A rare consequence of blunt chest trauma: dumbbell heart with calcified pericardial band at the mid-ventricular level

Pınar Türker1, Serkan Duyuler2*, Sinan Cersit1, Omaç Tüfekçioğlu1, and Rıza Sarper Ökten3

1Department of Cardiology, Türkiye Yüksek İhtisas Training and Research Hospital, Ankara, Turkey; 2Department of Cardiology, Hakkari State Hospital, Hakkari 30000, Turkey; and 3Department of Radiology, Türkiye Yüksek İhtisas Training and Research Hospital, Ankara, Turkey

*A Corresponding author. Tel: +90 5556182775; fax: +90 4382117273, Email: serkanduyuler@yahoo.com

A 36-year-old female patient was admitted to our clinic with chronic atypical chest and back pain. She had a history of 3-day hospitalization in the intensive care unit after a severe blunt chest trauma in a car accident 25 years ago. She had no clear evidence of bloody pericardial effusion or pericardial intervention. The heart was observed to have regular rhythm without any murmur, rub, or gallop. Lung fields were clear. Electrocardiography demonstrated sinus rhythm along with non-specific ST-T wave changes. Transthoracic echocardiography depicted dumbbell-shaped ventricles with a circular calcification at the mid-ventricular level (Panel 1A and B and see Supplementary data online, Movie S1). However, Doppler echocardiographic evaluation did not reveal any finding compatible with constriction. CT depicted a calcified pericardial band (CPB) encircling both of the left and right ventricles at the mid-ventricular level, including anterior descending and right coronary arteries (Panel 1C and D and see Supplementary data online, Movie S2). Since CT could not rule out the presence of pericardial constriction and coronary impingement incurred by the pericardial ring, a complete heart catheterization was scheduled. Heart catheterization confirmed the absence of constrictive pericarditis and coronary impingement (Panel 1E and F and see Supplementary data online, Movie S3). Tuberculin skin test and radiologic images were negative for tuberculosis. The patient was placed on a follow-up programme for the possibility that constrictive pericarditis may ensue. Moreover, she was consulted to physical therapy physician for back pain.

CPB is a rare form of pericardial disease. It is frequently located along the atrioventricular (AV) groove and may restrict AV filling or ventricular outflow. The mid-ventricular level is a relatively uncommon location for CPBs, compared with the AV groove. Severe cases are likely to be complicated with constrictive and/or obstructive findings. As is the case in our patient, CPBs may be asymptomatic and the definitive diagnosis is likely to be established incidentally decades after the triggering events, such as tuberculosis, trauma, or cardiac surgery.

Panel 1 (A) Parasternal long-axis view (B). Modified apical four chamber view depicting dumbbell-shaped ventricles with a mid-ventricular calcification. (C and D) Computerized tomographic views demonstrating the calcified pericardial band encircling the mid-ventricular level. (E) Coronary angiography revealing normal coronary arteries without any evidence of coronary impingement. (F) Left ventriculography showing dumbbell-shaped ventricle with a circular calcification at the mid-ventricular level. Arrows, Calcified pericardial band.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.