

TOMBSTONE STEMI AND A WRAPAROUND LAD

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INTRODUCTION

Tombstone ST-elevation (STE) is a type of STE with a specific morphology and is observed in the early phase of acute myocardial infarction. It is associated with poor prognosis due to extremely rapid and extensive myocardial damage. We describe a case of Tombstone ST-elevation myocardial infarction (STEMI) which was managed at our Emergency Department (ED) with a favourable outcome.

CASE REPORT

A 61-year-old male presented to the ED with a 6-hour history of retrosternal chest pain. He is an active smoker with a background history of diabetes and hypertension. He was normotensive and mildly tachycardic. Cardiovascular and respiratory examination was unremarkable. His 12-lead electrocardiogram (ECG) showed extensive STEMI in the anterolateral and inferior leads (Figure 1). Tombstone STE were seen in lead V2-4 (Figure 2). His angiogram showed diffuse disease from proximal to mid segment of his left anterior descending artery (LAD) and there was an acute total occlusion from mid LAD (Figure 3). His left main stem, right coronary artery (RCA) and left circumflex artery had no significant stenosis. Primary percutaneous coronary intervention with stenting was performed to his mid LAD occlusion. He made an uneventful recovery.

DISCUSSION

In STEMI, the ST-segment tends to become convex upwards, and, in some cases, it may surpass the peak level of the R wave. STE surpassing the R wave exhibits a morphological appearance that resembles a tombstone. Pre-infarction angina pectoris are less frequent in patient with Tombstone STEMI due to the lack of coronary collateral flow and ischemic pre-conditioning. The tombstone ECG pattern is a result of an unprepared large myocardial area exposed to severe ischemia. Patients with tombstoning are likely to have high-grade stenosis of the proximal LAD. In addition, the left ventricular (LV) function is much impaired and infarction size is large. The mortality rate in tombstone STEMI has been reported around 26 – 38.2%. Our patient had no significant stenosis of his RCA, which usually supplies the inferior left LV wall. He had an anterior-inferior STEMI due to occlusion of a “wraparound” LAD, which is a variant LAD that wraps around the cardiac apex (Figure 4). This resulted in a simultaneous STE in the precordial and inferior leads due to occlusion of a variant LAD. The high-grade stenosis of his proximal LAD not only affected his anterior lateral LV wall, but also the inferior LV wall resulting in an extensive myocardium involvement. Fortunately, he received prompt primary PCI and made an unremarkable recovery.

CONCLUSION

Tombstone STEMI is associated with poor prognosis due to extremely rapid myocardial damage as a result of poor collateral flow, severe ischemia and unprepared myocardium. It should be considered as a distinct and more severe entity of STEMI. A Tombstone STEMI should trigger an appropriate and timely intervention, in order to improve the outcomes and prognosis in this high-risk group. Failing to treat this diagnosis with respect may eventually lead patients to their tombstone.

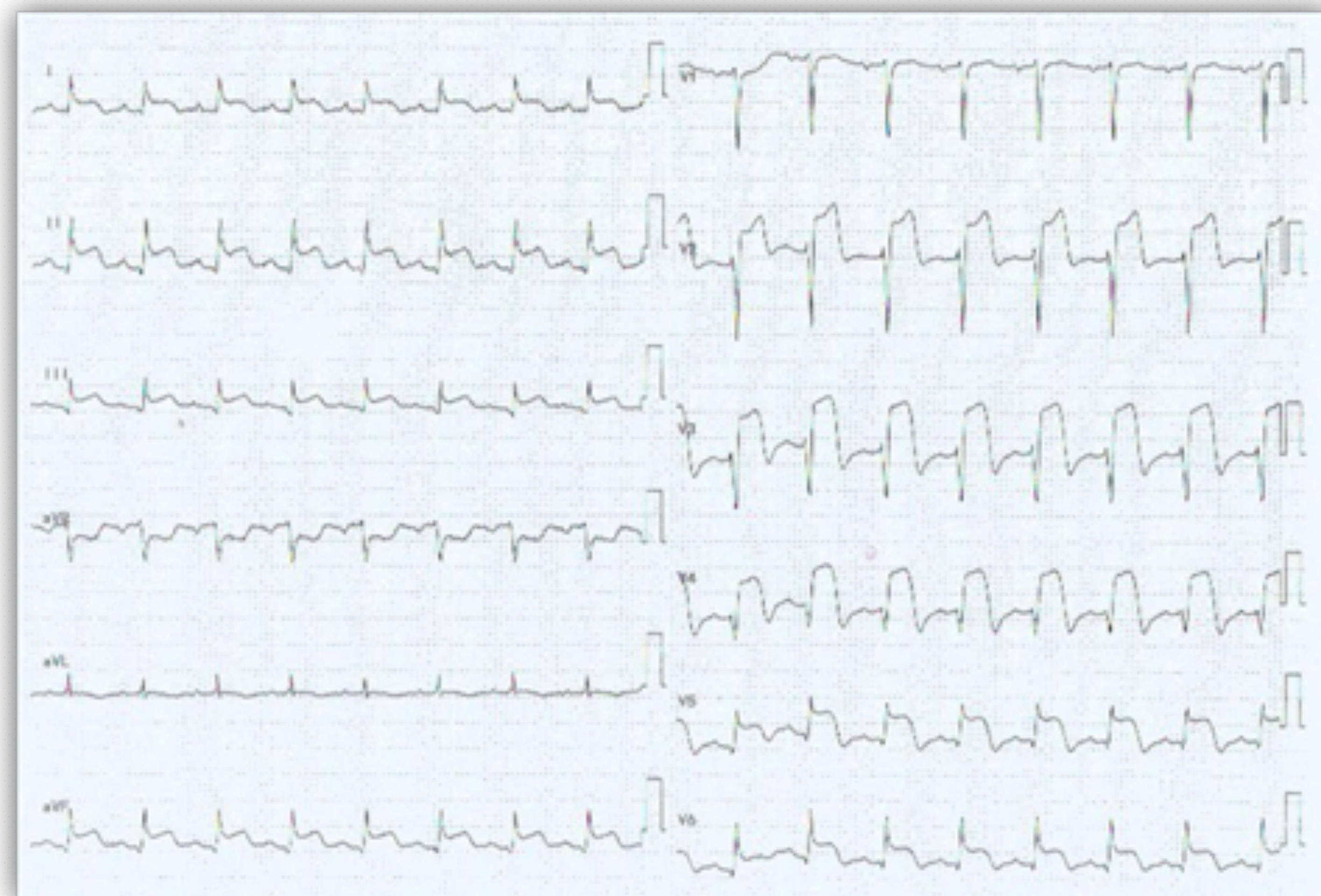


Figure 1: Extensive anterior-lateral and inferior STEMI. STE is present in precordial leads (V2-6), high lateral leads (I) and inferior leads (II, III, AVF).

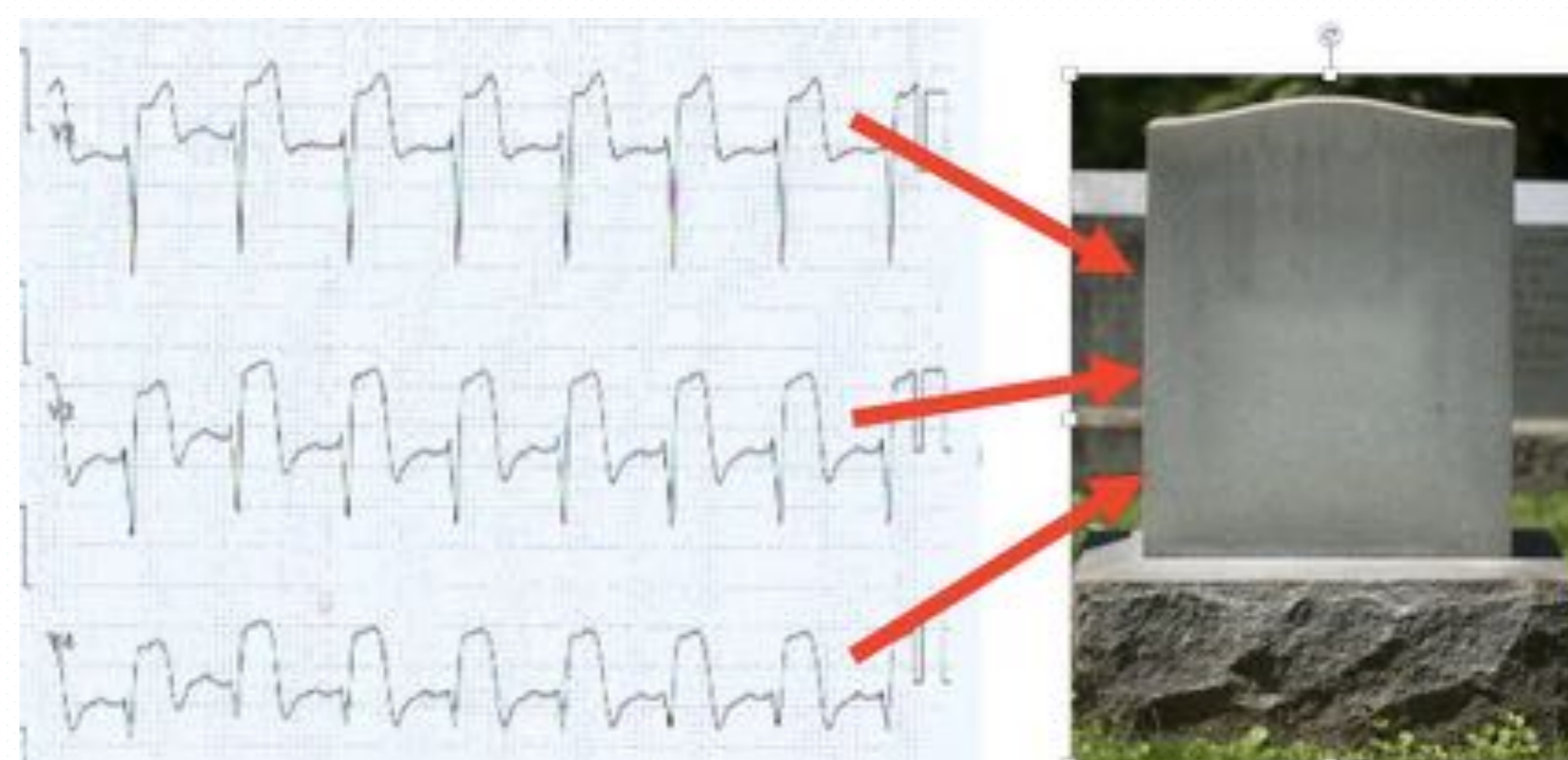


Figure 2: STE with tombstone morphology is present in lead V2-4.

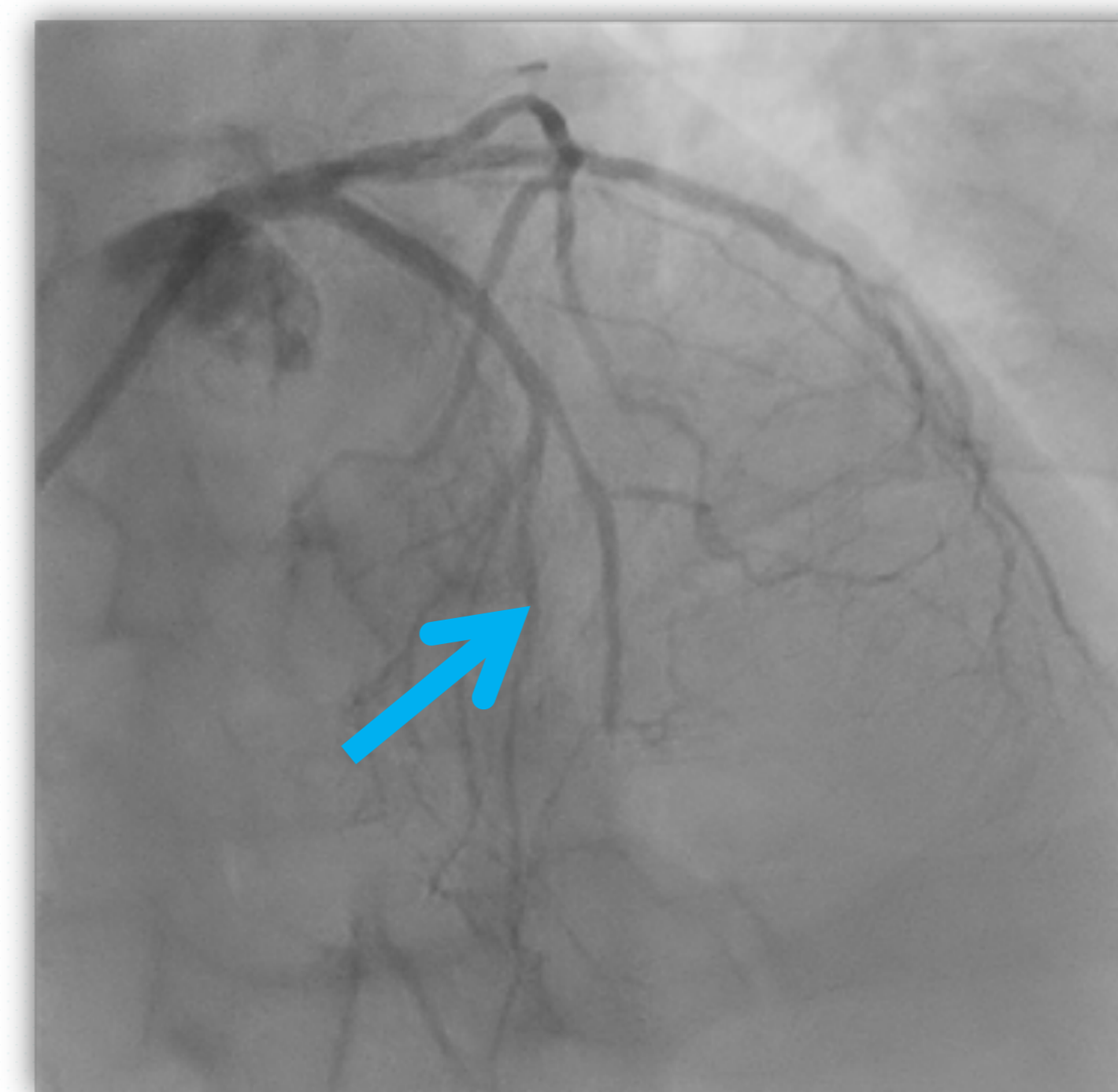


Figure 3: Angiogram - acute total occlusion seen from mid LAD (Blue arrow)

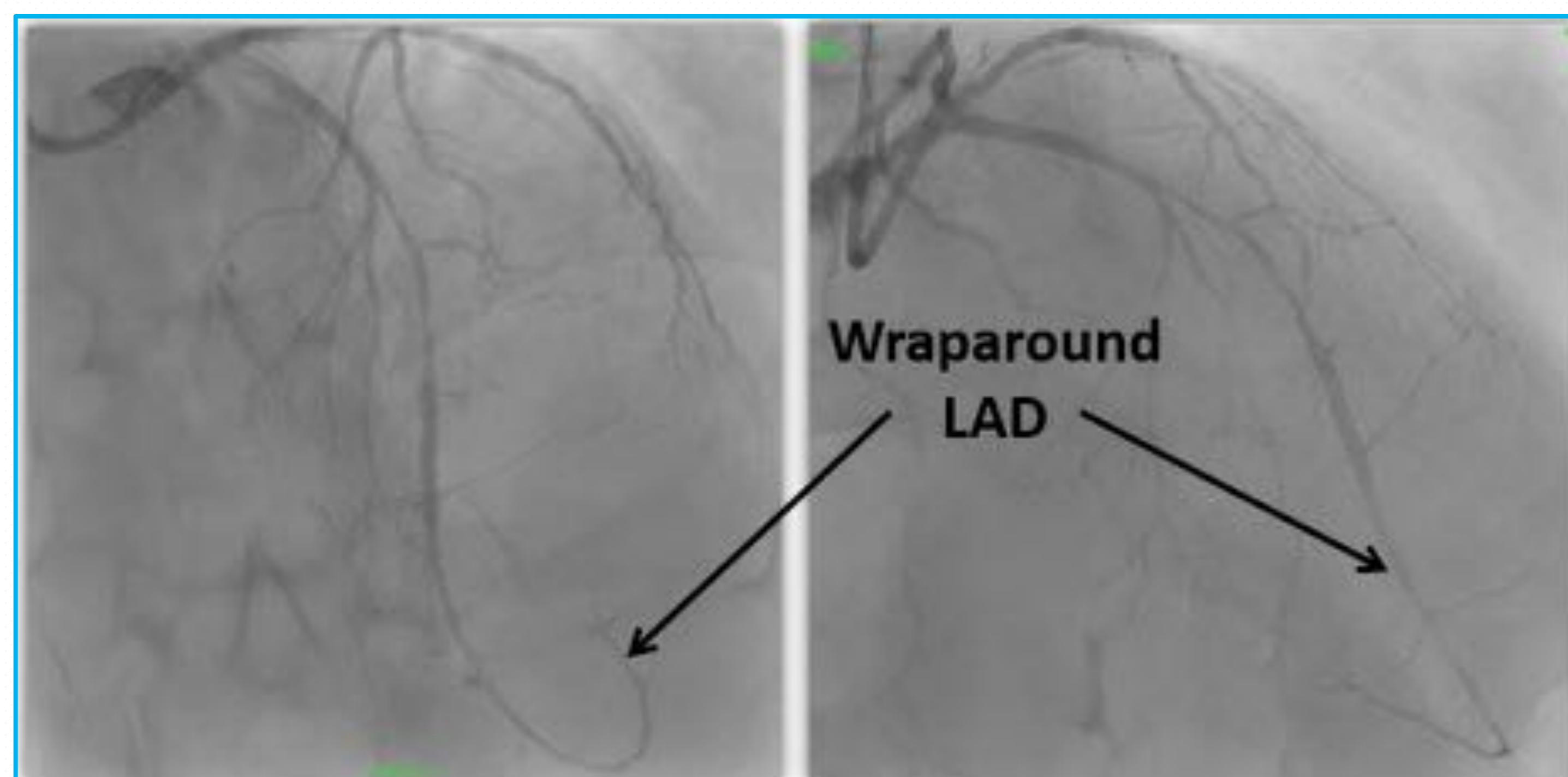


Figure 4: Post PCI good TIMI III flow. A wraps around LAD seen on angiogram.

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The Authors have no conflict of interest to declare

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