**Left Main Coronary Artery Vasospasm: a misdiagnosed case of severe coronary artery disease**

**Introduction**: Left main coronary artery (LMCA) vasospasm is extremely rare and can cause demand-supply mismatch that can mimic coronary artery disease (CAD) which can be challenging to diagnose because it has a wide range of presentations. We describe a patient with isolated LMCA stenosis which was misdiagnosed with severe left main disease requiring surgical referral. Coronary CT angiography (CCTA) unmasked spasm as the underlying cause and prevented unnecessary surgery.

**Case presentation**: A 55-year-old woman with a history of hypothyroidism presented with retrosternal chest pain radiating to the left arm. Vital signs were stable and physical exam was unremarkable. ECG revealed T-wave inversions in the inferior leads. Laboratory testing showed normal cardiac troponin. Echocardiography revealed LVEF of 60-65% without wall motion abnormalities. The patient underwent nuclear stress testing which was not completed due to a severe reaction to the regadenoson. The plan was to perform left heart catheterization (LHC) with coronary angiogram which revealed 70% stenosis of the distal portion of LMCA (Figure 1-A). However, given the high suspicion of LMCA spasm in the setting of no CAD risk factors and lack of even mild disease in the other coronaries, the decision was to obtain CCTA which showed normal LMCA without stenosis. Repeated LHC showed normal LMCA, which supported the diagnosis of CAS (Figure 1-B).

### **Discussion and Conclusion**: CAS can angiographically mimic CAD potentially leading to misdiagnosis and, in cases of LMCA stenosis, inappropriate referral for surgery. CT angiography is a non-invasive tool that can unmask LMCA vasospasm and help prevent unnecessary surgery in such cases (1). Physicians should have a high suspicion for coronary spasm especially in patients with atypical presentations who lack CAD risk factors and have no coronary atherosclerosis in the unspammed coronary arteries.

**References**:

# (1) Pflederer T, Marwan M, Ropers D, Daniel WG, Achenback S. CT angiography unmasking catheter-induced spasm as a reason for left main coronary artery stenosis. J Cardiovasc Comput Tomogr 2008; 2: 406– 407.

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