Wild-type transthyretin cardiac amyloidosis diagnosed in a patient in his 50s

Junya Tanabe, Takeshi Ouchi, Nobuhide Watanabe, Kazuaki Tanabe

DESCRIPTION

A 57-year-old man was diagnosed with paroxysmal atrial fibrillation (AF) and was admitted to our hospital for catheter ablation. He had been treated for hypertension for 10 years and was taking diuretics due to exertional dyspnoea (New York Heart Association class II) and lower leg oedema. He did not have carpal tunnel syndrome or spinal canal stenosis. Chest radiography revealed a cardiothoracic ratio of 51%, no pleural effusion and slight pulmonary congestion. A 12-lead ECG revealed a sinus rhythm with a heart rate of 73 beats/min and decreased voltage in the limb leads (figure 1A). Transthoracic echocardiography (TTE) revealed an increased left ventricular (LV) wall thickness (intraventricular septum, 16 mm; posterior wall thickness, 16 mm) (figure 1B). The LV ejection fraction was 61% with no regional LV wall motion abnormalities. Two-dimensional speckle-tracking echocardiography (STE) revealed a global longitudinal strain (LS) of −9.9% and a relative apical LS (=average apical LS/average basal LS+midLS) of 1.9 with apical sparing (figure 1C). Bence-Jones protein and M-protein tests were negative. There were no abnormalities of free light chains (κ 40.6 mg/L, λ 32.6 mg/L, κ/λ 1.245).

Figure 1  (A) A 12-lead ECG shows sinus rhythm with a heart rate of 73 beats/min and decreased voltage in the limb leads. (B) Transthoracic echocardiography reveals increased left ventricular wall thickness (intraventricular septum, 16 mm; posterior wall thickness, 16 mm). (C) Two-dimensional speckle-tracking echocardiography reveals a relative apical longitudinal strain (LS) (=average apical LS/average basal LS+midLS) of 1.9 with apical sparing.

Learning points

- Wild-type amyloid transthyretin (ATTRwt) cardiac amyloidosis is a form of amyloidosis associated with ageing.
- We present a case of ATTRwt cardiac amyloidosis associated with paroxysmal atrial fibrillation that developed in a patient in his 50s. The development of effective therapeutic agents as well as the advancement in cardiac imaging, enabling early and accurate diagnosis, are expected to improve prognosis of patients with ATTRwt cardiac amyloidosis.

Figure 2  (A) Technetium-99m pyrophosphate scintigraphy demonstrates myocardial uptake. (B) Right ventricular endomyocardial biopsy specimens are positive for transthyretin immunostaining. (C) Deposition of 10 nm diameter fine fibres is seen on electron microscopy.
and genetic testing findings confirmed ATTRwt amyloidosis. However, this patient is relatively younger than the patients with ATTRwt cardiac amyloidosis and there is a possibility that other rare TTR variants were associated with the ATTR cardiomyopathy in this case.7 Cardiac amyloidosis is associated with an increased risk for atrial arrhythmias. Tan et al reported that catheter ablation provides important symptomatic relief in patients with cardiac amyloidosis.8 Based on the prognostic staging system for ATTR amyloidosis, our patients were classified as stage I,2 and the paroxysmal AF was expected to respond well to catheter ablation. The development of effective therapeutic agents as well as the advancement in cardiac imaging, enabling early and accurate diagnosis, are expected to improve the prognosis of patients with ATTRwt cardiac amyloidosis.

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