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**CASE REPORT**

# Chronic Total Occlusion Of The Left Main Coronary Artery In Patient With Ventricular Tachycardia

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ABSTRACT: Chronic total occlusion (CTO) of the left main coronary artery (LMCA) is an extremely rare angiographic process which is described by lack of opacification of the LMCA in the absence of the antegrade blood flow to the left anterior descending artery (LAD) and circumflex artery (LCx). We report a case of a patient with chronic totally occluded LMCA who was presented with ventricular tachycardia and heart failure.

CASE REPORT: A 61-year-old man was admitted to the emergency room with shortness of breath and syncope. He had a medical history of hypertension. On admission, he had a blood pressure 80/50 mmHg, a regular pulse of 210 beats per minute, and a breath rate of 28 per minute with 92 % partial oxygen saturation. Chest auscultation revealed apical 3/6 holosystolic murmur and bilateral pulmonary crackles throughout to apices. The

electrocardiogram (ECG) showed a monomorphic ventricular tachycardia. The patient immediately underwent electrical cardioversion, and the rhythm was successfully converted without complication. The hemodynamic stabilization was obtained after the restoration of the sinus rhythm. Parenteral administration of amiodarone, nitroglycerine and furosemide was initiated. On medical treatment, pulmonary crackles disappeared within 48 hours. Troponin I levels did not increase significantly during hospitalization. The transthoracic echocardiography demonstrated severely decreased left ventricular systolic function with an ejection fraction of 15 % and regional left ventricular wall motion abnormalities including akinesia of the anterior and anterolateral free wall, and apical aneurysm. Coronary angiography performed on the third day of hospitalization. Left coronary angiogram revealed a CTO of the LMCA without antegrade flow to LAD and LCx (Fig. 1). Right coronary injection demonstrated a dominant right coronary artery without significant stenosis, and extensive collateral communicating the sinus node artery and conus branch of the RCA to the LAD and LCx (Fig. 2). Thallium-201 myocardial perfusion scan (SPECT) was performed to evaluate viable myocardium. The test demonstrated minimal viable and ischemic tissue on the anterior wall. Optimal medical therapy accepted as the treatment of choice instead of surgical revascularization. Also, isolated implantable cardioverter defibrillator (ICD) was implanted to prevent sudden cardiac death, because he had an episode of sustained ventricular tachycardia and depressed left ventricular systolic function without wide QRS complex. Following an uneventful period, he discharged from the hospital with intensive medical treatment. On the third month visit, he has remained well without symptom.

DISCUSSION: Total occlusion of the LMCA is a rare manifestation that is characterized by complete absence of antegrade blood flow to the left coronary system. Prognosis of the

disease is poor because a large area of the myocardium is at risk. The reported prevalence of the disease ranges from 0.04 %-0.4 % (1). Acute occlusion of the LMCA is a clinical catastrophe that usually presents with anterior myocardial infarction, cardiogenic shock or sudden cardiac death. The management is based on an emergency restoration of coronary flow with immediate primary percutaneous coronary intervention. The time between symptoms and revascularization procedure is commonly associated with survival. CTO of the LMCA is often a silent process that usually occurs over a period of more than 3 months. Emergency revascularization is not usually required, because of adequate blood supply from the collateral circulation via the right coronary system. The most common cause of chronic LMCA occlusion is an atherosclerotic process. Vasculitis such as polyarteritis nodosa, Takayasu's arteritis, syphilitic arteritis; mediastinal irradiation and congenital heart diseases such as William’s syndrome and truncus arteriosus are different etiologic causes of this disease. Most of these patients referred to the hospital with a prolonged period of angina, exercise intolerance, or signs of congestive heart failure. In our case, the patient presented with syncope, shortness of breath, and an episode of sustained ventricular tachycardia. The treatment of choices in this disease depends on the quality of the collateral circulation and extent of ischemia. Surgical revascularization is mandatory in a patient with moderate to the large area of viable myocardial tissue. Percutaneous revascularization is not recommended because of the limited success of the procedure and high restenosis rate and revascularization (2). In our case, there was an adequate collateral circulation and minimal viable myocardial area on the SPECT. So, medical therapy with prophylactic ICD implantation was adopted as a treatment option. In conclusion; CTO of the LMCA is an extremely rare angiographic situation. Various etiologic factors may have a role in the occurrence of the disease. The symptoms and treatment options depend on the quality and adequacy of collateral vessels.

Although emergency revascularization is required in a patient with acute LMCA occlusion, immediate restoration of the LMCA flow is not mandatory in chronic cases. The recommended treatment is surgical revascularization in symptomatic patients with moderate to a large area of myocardial ischemia.

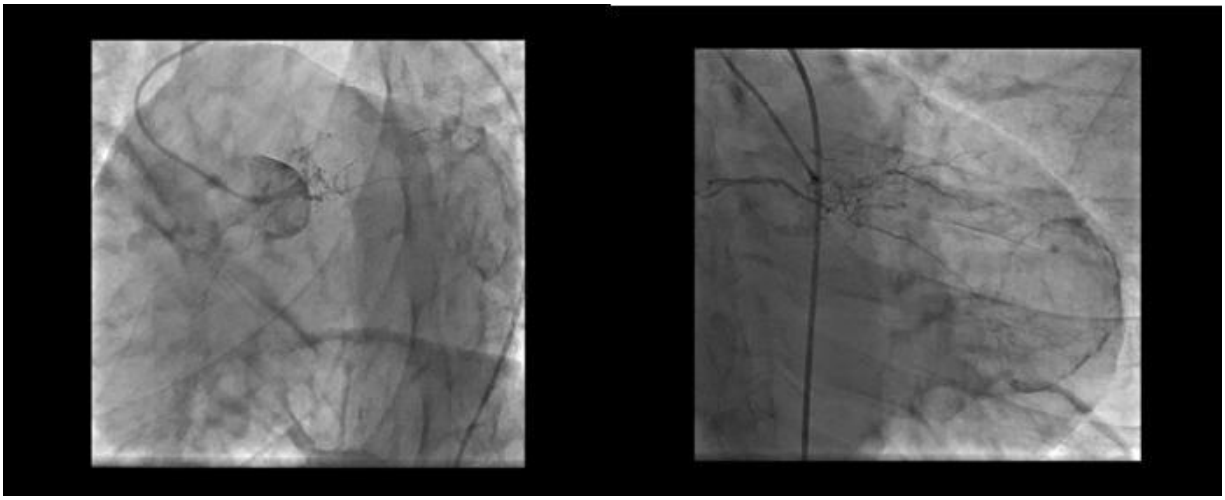

Figure 1. Coronary angiographic view. Left coronary angiogram showed chronic total occlusion of the left main coronary artery.

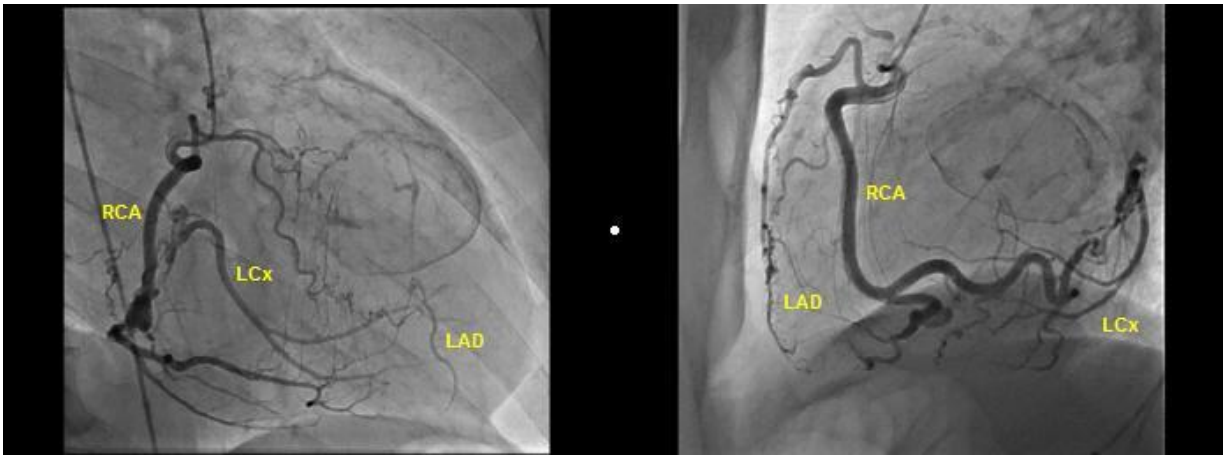


Figure 2. Coronary angiogram from left anterior oblique and left lateral projection. Right coronary angiogram showed retrograde filling of the LAD and LCx by collaterals from the right coronary system.

**References**

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