Double Culprits in a Patient with ST Elevation Myocardial Infarction: A Challenging But Rewarding Case

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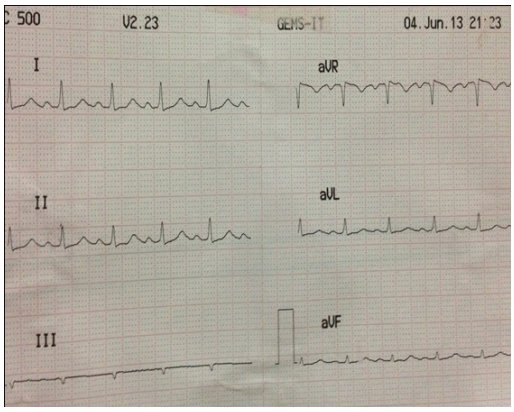

Figure 1. ST elevation is seen in aVR lead. ECG was performed prior to primary percutaneous coronary intervention (PCI)

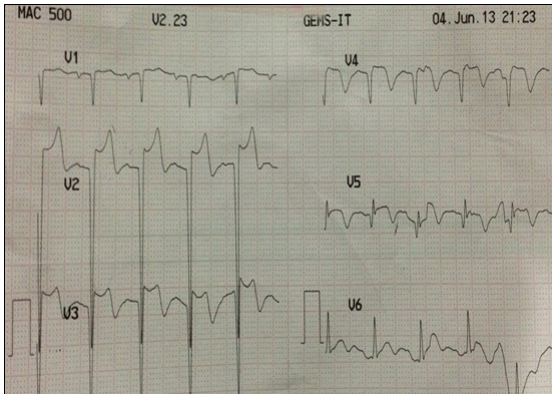

Figure 2. Characteristic myocardial infarction in anterior extensive that is seen with by ST elevation in V1-V6. Also diminished R wave is seen in precordial lead (V2-V4 lead) and biphasic T also is seen in V2-V6 precordial lead. This picture is pre-PPCI procedure.

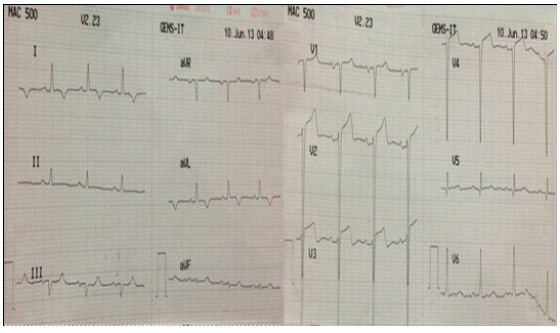

Figure 3. There is improving ST elevation in aVR lead and R wave comes back, but ST elevation waves are still seen in precordial lead. This ECG is post PPCI procedure.

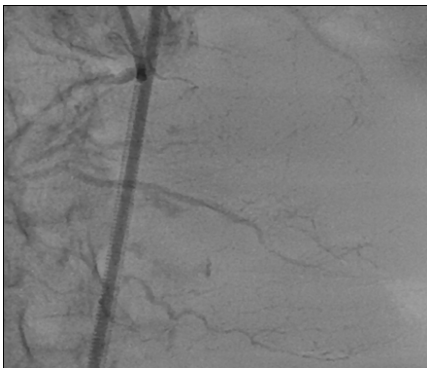

Figure 4. We can see occluded left Circumflex Artery (LCX). This picture is obtained during PPCI

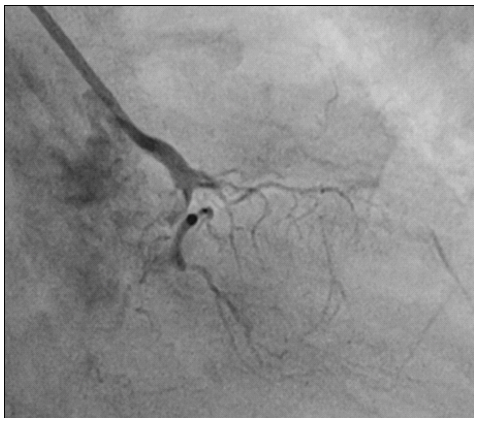

Figure 5. We can see occluded left Artery Descendent (LAD). This picture is obtained during PPCI

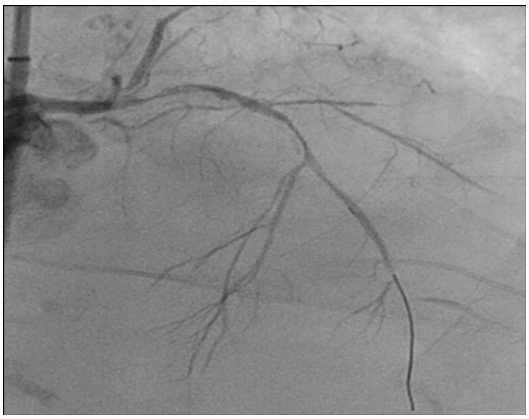

Figure 6. Vascularization is seen in the proximal LAD and LCX after percutaneous transluminal coronary angioplasty (PTCA).

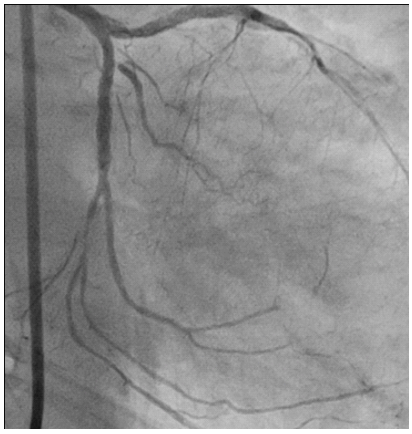

Figure 7. vascularization is observed in the proximal LAD and LCX after percutaneous transluminal coronary angioplasty (PTCA)

Myocardial infarction simultaneously involving two or more culprit lesions is extremely rare and usually has a poor clinical outcomes including mortality.[1] Management of this complicated condition is challenging and limited time.[1] Nevertheless, autopsy studies revealed that thrombotic occlusion of more than one major epicardium coronary artery is not uncommon.[1,2]

A 68-year-old woman presented with sudden onset of limited breath and chest discomfort since two hours prior to admission. She also felt exert dyspnoea since one month ago. She has two risk factors that were uncontrolled that is hypertension (HT) and type 2 diabetes mellitus (DM). On admission, she succumbed into cardiogenic shock and pulmonary oedema. ECG revealed a diminished R wave in V2-V4 with ST elevation in V2-V5 and in aVR. Biphasic T wave was seen in V2-V6. The working diagnosis was anterior STEMI, Killip class IV with thrombolysis in Myocardial Infarction (TIMI) score of 8. While being transferred to catheter lab, she gasped, became desaturation, and was intubated prior to procedure. The patient was given double inotropes which run maximally. By coronary angiography, there were occlusions at the LAD and LCX. Stent was applied at proximal LAD and LCX. Subsequently, patient's condition improved and post-procedure ECG showed improvement in aVR and precordial leads, and ST elevation was significantly diminished from V5 and aVR, and R wave came back in V2-V4.

Previous study found around 50% of STEMI patients had multi-vessels diseases.[1,2] In this case, ECG suggested LAD region infarction with ST elevation in aVR, commonly associated with left main stenosis (LMS) involvement.

Thrombus aspiration in LAD and LCX

yielded hemodynamic improvement. V-stenting technique, introduced in 1996, allows delivery and implantation of 2 stents together, and therefore shorten the stent deployment time.[3,4]

CONCLUSION

We report this rare finding of a STEMI patient with LAD and LCX involvement (double culprits) with dramatic results of angioplasty and clinical improvement. Electrocardiogram (ECG) showed anterior infarction with ST elevation in aVR lead. Thrombus aspiration was performed immediately in LAD and LCX. A V-stenting technique was used in order to shorten the stent deployment time.

REFERENCES

1. Sia SK, Huang CN, Ueng KC, Wu YL, Chan KC. Double vessel acute myocardial infarction showing simultaneous total occlusion of left anterior descending artery and right coronary artery. Circulation. 2008;72: 1034-6.
2. Davies MJ, Thomas A. Thrombosis and acute coronary-Artery lesions in sudden cardiac ischemic death. N Engl J Med. 1994:310(18):1137-40.
3. Schampaert E, Fort S, Adelman AG, Schwartz L. The V-stent: a novel technique for coronary bifurcation stenting. Cathet Cardiovasc Diagn. 1996;39(3):320-6.
4. Iakovou I, Colombo A. Two-stet techniques for the treatment of coronary bifurcations with drug eluting stents. Hell J Cardiol. 2005;46:188-98.