Case Report

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A Case Report on Acute Myocardial Infarction in Young: Atypical ECG Changes Vs. Angiographic Correlation

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Abstract

Acute myocardial infarction (AMI) among young is relatively uncommon. Coronary artery disease (CAD) mostly occurs in persons older than 45 years of age. In recent times, with the advent of sedentary lifestyles, smoking, drug abuse and obesity; among other traditional risk factors; incidence of young patients suffering from acute coronary syndrome in particular acute MI, is on the rise. Atypical presentations and the reluctance to seek medical attention are other contributory factors in young adults. The disease carries significant morbidity, psychological as well and financial effects on the patient and his close ones. Here we have reported a case of a 28 year old male with no known co morbidities presenting to the ED with ongoing chest pain since an hour and h/o diaphoresis. Patient was evaluated in ED, ECG suggestive of progressively increasing ST segment elevation in inferior leads. The patient was evaluated, Coronary angiography was done and found to have an uncommon Apical Left Anterior Descending artery (Type III or "wraparound" LAD) occlusion leading to an inferior wall MI.

Keywords: Acute MI; Thrombolysis; Coronary Angiography; Troponin I; Angioplasty; AMI- Anterior Myocardial Infraction.

Introduction

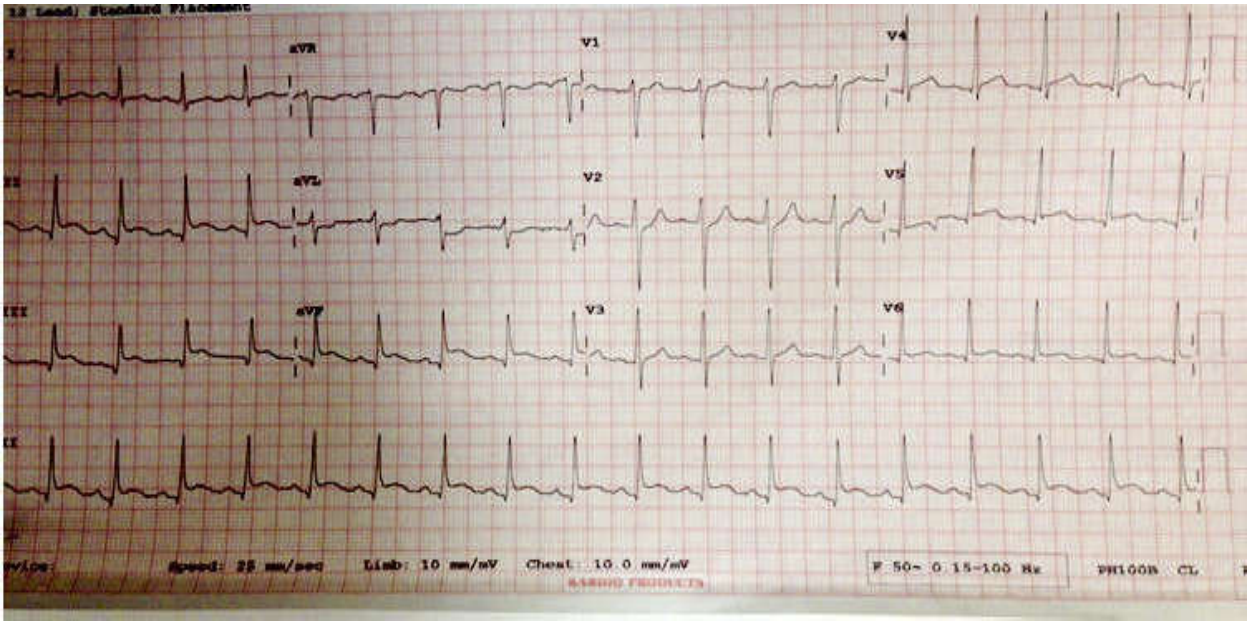
Chest pain in young adults has a diagnostic challenge in Emergency. They are more prone to misdiagnose due to lack of established risk factors. Acute MI is defined as a clinical or pathological event caused by myocardial ischemia in which there is evidence of myocardial injury or necrosis. Acute MI in young is usually defined as MI in ages < 45 years. In recent times, with the advent of sedentary lifestyles, smoking, drug abuse and obesity; among other traditional risk factors; incidence of young patients suffering from acute coronary syndrome in particular acute MI, is on the rise.

In Global Registry of Acute Coronary Events (GRACE) study, the prevalence of young acute coronary syndrome (ACS) was 6.3% [1]. Atypical presentations and the reluctance to seek medical attention are other contributory factors in young adults. The disease carries significant morbidity, psychological as well and financial effects on the patient and his close ones.

Case Presentation

A 28 year old male presented to ER with complaints of chest pain since an hour associated with radiation of pain to right arm and diaphoresis. The patient gave no history of breathlessness, fever, nausea, vomiting, palpitations.

Patient's past medical history was not significant. Patient was a smoker for 3-4 years and had family h/o ACS. He was evaluated in ED; Vitals were stable with pulse-102/min and BP on higher side (BP-150/100 mm hg). Rest systemic examination did not show any abnormality. ECG - ST elevation in inferior leads and Troponin I- positive.



Working diagnosis – STEMI- Acute Inferior Wall MI – Young MI (? Cause)

Patient was loaded with Tab. Disprine, Tab Clopitab and Tab . Atorva and shifted to cath lab for Coronary intervention .Angiography revealed 99% occlusion of proximal LAD and 100 % occlusion of apical LAD (Type III or "wraparound" LAD). PCI to LAD (Thrombosuction) was performed. Thrombus burden was reduced but residual thrombus was present so stent was not implanted. Check angiography after 2 days revealed no residual thrombus or stenosis of proximal LAD; distal LAD after turning at apex was 100% occluded. No further intervention to proximal LAD was planned.

Patient showed prompt recovery post procedure and was managed conservatively with Ecosprin, Enoxaparin, Atorvastatin, Ivabradine, Ticagrelor, Metoprolol, Nicorandil and Analgesia. Patient's 2D-Echo revealed basal and mid inferior wall hypokinesia with LVEF 55% and other bio-chemical tests were normal.

Conclusion

Of all the patients of coronary artery disease, 3% of the cases occur in young adults less than 45 years of age. Risk factors like smoking, obesity, lack of physical activity and abuse of recreational drugs (cocaine) has increased the incidence to AMI in young adults. In this report, we shall be discussing a patient who is obese, is a smoker, leads a life with lack of exercise and family history of ACS.

Causes of MI in a young adult can be divided into 4 groups

1. Atheromatous CAD- cigarette smoking, positive family history of CAD, obesity, Dyslipidemias, hyperhomocystenemia
2. Non atheromatous CAD- Congenital coronary artery anomalies, carotid dissection, infective endocarditis, myocardial bridging, IV drug users
3. Hypercoagulable states- Antiphospholipid syndrome, Nephrotic syndrome, Factor V Leiden mutation, oral contraceptive use.
4. Recreational drug use- cocaine, amphetamines, marijuana, binge alcohol drinking

Presentation of young patients with AMI is very different to that of AMI in the elderly. In young patients, the first onset of angina rapidly progresses to MI unlike the elderly where worsening angina over a period of time progresses to MI. An ECG should be performed ideally within 10 minutes of presentation to the ED. Treatment includes concomitant use of oxygen, analgesics, Antiplatelets, Antithrombins, Fibrinolytics and other anti-ischemic agents. A check angiography may be indicated in cases where residual thrombus is found.

Recent advances in imaging modalities and access to catheterization labs have enabled early and accurate diagnosis and management of MI in patients. Inferior wall MI is most commonly associated with a Right Coronary Artery occlusion or even a Left Circumflex Artery occlusion. We report on this patient because it is an uncommonly seen case of acute inferior

wall MI due to apical Left Anterior Descending artery (LAD III) occlusion in a 28 year old male known to have no co morbidities. The case also demonstrates the prompt relief of symptoms post procedure as well as timely discharge from the hospital. Distinguishing acute MI from other disorders that might present with similar complaints (gastritis, pancreatitis, GERD, spontaneous pneumothorax, aortic dissection) is essential to significantly improve the patients ultimate outcome.

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