CLINICAL VIGNETTE

Delayed enhancement by multidetector computed tomography in endomyocardial fibrosis

Tiago Senra, Afonso Akio Shiozaki, Vera Maria Cury Salemi, and Carlos Eduardo Rochitte*

Cardiovascular Magnetic Resonance and Computed Tomography Sector of Heart Institute (InCor), University of São Paulo Medical School, Av. Dr. Enéias de Carvalho Aguiar, 44, Cerqueira César, São Paulo 05403-000, Brazil

* Corresponding author. Tel: +55 11 3069 5587; Fax: +55 11 3069 5293. Email: rochitte@incor.usp.br

A 48-year-old woman presented worsening of dyspnoea in the previous 6 months.

Echocardiography showed left ventricular (LV) apical obliteration and dilatation of the atria (Panels A and B). LV systolic function was normal and diastolic function analysis was impaired due to atrial fibrillation. The hypothesis of endomyocardial fibrosis was raised, but apical hypertrophic cardiomyopathy and apical thrombus could not be excluded.

Myocardial delayed enhancement (MDE-MR) by cardiovascular magnetic resonance (CMR) showed apical hyperenhancement areas suggesting endomyocardial fibrosis and hypoenhancement areas that could correspond to calcification and/or thrombi (Panels G and H).

Hypoenhancement areas were better evaluated by multidetector computed tomography (MDCT) (Aquilion-64, Toshiba) with calcium score technique that demonstrated massive subendocardical calcification and MDE-CT which showed LV apical obliteration with areas of MDE associated to calcified areas (Panels E and F).

Presence of hyperenhancement on the LV apex by both CT and CMR after contrast strongly suggests myocardial fibrosis in this area and highlights the matched information provided by both techniques.

Additionally, MDE-CT could identify calcification that matched calcium score images and also the presence of thrombi. In MDE-MR, both calcium and thrombi are depicted indistinctively as larger subendocardial dark areas.

Recently, MDE has been demonstrated by MDCT in patients with ischaemia and myocarditis. To our knowledge, this is the first demonstration of MDE-CT in endomyocardial fibrosis. The additional capacity of MDCT to differentiate thrombus and calcification may play an important role in the diagnosis as well as in clinical and surgical decision-making in patients with endomyocardial fibrosis.

Panels A and B. Echocardiography 4 chamber and short-axis views with LV apical obliteration (arrows), right and left atrial dilatation.

Panels C and D. Massive apical subendocardical calcification (arrows) by MDCT calcium score images, but no calcification in the apex (arrowhead).

Panels E and F. LV long- and short-axis views by MDE-CT. Hypoenhancement images demonstrate fibrosis (arrowhead) and calcification areas (white arrow). Hypoenhancement areas suggest thrombi (black arrow).

Panels G and H. LV long- and short-axis view by MDE-CMR. Hypoenhancement areas depict subendocardial fibrosis (arrowhead). Hypoenhancement area could correspond to either calcium and/or thrombi (black arrow).