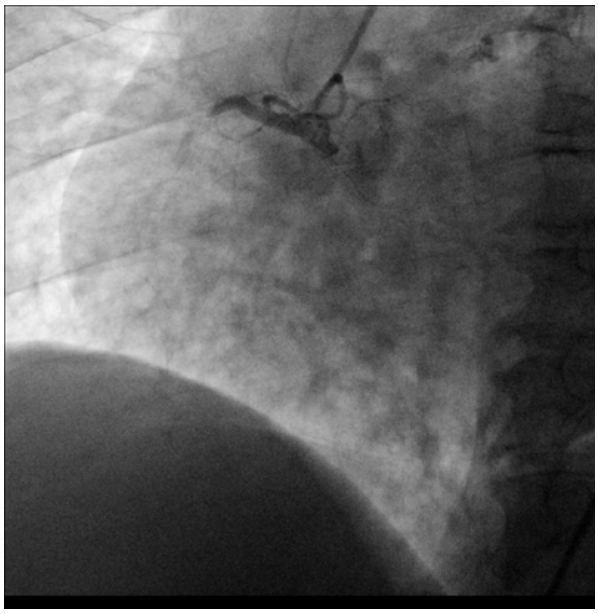

Fig 4: Pre-intervention RCA

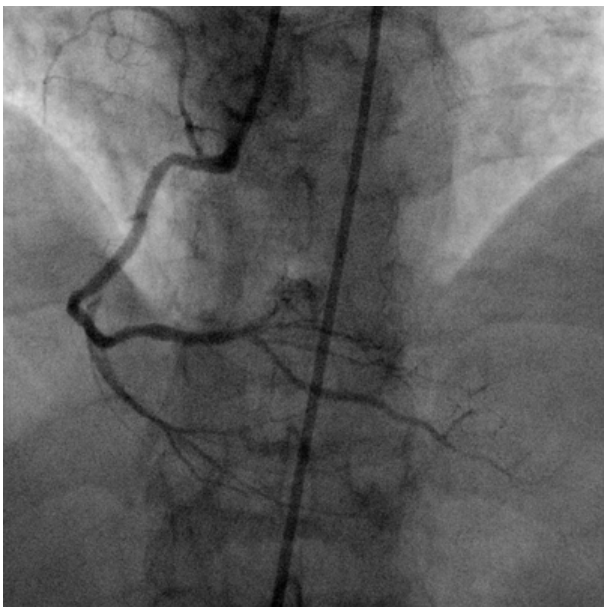

Fig. 5: Post-intervention RCA

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