

IMAGE CHALLENGE

A 69-year-old woman with extended negative T wave

CLINICAL INTRODUCTION

A 69-year-old woman with hypertension and dyslipidemia developed sudden onset of substernal chest pain at night and was admitted to our hospital the following day. A 12-lead and 18-lead ECG (Nihon Kohden, Japan) was done (figure 1A,B).

QUESTION

Which is the most likely diagnosis?

A. Reperfused anterior acute myocardial infarction

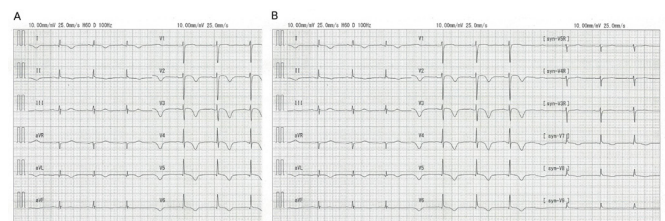


Figure 1 (A) Twelve-lead ECG. (B) Eighteen-lead ECG.

- B. Takotsubo (stressed) cardiomyopathy
- C. Pericarditis
- D. Apical hypertrophic cardiomyopathy

For answer see page 584

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ANSWER

B. Takotsubo (stress) cardiomyopathy

Extended negative T waves in a 12-lead ECG can be found in patients with acute myocardial infarction (AMI), Takotsubo cardiomyopathy, pericarditis and apical hypertrophic cardiomyopathy. In this patient, pericarditis was unlikely because there was no ST-segment elevation or PR-segment depression.¹ Hypertrophic cardiomyopathy was also unlikely because of the prolonged QT interval² and the lack of negative T waves with a strain pattern. However, it was challenging to differentiate an AMI from a Takotsubo cardiomyopathy with a 12-lead ECG.

Negative T wave locations in an 18-lead ECG provide the critical clue to differentiate between the two diseases.³ Negative T waves in precordial (V1, V2, V3, V4), inferior (especially in II) and posterolateral (V6, syn-V7, syn-V8 and syn-V9) leads reflect pathological conditions of the anterior, inferior and posterolateral myocardium the possibility of a Takotsubo cardiomyopathy should be strongly considered because simultaneous changes in these leads in an AMI is extremely rare.

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Contributors All authors have contributed to the conception of the paper and the interpretation of the data.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; internally peer reviewed.



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To cite Matsunaga K, Noma T, Minamino T. *Emerg Med J* 2020;37:584.

Accepted 25 October 2019

Published Online First 28 November 2019

Emerg Med J 2020;37:584.

doi:10.1136/emered-2019-208715

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