



Type 5 myocardial infarction: A case report

Yulia Tunitsky-Lifshitz^{1*}, Adi Braun², Gad Segal³

¹ Allergy Angioedema and Clinical Immunology Unit, Zavladvitch Center of Autoimmune Diseases, Chaim Sheba Medical Center, Tel-Hashomer, Affiliated to Sackler Faculty of Medicine, Tel-Aviv University, Israel

² Department of Emergency Medicine, Chaim Sheba Medical Center, Tel-Hashomer, Affiliated to Sackler Faculty of Medicine, Tel-Aviv University, Israel

³ Department of Internal Medicine "T", Chaim Sheba Medical Center, Tel-Hashomer, Affiliated to Sackler Faculty of Medicine, Tel-Aviv University, Israel

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Abstract

Periprocedural myocardial infarction (MI) remain common despite major technical advances in the field of interventional cardiology and thoracic surgery (1-5). Most of the literature regarding periprocedural MI was written about a decade ago. Attempts to define clinically relevant MI after coronary bypass define a rise of $\geq 10x$ in cardiac biomarkers as a cutoff in case the preprocedural troponin is known, or $\geq 70x$ of normal troponin values (5). Herein, we describe a case report of a woman that came to a rehabilitation center in our hospital after a Coronary Artery Bypass Graft (CABG) was done in another rural hospital, with an elevation of $\geq 60x$ troponin from baseline in the emergency room (ER). The cardiologist that assessed her attributed the rise to remnant myocardial damage and admitted her to an internal ward. Only after another troponin test taken the following day, the diagnosis of type 5 MI was made and an urgent coronary angiography was done, revealing a complete thrombosis of her venous graft.

Keywords: type 5 myocardial infarction, venous graft, troponin, ST-elevation, CK-MB

Introduction

Patients diagnosed with ST Elevation Myocardial Infarction (STEMI) are often hospitalized in the Intensive Care Unit (ICCU). As internists we encounter them usually after a revascularization procedure was already performed. Here we describe a type 5 MI diagnosed at the internal department. Our purpose is to alert clinicians to the possibility of CABG-related MI and its clinical elusive nature.

Materials and Methods

We were the treating physicians of the patient in a tertiary medical center in Israel. The case was discussed in our morning meeting after the patient was transferred to cardiology ICU unit. A literature search about the incidence and mortality of periprocedural MI was done using popular sources.

Case report

A 71-year-old woman with a history of diabetes mellitus and hypertension developed a myocardial infarction. Percutaneous Coronary Intervention (PCI) revealed a 3-vessel disease and a CABG was performed, during which two arterial and one venous bypass-grafts were implanted. Four days later, she felt well and was transferred to a step-down, recovery and rehabilitation facility. A week later (on Post-Operative Day 11), she complained of generalized weakness, palpitations and a chest pain radiating to her neck. An ECG revealed rapid atrial fibrillation with ST

segments' elevations in inferior leads. Aspirin and a calcium channel blocker were given and her rhythm converted to sinus within minutes, anginal symptoms resolved. In the emergency department, ECG revealed minimal ST elevations on inferior and lateral leads (Figure 1) and the troponin level measured 3 mcg/L (cut-off is 0.05 mcg/L). After consultation with a cardiologist, she was admitted to our department. On the next day she complained of weakness and exhaustion and the subsequent troponin level rose to 5.8 mcg/L (≥ 110 fold) making the diagnosis of periprocedural MI obvious. She was referred to an urgent PCI and a complete thrombosis of her venous graft was revealed. Two Drug Eluting Stents were placed in the Right Coronary Artery Graft with a good angiographic result.

Conclusion

Although rarely seen in the department of internal medicine, Type 5 MI is a common (3-6%) early complication of CABG (1-3). The leading mechanism is graft thrombosis, and a saphenous venous graft is notably susceptible, with occlusion rates that range from 3% to 12% (4). Clinicians should be aware of this diagnosis in a patient a recent CABG and new onset complaints of chest pain or weakness, because ongoing ischemia can be treated with PCI or re-CABG. Frequently repeated ECG and troponin checks are prudent. CK-MB levels should also be taken and they can perform even better than troponin in these special cases (1, 5). High suspicion should warrant urgent angiography for confirmation.

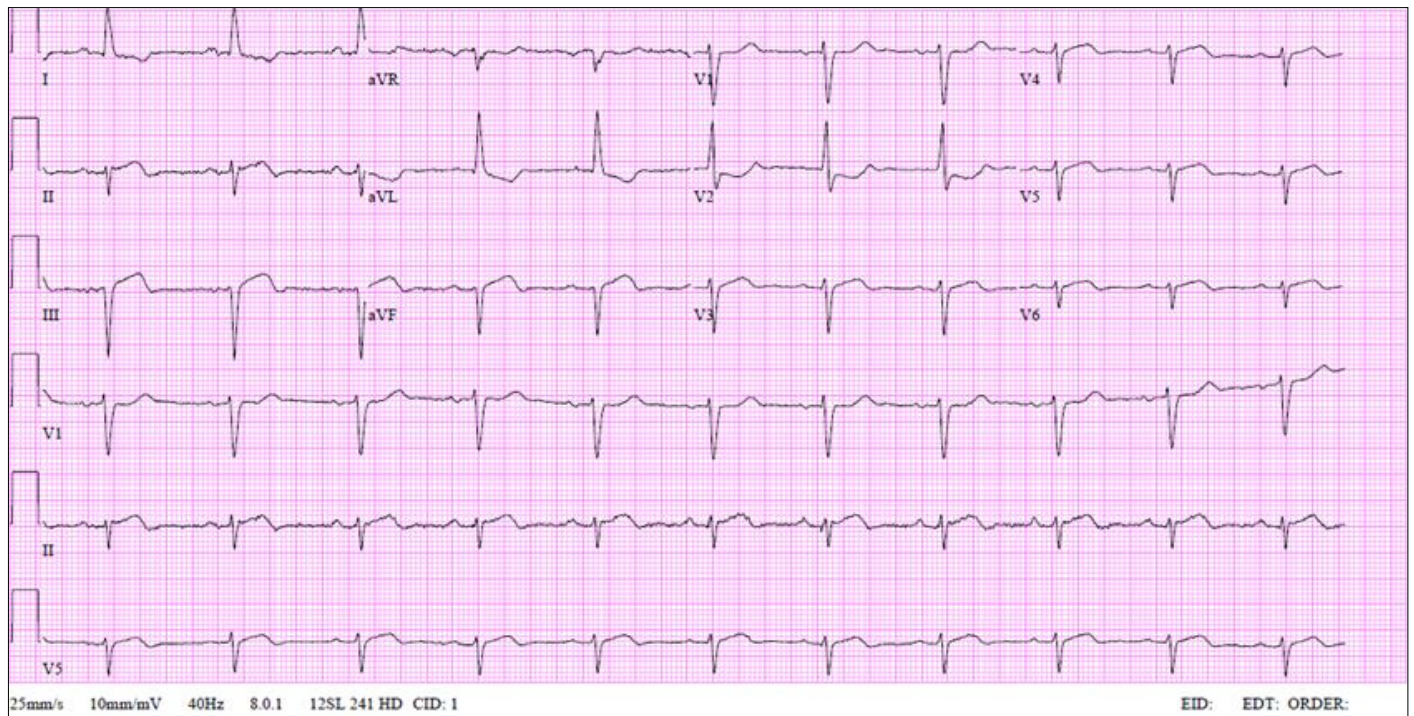


Fig 1: ECG on arrival to the ED

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