A strangled heart by calcified pericardial band: a rare case of localized pericardial constriction detected by chance

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A 49-year-old gentleman was referred to our emergency department with atypical chest discomfort after traffic accident. Paroxysmal pulse could be demonstrated without definite pericardial knock on chest auscultation. A chest X-ray showed mild cardiomegaly and a calcific pericardial band (Panel A). On transthoracic echocardiography, we could recognize the localized cardiac constriction by the thickened and calcified pericardial band located at the atrioventricular (AV) groove of the right side (Panel B). Volume-rendering cardiac computed tomographic (CT) image that was obtained from the left-side view showed calcified pericardial band encircling the left ventricular cavity at the level of the AV groove and crossing the left anterior descending coronary artery (Panel C). Another image constructed from the right-side view revealed the thickened and calcified pericardial ring along the AV groove, leading to strangulement of the heart and associated severe right atrial enlargement (Panel D). The presence of constriction was confirmed by cardiac catheterization. As a definitive treatment, we strongly recommended pericardiectomy, which, however, was rejected by the patient. Localized pericardial constriction was reported to be a rare form of constrictive pericarditis, but in most cases constricts the AV groove. Previous pericardiectomy, congenital heart disease, and tuberculosis complications could be the leading causes. Depending on the location of pericardial constriction, clinical presentation of localized constriction may be variable including obstruction of right ventricular outflow tract, pulmonary stenosis. It is no doubt that the curative treatment option is pericardiectomy as in generalized pericardial constriction, although it could not be performed in our case.

Panel A. A chest left lateral roentgenogram clearly depicting the presence of the calcified pericardial band (arrow).

Panel B. Transthoracic echocardiographic findings showing constriction of both left and right ventricular cavity by pericardial calcified ring (arrow).

Panel C. Three-dimensional cardiac computed tomographic image from the left-side view demonstrated calcified pericardial band besieging the left ventricular cavity and the left anterior descending coronary artery (arrow) at the level of the atrioventricular groove.

Panel D. Three-dimensional volume-rendering cardiac computed tomographic image from right-side view illustrated pericardial ring (arrow) that was thickened and calcified along the atrioventricular groove. Severe right atrial enlargement was also clearly represented.