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Endomyocardial Biopsy for the Diagnosis of Transthyretin Cardiac Amyloidosis in the Era of Multimodality Imaging

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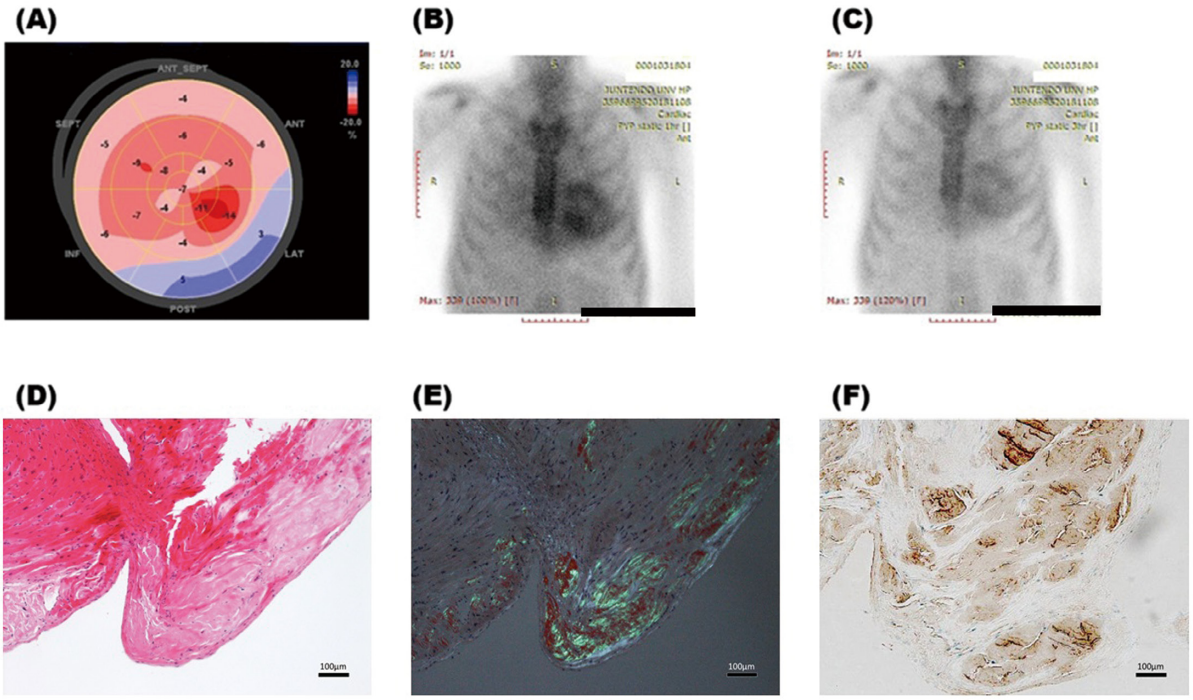

Figure. (**A**) Echocardiography with speckle tracking. (**B**,**C**) Technetium pyrophosphate scintigraphy obtained 1 (**B**) and 3 h (**C**) after tracer injection. (**D**,**E**) Histological images of sections stained with hematoxylin and eosin (**D**) and Congo red under brightfield light (**E**). (**F**) Transthyretin-specific immunohistochemistry.

An 88-year-old man was admitted to Juntendo University Hospital with worsening heart failure symptoms. Because transthoracic echocardiography showed a decrease in left ventricular ejection fraction, a thick left ventricular wall (12 mm), and granular sparkling myocardium, screening for cardiac amyloidosis was performed. Speckle tracking echocardiography showed reduced left ventricular global longitudinal strain, whereas the relative longitudinal strain was 0.71 and did not indicate an apical sparing pattern (**Figure**). A nuclear imaging study

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with pyrophosphate visually showed myocardial uptake, with visual scores of Grade 2 at 1 h and Grade 1 at 3 h. However, the heart-to-contralateral lung ratio was above the cut-off at 3 h (1.43), but not at 1 h (1.41), for the diagnosis of transthyretin-related cardiac amyloidosis (ATTR-CA).[1] Therefore, an endocardial biopsy (EMB) was performed and immunohistochemical staining showed deposition of transthyretin amyloid.

Although recent progress in cardiovascular multimodality imaging techniques has enabled us to evaluate the possibility of ATTR-CA less invasively, most cut-off values proposed for these imaging tests have not been externally validated satisfactorily, and results of different imaging tests are not always consistent. The present case suggests that performing an EMB is still important for the diagnosis of ATTR-CA even after multimodality cardiovascular imaging tests have been performed.

Disclosures

H.D. is a member of *Circulation Reports*' Editorial Team. The remaining authors have no conflicts of interest to disclose.

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