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Acute coronary syndrome in a young adult with atypical presentation in Emergency Department: a case report

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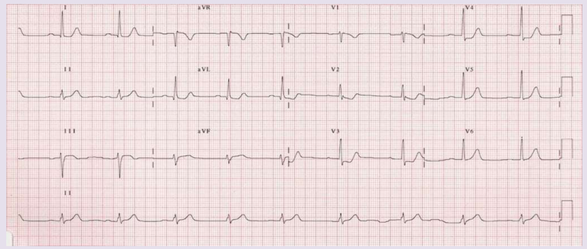
Introduction

Ischemic heart disease and coronary artery disease continue to be the leading causes of death in general population, but are a rare entity in young individuals. The prevalence of myocardial infarction in patients under 40 years old is only 1% of all myocardial infarctions, which is why younger individuals are more often misdiagnosed. The evaluation and treatment of patients with chest discomfort starts in Emergency departments. Although cardiac risk factors, as well as the likelihood of the diagnose of acute coronary syndrome, seem to not play much role in the Emergency department, it is affecting the clinical judgment of physician. However, earlier diagnose is associated with much better outcomes and further quality of life.

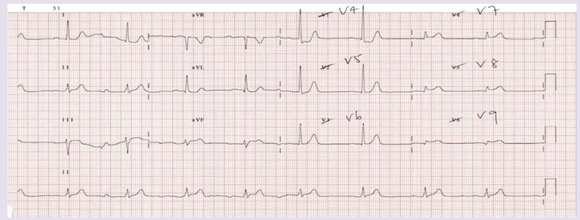
Picture 1: Young patient complaining of chest pain

Patient presentation

A patient in our case report is a healthy 30-year old man presented to the Emergency Department with sharp chest and left arm pain that initially occurred when he caught the stair handle with his left arm after almost falling down the stairs. Day after the accident, the chest pain persisted with irradiation in both arms, with no exacerbation of pain with exercise, posture and chest palpation, with no complaints of nausea, vomiting and dyspnea. Vital signs were HR 60/min, BP 120/80, RR 16/min, temperature 36.5℃ and oxygen saturation on pulse oximetry 98%. Chest X ray was normal.



Picture 2: ECG suggesting the posterior myocardial infarction by the presence of: ST depression in V2-3, tall, broad R waves in V2-V3, dominant R wave (R/S ratio > 1) in V2 and upright terminal portions of the T waves in V2-V3



Picture 3: ECG of the same patient with the posterior leads; posterior myocardial infarction is diagnosed based on the presence of ST segment elevation > 0.5 mm in leads V7-V9

ECG was immediately taken which demonstrated ST segment depression of 0.5 mm in precordial leads V1-V2 and tall, broad R waves in leads V2-V3, suggesting posterior myocardial infarction. The diagnose was confirmed by recording posterior ECG leads. Serum troponin levels were mildly elevated. MSCT aortography was performed in order to exclude aortic dissection. However, ascendent aortic dilatation of 4 cm was seen.

During coronary angiography procedure, suboclussion was visualized in proximal segment of OM1 branch of left circumflex artery. Percutaneous coronary intervention was performed with implantation of drug eluted stent in OM1 branch, resulting in myocardial reperfusion. After the treatment of the acute coronary event, the patient was evaluated for systemic coronary risk.

He was a healthy 30-year old male of athletic build, non smoker, non alchocolic, non diabetic, with no history of psychoactive substance abuse. His family anamnesis was negative for coronary artery disease. His lipid profile showed slightly elevated LDL cholesterol of 4 mmol/L, triglicerides 1.27 mmol/L, HDL cholesterol 1.27 mmol/L.

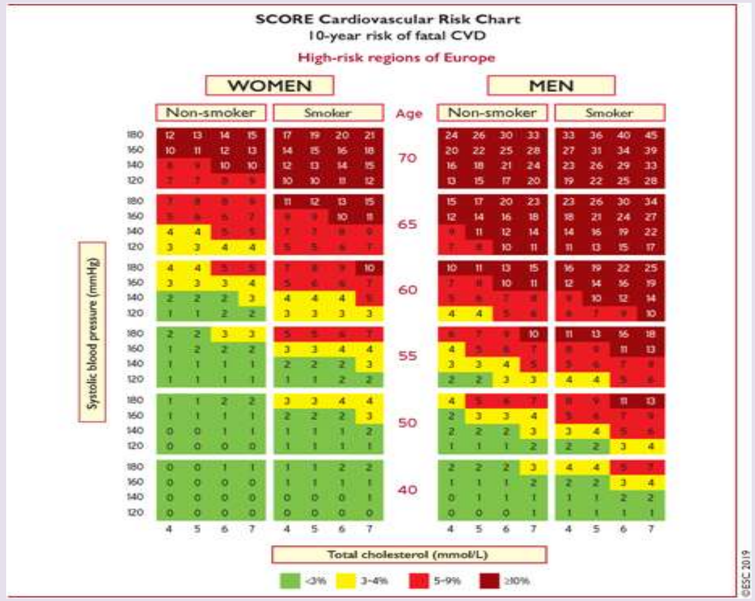


Table 1: Systematic Coronary Risk Estimation chart for European populations at high cardiovascular disease risk

Discussion

The young patients rarely visit the Emergency Departments with a serious condition. They are generally healthier than the rest of population. However, this group of patients, especially females, are more likely to have an atypical presentation of acute diseases, such as acute coronary syndrome. This case is relevant both because of very unusual presentation of acute coronary syndrome and because of patient with very low risk assessment.

Another problem is that guidelines for systematic coronary risk estimation, published by the European Society of Cardiology in 2019, has no risk assessment for population younger than 40 years. Recently, the prevalence of acute coronary syndromes is a rising event within younger population. Further guidelines should reassess these patients as well.