***Case report***

# Fatal EKG: Shark fin morphology

**ABSTRACT :**

The Lambda-wave ECG, also known as the Shark fin, has been linked to ST-elevation myocardial infarction's (STEMI) hazardous implications. It is characterized by merged QRS, ST, and T waves, forming a 'triangular QRS-ST-T waveform' or 'giant R waves.' This treacherous signature poses an alarming risk, with chances of cardiogenic shock and ventricular fibrillation leading to fatality. To tackle this peril, implementing swift thrombolysis or percutaneous intervention for reperfusion is critical for successful treatment. For optimal outcomes, the preferred setting to utilize ventricular assist devices is the ICU. Misdiagnosis can happen and be seen as either wide complex tachycardia or ECG changes induced by hyperkalemia. Imperative to prevent severe complications, early detection and treatment are crucial. We are reporting three cases of this Ekg pattern

**KEYWORDS :** giant r wave;; shark fin; stemi; triangular qrs-st-t waveform. , mortality



## Introduction :

Thombostone ekg pattern or shark fin ST-segment elevation is one such morphological variant observed in early phase of acute MI suggesting extensive myocardial damage and serious clinical results(1) it is observed among 10–26.1% of the patients

It is an uncommon but high-risk electrocardiographic (ECG) pattern formed by fusion of QRS, ST-segment, and T waves [2]. Myocardial infarction with thombostone fin ECG pattern most commonly involves occlusion of the left main coronary artery and is associated with a high risk of death due to cardiac arrest and cardiogenic shock [3].

We are reporting three cases of this Ekg pattern

## Case presentation

Patients median age was 57 years (range, 55–60 years), two patients were diabetic and only one hypertensive and smoker ,and all patient were men patient 2 had a history of had hyperlipidemia and hyperuricemia..

All patients presented with a typical chest pain in the first 5h before their admission. On admission ,Patient 1 and patient 3 had cardgiogenik chok , patient 2 patient had severe pulmunary congestion

The ekg was realised the rythm was sinus in all patient (figure 1 ; figure 2 ; figure 3) , all patient had a BBD-lik pattern , giant R waves ,with triangular st elevation with a median of 5mm ,median QRS duration was 90ms wish is concordant with a sharkfish pattern or thrombostone ekg

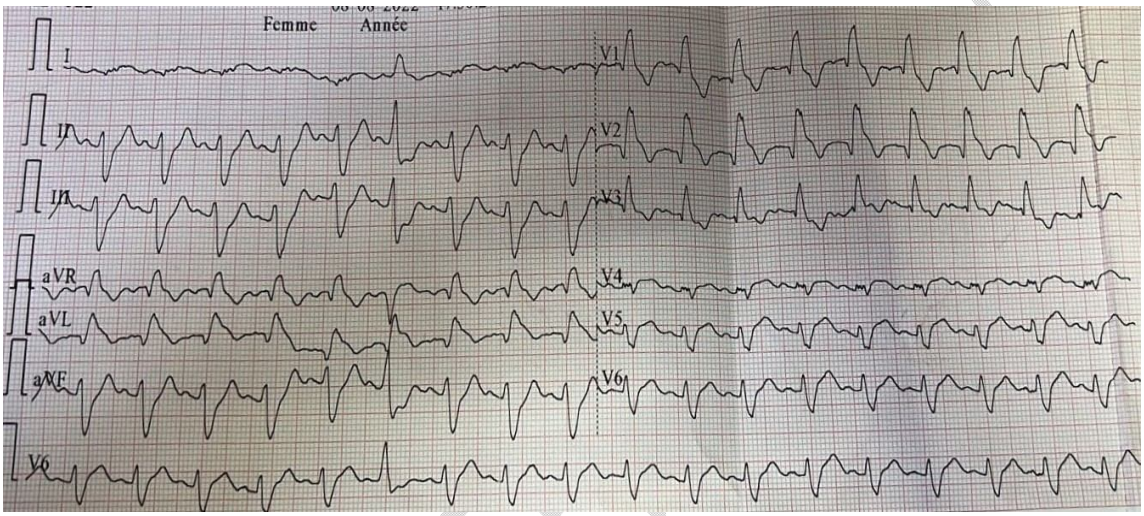


**FIGURE 1** : Patient 1 EKG

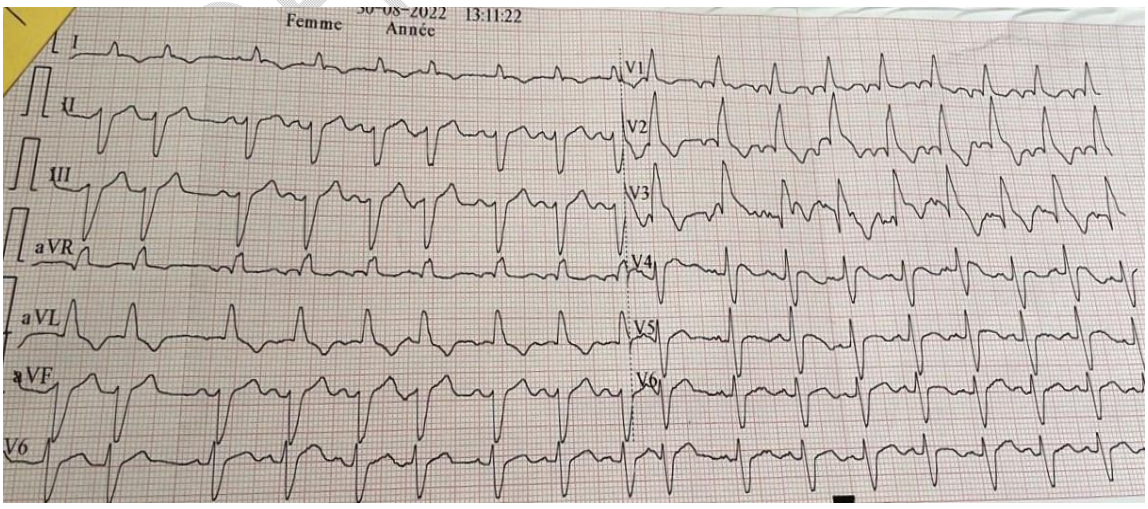


**FIGURE 2** : Patient 2 EKG

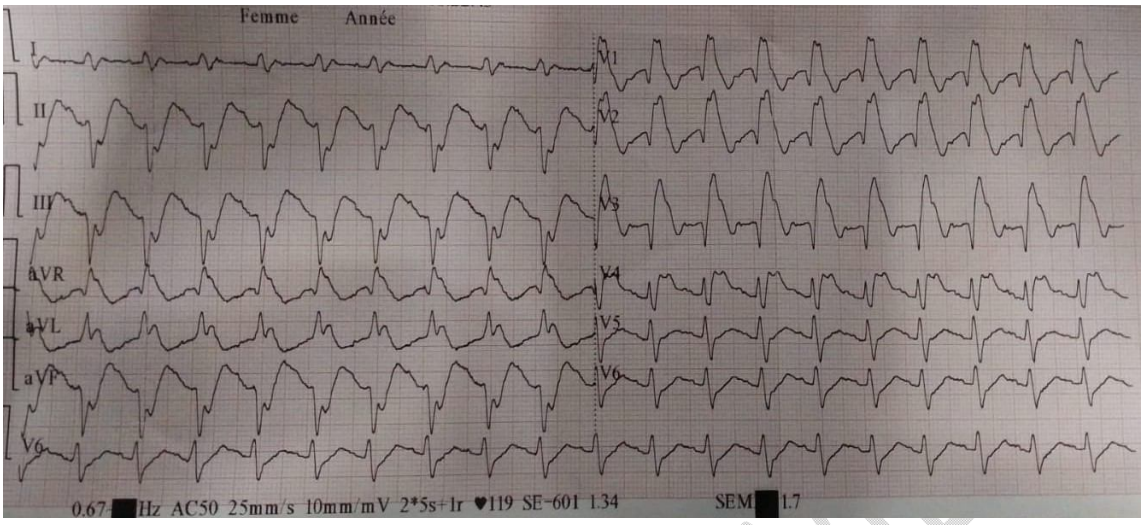


**FIGURE 3** : Patient 3 EKG

a bed echo was realized in all patient wish showed a sever LV dysfonction

patient 2 and patient 3 were taken for percutaneous coronary intervention (PCI) with stenting to proximal LAD for patient 2 and left main in patient 3, patient 1 died in the emergency room patient 2 and patient 3 presetend death several horus after pci (patient 2 presented a cardiogenik chock , and patient 3 a severe ventriculare arrythmia )



**DISCUSSION :**

Massive myocardial damage can be indicated by morphologic variants like Tombstoning ST segment elevation (Tomb ST) during the early phase of acute anterior wall STEMI. Some patients may also display changes in ST segment elevation amplitude and morphology. These observations have been noted in certain cases. (4)(5)

Dubbing it 'tombstoning,' Wilmalaratna first identified the tombstone-like, curved ST segment elevation present in myocardial infarction (MI) patients [6]. Later, Guo et al. would revise the criteria for tombstoning [7]. The ST segment elevation criteria for tombstoning are: a) Nonexistent R wave or an R wave with minimal amplitude (<0.04 s duration), b) upward convex ST segment that blends into the descending R or ascending QS/QR, c) the peak of the ST segment surpasses that of the R wave and d) the ST segment converges with the T wave.

Regarding the coronary angiography findings of patients with TOMB-STEMI, Guo et al. suggested that patients with tombstoning have severe occlusion of the LAD artery) and usually involving either left circumflex or right coronary artery but more often both.

Wilmanaratma associated tombstoning ECG pattern with the following complications. Six patients with tombstoning ECG pattern experienced ≥3 complications and 4 patients died within 7 days.2 Huang et al. reported reduced LV function and high mortality in patients with tombstoning ECG pattern [8]. Mortality in TOMB-STEMI is 26-38.2% [9,10]

Tombstoning ST-segment elevation has always been correlated with unfavorable outcomes, yet the exact origin of this correlation still remains somewhat obscure. Darrell, a renowned scientist in the field, theorizes that poor collateral circulation and/or diffuse coronary artery disease, insufficient myocardial protection in pre-infarct angina, and an increase in wall tension may all be contributing factors. Other experts, like Dr. Jones and Dr. Smith, have also suggested these mechanisms [7-11] in conjunction with the hasty onset of myocardial injury.

Due to rapid myocardial damage, insufficient collateral flow, inadequate myocardial protection from pre-infarct angina, and increased wall tension, patients diagnosed with tombstoning STEMI pose a challenge to the prognosis. This is further compounded by diffuse coronary artery disease. Despite revascularization, limited myocardial recovery increases the risk of PCI failure.



**CONCLUSION :**

Blending together, the QRS and T-wave form a Shark Fin through a distinct ECG phenomena known as contiguous ischemia, which corresponds to coronary anatomy in certain leads. Accurately identifying this sign is crucial and relies on specific techniques to correctly discern the J-point's characteristic morphology. Overlooking this electrocardiographic indication of acute coronary occlusion should never occur. ST-Deviation, resulting in extreme blurring, yields this essential manifestation. Significant mortality seems to be linked to the presence of the sign, necessitating immediate recognition and emergency reperfusion. Lack of literature on the topic emphasizes the importance of awareness.

## References

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