

CASE REPORT

Takotsubo cardiomyopathy following acute urinary retention: a case report

Ashraf Fathy Elshehry^{1*} , Mohammed Ali Kamel Ainshoka¹

ABSTRACT

Background: Takotsubo cardiomyopathy is frequently presented as acute coronary syndrome after a significant history of exposure to emotional, physical, or combined stress.

Case Presentation: An 84-year-old-man was presented to the emergency department of a tertiary hospital with features of acute urine retention, which was relieved by inserting a Foley's catheter. The patients' electrocardiogram showed ST elevation in the anterior leads with T-wave inversion in the lateral leads, the Troponin-T was 608 ng/l. The patient was taken for cardiac catheterization where the left ventricular angiogram showed severely hypokinetic mid to distal anterior wall and mid to distal inferior wall with dyskinetic LV apex (Apical ballooning). The subsequent echocardiography after 2 months showed almost complete recovery of left ventricular function proving it to be a case of takotsubo cardiomyopathy.

Conclusion: The emergency physicians should include takotsubo cardiomyopathy in the differential diagnosis of such cases which have ECG changes and elevated cardiac enzymes.

Keywords: Takotsubo cardiomyopathy, acute urinary retention, stress, broken heart syndrome case report.

Introduction

Takotsubo cardiomyopathy (TCM) (also called stress cardiomyopathy and broken heart syndrome) is a classically reversible cardiac condition characterized by temporary segmental akinesia or hypokinesia [1]. TCM is described by short-lived regional left ventricular systolic dysfunction, similar to myocardial infarction, but without any angiographic evidence of coronary artery disease occlusion or sudden plaque rupture [2]. The term "Takotsubo" is taken from the Japanese fisherman's octopus pot, which has a character similar to the shape of the ventricle at end-systole in the most common and classic form of this disorder [3]. Recent studies recognized that the addition to emotional stress as the main factor of TCM beside the other factors like intracranial bleeding, head trauma, and ischemic stroke and acute medical illness could be precipitant factors for the disease [4].

Case Presentation

An 84-year-old man without significant past medical history presented to the emergency department of a tertiary hospital with a complaint of inability to pass urine for more than 24 hours associated with mild lower abdominal pain, but without fever or chest pain. The patient had a history of a recent travel. The vital signs were blood pressure (BP) 190/110 mmHg, pulse rate 124/minute, temperature (T) 36.8°C, RR 20/minute, oxygen saturation of 98% on the

room air. The patient looked very stressed and diaphoretic, there was suprapubic area bulging with dullness on percussion. Point of care ultrasound showed full bladder, a Foley's catheter was inserted, and an initial volume of urine was 600 ml. However, the patient felt much better but was still sweaty and anxious; furthermore, it was patients' first visit to the emergency department, for which the emergency physician asked to do an electrocardiogram (ECG) which showed ST-segment elevation in precordial leads from V2 to V5, and T-wave inversion leads I & II, V6 (Figure 1). Therefore, blood tests were requested including the high sensitivity troponin T which initial result was 608 ng/l (normal < 14); therefore, after 3 hours it was repeated and reached to 920 ng/l. Serial ECGs had no dynamic changes.

With these findings, the diagnosis of acute coronary syndrome was retained, and cardiac catheterization instantly devised and revealed significant to the mid-

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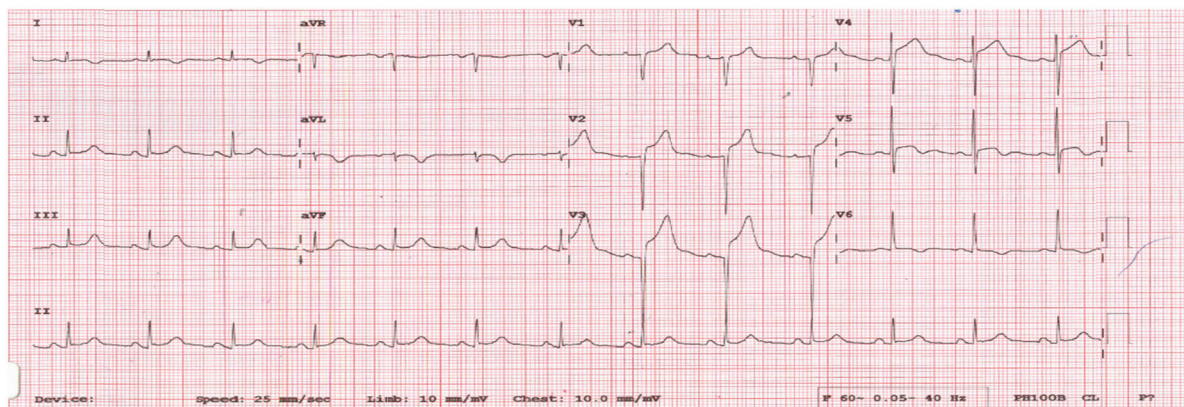


Figure 1. Initial ECG in the emergency department.

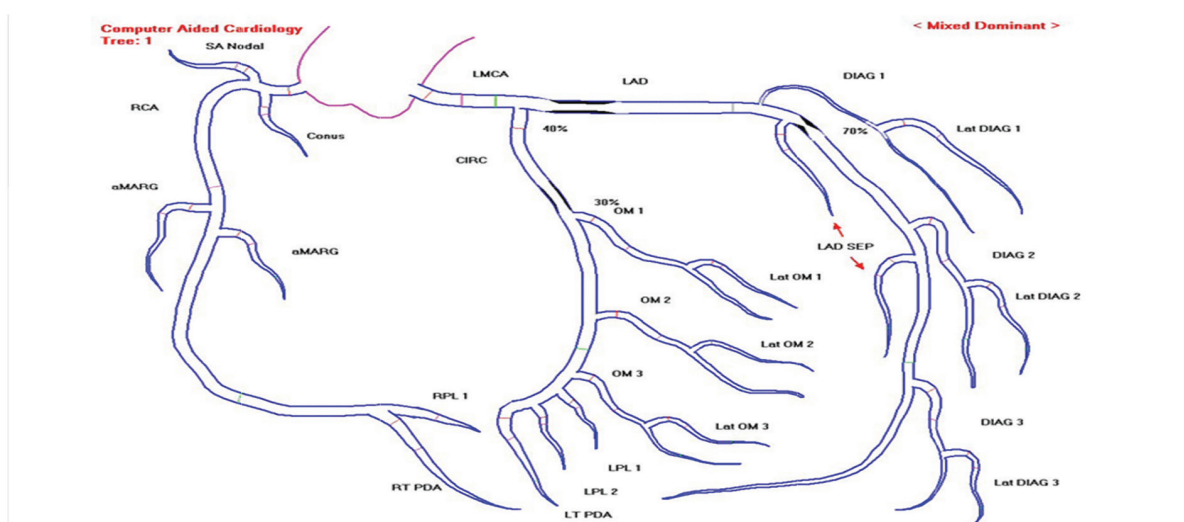


Figure 2. Left ventricular angiogram.

left anterior descending lesion (bystander lesion). Left ventricular angiogram showed severely hypokinetic mid to distal anterior wall and mid to distal inferior wall with dyskinetic LV apex (Apical ballooning). Ejection Fraction was around 30% (Figure 2).

The serial troponin-T levels were 744 ng/l on the second day of admission, then 367 ng/l and finally became 20 ng/l on the fourth day. The patient later recovered uneventfully and was discharged after 1 week of hospital stay. The follow-up echocardiography after 2 months showed left ventricular ejection fraction of 63%.

Discussion

Around 1%-2% of all cases of suspected acute myocardial infarction are due to TCM. Patients with TCM are commonly post-menopausal women [5,6]. In a systematic review, 82%-100% patients were women with an average age of 62-75 years, individuals aged 10-91 years were also labelled [7]. The clinical presentation of TCM mimics acute coronary syndrome as it is presented with symptoms varying from isolated chest pain to severe breathlessness and cardiogenic shock, often associated with raising troponin level and T-wave and ST-segment abnormalities on ECG accompanied with a significant

history of exposed emotional, physical, or combined triggers [8,9]. Patients with TCM usually have a good prognosis with a return to normal heart function within a few months. However, severe complications might occur like that of the patients with acute MI [10]. The coronary angiography of these patients does not show the evidence of obstructive coronary artery disease. Additionally, repeated echocardiography shows normal ejection fraction and no remaining wall-motion abnormalities [11].

The Mayo Clinic proceedings suggested diagnostic criteria for TCM that are widely accepted and used [12]. It includes all of the following features (1) Transient LV systolic dysfunction (hypokinesis, akinesis, or dyskinesis). The wall motion abnormalities are typically regional and extended beyond a single epicardial coronary distribution; rare exceptions are the focal (within one coronary distribution) and the global type. (2) Absence of obstructive coronary disease or angiographic evidence of acute plaque rupture. If the coronary disease is found, the diagnosis of stress cardiomyopathy could still be made if the wall motion abnormalities are not in the distribution of the coronary disease. This exception is made since some patients with stress cardiomyopathy have a concurrent coronary disease. (3) Some abnormalities that are shown on ECG including either ST-segment elevation and/or T

wave inversion or modest elevation in cardiac troponin. (4) Absence of pheochromocytoma or myocarditis [13].

TCM has no specific treatment guidelines but usually these treatments are supportive; however, risk stratification could be used when determining treatment [14]. Standard heart failure medications (Beta-blockers, ACE inhibitors, and diuretics) are usually used [13].

Conclusion

The emergency physician should include takotsubo cardiomyopathy in the differential diagnosis of such cases which have ECG changes and elevated cardiac enzymes.

List of Abbreviations

BP	Blood pressure
ECG	Electrocardiogram or Echocardiogram
PR	Pulse rate
TCM	Takotsubo cardiomyopathy
T	Temperature

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this case report.

Funding

None.

Consent for publication

Informed consent was obtained from the participant.

Ethical approval

Ethical approval is not required at our institute for an anonymous case report.

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