

Traumatic Coronary Artery Dissection with Acute Myocardial Infarction Following Motorbike Accident - A Case Report

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Coronary artery dissection is a rare but a life-threatening complication of blunt chest trauma. Trauma may cause vasospasm or thrombus formation which can lead to acute myocardial infarction. We report a case of 29-year young male with no significant past medical history presented to emergency department following motorbike accident with femur fracture. His ECG was abnormal and cardiac enzymes were elevated on arrival. Echocardiography showed regional wall motion abnormality and coronary angiography showed dissection of left anterior descending coronary artery with significant stenosis. Thus, road traffic accident patients with blunt chest trauma and abnormal ECG should be evaluated early with a cardiac enzymes and echocardiogram.

Keywords: coronary artery dissection, motorbike accident, blunt chest trauma.

Blunt chest injury following road traffic accident (RTA) is commonly encountered in emergency department and few of these present with blunt cardiac injuries, which may even lead to coronary artery dissection.¹⁻⁵ Coronary artery dissection may result in thrombus formation with subsequent life-threatening complications

such as acute myocardial infarction, ventricular arrhythmias and sudden cardiac death.^{1,2,5} Here, we report a case of traumatic coronary artery dissection with myocardial infarction in a patient following motorbike accident.

Case Report

We report a case of a 29-year-old male,

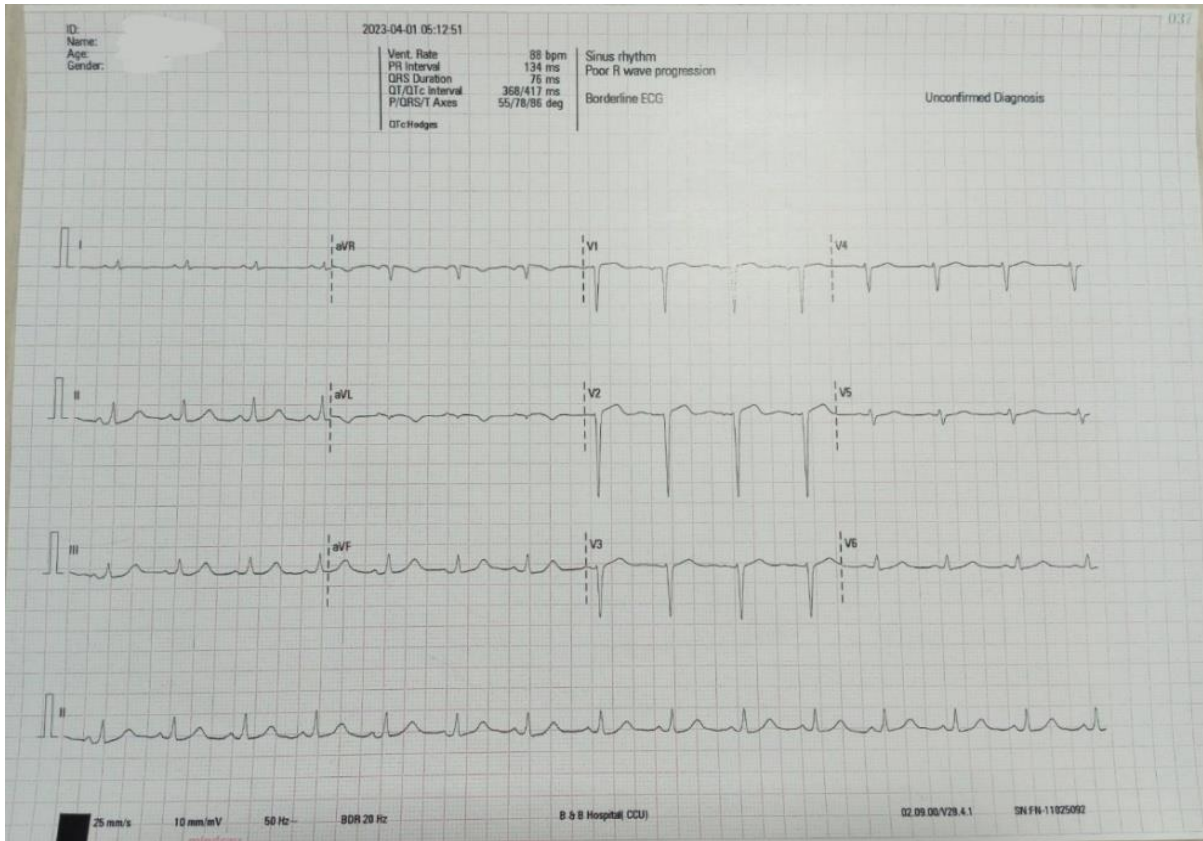


Figure 1: ECG showing QS in V1-V3.

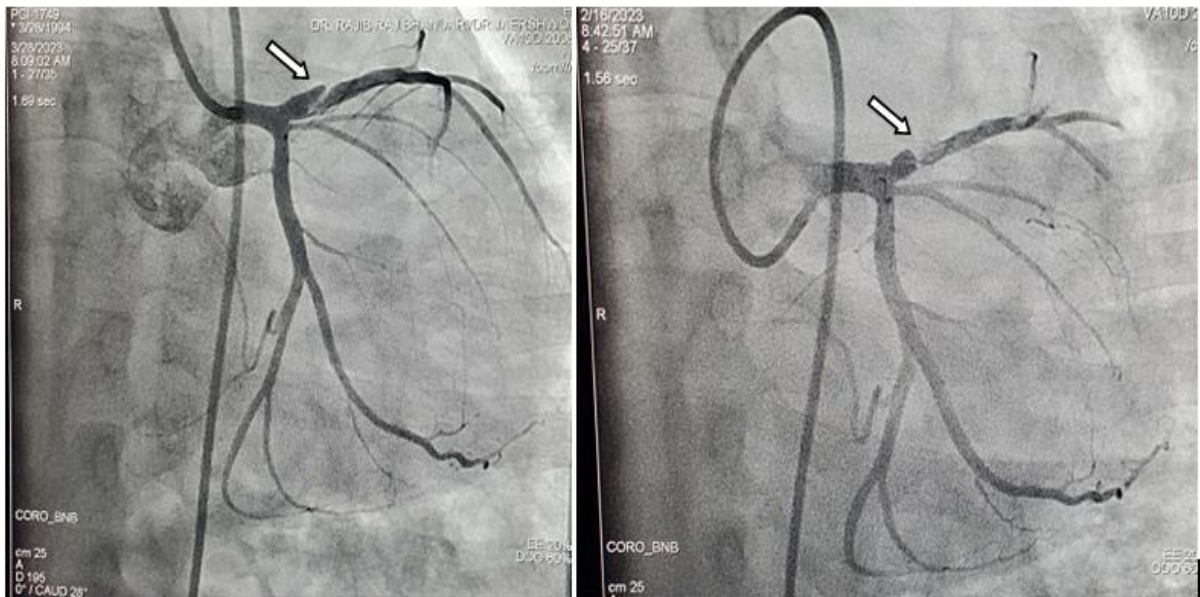


Figure 2: CAG showing dissection of proximal LAD with 99% stenosis.

who presented to our hospital with recent history of motorbike accident. The patient had no significant history other than risk factor of tobacco chewing. During the

accident, he had suffered a right distal femur fracture with injury to knee ligaments. The patient had primarily been managed in a local hospital and was

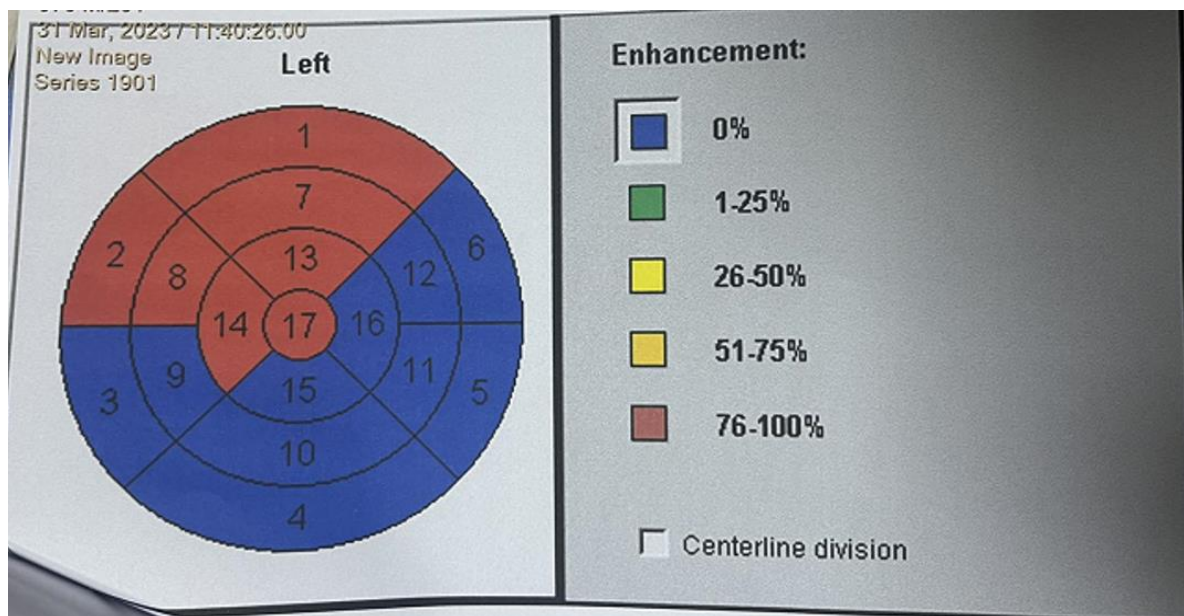


Figure 3: Cardiac MRI -LGE showing nonviable seven segments (1, 2, 7, 8, 13, 14, 17) of left ventricle

referred to our hospital for surgical intervention for fracture. He was taking oral medication for type 2 diabetes. The patient denied any history of chest pain, chest heaviness, palpitations, and shortness of breath on exertion.

A 12 lead ECG (**Figure 1**) showed QS waves in leads V1-V3. A transthoracic echocardiography revealed akinetic anterior septum and apical cap, hypokinetic lateral wall, with moderate left ventricular systolic dysfunction (LVEF 30-35%). Troponin-I was elevated. Liver function test was deranged, other lab parameters were within normal ranges. The patient had mild chest pain and low blood pressure (BP 90/60 mmHg) on presentation to our emergency department. Coronary angiography was done which revealed spiral dissection of proximal

LAD coronary artery with significant luminal stenosis (99% stenosis) (**Figure 2**). Cardiac MRI was done which revealed regional wall motion abnormality (RWMA) and late gadolinium enhancement (LGE) with left ventricular ejection fraction of 30%. Out of 17 segments of myocardium, 7 segments were nonviable, and these nonviable territories are supplied by left anterior descending (LAD) coronary (**Figure 3**). Patient was managed conservatively with enoxaparin, aspirin, clopidogrel, metoprolol, ramipril, spironolactone, frusemide and rosuvastatin.

Discussion

Road traffic accidents are the most common cause of blunt cardiac injuries, followed by violent falls, sport activities or

fight. The clinical presentation varies from asymptomatic cases to acute myocardial infarction and death.² The diagnosis of the coronary artery dissection in RTA cases is either delayed or missed. Thus, in polytrauma patients with a chest injury and/or chest pain, patients should be early evaluated with ECG, cardiac enzymes, and echocardiography.

The left anterior descending artery is more susceptible to trauma due to its anterior location (76%) followed by the right coronary artery (12%) and the left circumflex artery (6%).^{3,4} In our case, the dissection was in the proximal left anterior descending artery which led to acute myocardial infarction. Similar to our case, James et al study reported a case of left main coronary artery dissection with acute myocardial infarction after motor vehicle accident.³ The treatment of traumatic coronary artery dissection includes coronary artery bypass grafting (CABG), percutaneous coronary angioplasty, conservative treatment, or thrombolysis. Our case was managed conservatively because patient already had akinetic wall motion abnormality, had no significant angina and gadolinium scan showed nonviable territory. He was doing well at three months follow-up.

Conclusion

It is necessary to suspect cardiac injury in

patients with a history of blunt chest trauma following road traffic accident. ECG, echocardiography, and cardiac enzymes are essential tools which can help the physicians to raise the suspicion towards a cardiac injury and this may be followed if needed by coronary angiography for confirmation. Early diagnosis and management of coronary artery dissection in RTA cases is important to reduce morbidity and mortality.

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