**Tomb Stoning of ST Segment in Acute Myocardial Infarction**

Dhinakaran Krishnamurthy

AMC Superspeciality Hospitals, Tirupur, Tamil Nadu, India

**Citation:** Dhinakaran Krishnamurthy. Tomb Stoning of ST Segment in Acute Myocardial Infarction. ERWEJ. 2024;4(1):26-30. 10.54136/ERWEJ-0401-10072

© Author(s), 2024, Publisher and License: THB. Open Access. This article is distributed under the terms of the Creative Commons Attribution 4.0 International License, which permits unrestricted use, distribution, and non-commercial reproduction in any medium, provided you give appropriate credit to the original author(s) and the source.

*Corresponding Author:* Dhinakaran Krishnamurthy, AMC Superspeciality Hospitals, Tirupur, Tamil Nadu, India. E-mail: krishnavasanth2000@yahoo.com

**Keywords:** Myocardial Infarction; Thrombolysis; Coronary Angiogram; STEMI

**Abstract**

Cardiovascular disease is a leading cause of death in India. ST elevation myocardial infarction (STEMI) is associated with high risk of morbidity and mortality. In recent times due to early diagnosis and timely reperfusion, survival after STEMI has considerably increased. We present a case of high-risk STEMI which was managed by timely reperfusion by thrombolysis and subsequent coronary angiogram.

**Introduction**

Tombstoning ST elevation myocardial infarction is an ECG pattern associated with high risk of mortality. It represents large area of myocardial involvement, reduced left ventricular ejection fraction (EF) and high risk of complications. Early diagnosis and reperfusion are the key management strategies in acute STEMI. Selecting the optimal reperfusion strategy and reducing the time from symptom onset to reperfusion are major challenges in daily practice.

**Case presentation**

61 Years male, smoker, with no comorbidities, presented to hospital with complaints of severe retrosternal chest pain radiating to back for one hour associated with sweating. He had no significant past medical or surgical history. On examination, he was conscious, oriented, anxious, tachypneic and profuse sweating was present. The pulse rate was 50/min, BP 140/90mmHg, respiratory rate 28/min, and SpO₂ 93%. The chest examination showed bilateral basal...
crepitations. Cardiac auscultation was unremarkable. Peripheral pulses were palpable. ECG showed sinus bradycardia and extensive anterior wall STEMI (Tomb stoning pattern) [Figure 1].

Echocardiogram showed severe hypokinesia of interventricular septum, and anterolateral wall, moderate LV dysfunction (Ejection fraction-35%), adequate RV function, no mitral regurgitation, and no pericardial effusion. He was suggested either primary percutaneous intervention (PCI) or thrombolysis. After due discussion, the family opted for thrombolysis.

![ECG at presentation](image)

**Figure 1: ECG at presentation**

After excluding the contraindications for thrombolysis, the patient underwent thrombolysis with Inj. Tenecteplase. His chest pain decreased after 30 minutes. There was transient hypotension that was managed with low dose inotropes. Repeat ECG showed more than 50% settlement of ST segment elevation. The patient was treated with Low dose aspirin, loading dose followed by maintenance dose of clopidogrel, high intensity statin, and other supportive medications. [Figure 2].
He improved clinically and was referred for coronary angiogram. It revealed three vessel diseases (Moderate stenosis 40%-60%, involving all three major epicardial coronary arteries) [Figure 3]. He was advised conservative management with aggressive risk factor management and lifestyle modifications.
Discussion

Tombstoning ST elevation pattern myocardial infarction is usually anterior in location. It indicates involvement in a large area of myocardium. Wilmalaratna (1993) was the first to describe this electrocardiogram pattern as a tombstone pattern [1]. Later, Guo et al. (2000) published the correlation of coronary angiography with tombstoning electrocardiographic pattern myocardial infarction [2]. Huang et al (1994) reported that patients with a tombstone ECG pattern had decreased left ventricular function and high mortality [3]. In earlier studies the mortality in Tombstoning-STEMI has been reported to be between 26% and 38.2%. Higher mortality may be due to reduced pumping capacity, increased risk of life-threatening ventricular arrhythmias, and lower reperfusion outcomes [4].

Patients with a tombstoning pattern on admission ECG is associated with high-grade stenotic occlusion of the LAD artery (usually in more than one artery) on angiography. LAD occlusions are more severe and often proximal. Patients who underwent coronary angiography had a higher incidence of occlusions in all three coronary arteries [2]. Our patient had moderate stenosis of all three arteries (ostioproximal LAD had 50% stenosis). Though he had moderate stenosis of proximal LAD artery, his thrombotic risk was high due to history of smoking and dyslipidemia. He responded well to thrombolysis.

Conclusion

This case report highlights a specific high risk electrocardiographic pattern of acute myocardial infarction which is a pattern associated with high mortality and complications. Early identification and prompt reperfusion by thrombolysis or primary PCI is of utmost importance to prevent complications and mortality.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his/her consent for his/her images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published, and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of Interest: Nil

Financial Disclosure: None
References