Letter to the Editor

Left ventricular 'rigid body rotation' in a patient with acromegaly (from the MAGYAR-Path Study)

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Cardiovascular complications are known features in acromegaly due to growth hormone (GH) and insulin-like growth factor 1 (IGF-1) excess (1,2). In healthy subjects, left ventricular (LV) apex and base rotate in opposite directions resulting in a towel-wringing-like motion called as LV twist, which could be easily and non-invasively quantified by three-dimensional (3D) speckle-tracking echocardiography (3DSTE) (3). However, little is known about LV myocardial rotational mechanics in acromegaly.

We report the case of a 49-year-old female patient with typical features of acromegaly who was involved in the Motion Analysis of the heart and Great vessels bY three-dimensionAl speckle-tRacking echocardiography in Pathological cases (MAGYAR-Path) Study. Transnasal-transsphenoidal hypophysectomy was performed at the age of 31 years due to eosinophilic macroadenoma. Thirteen years later, she was reoperated due to recidivation. She is now treated for nodular goiter with hypothyroidism (levothyroxine), Addison's disease (hydrocortisone) and osteoporosis (vitamin D). Complete two dimensional (2D) Doppler echocardiography and 3DSTE were carried out with a commercially available Toshiba Artida™ echocardiography equipment. During 2D echocardiography, grade I LV diastolic dysfunction could be detected without significant valvular heart disease or LV systolic dysfunction (ejection fraction proved to be 56%). 3DSTE-derived global LV radial, longitudinal, circumferential, area and 3D strains were 34.6%, –19.4%, –33.1%, –40.7% and 36.7%, respectively. Interestingly, LV apical and basal rotations were in the same clockwise direction confirming near absence of LV twist called as LV 'rigid body rotation' (RBR) in this case with acromegaly (*Figure 1*). The real mechanism behind this finding is not known, but could be partially explained by GH/IGF-1 induced cardiomyopathy including alterations in cardiac fibers due to long-standing hormonal effects, LV hypertrophy (1,2), endothelial dysfunction (4), but other reasons or the effect of comorbidities could not be excluded either.

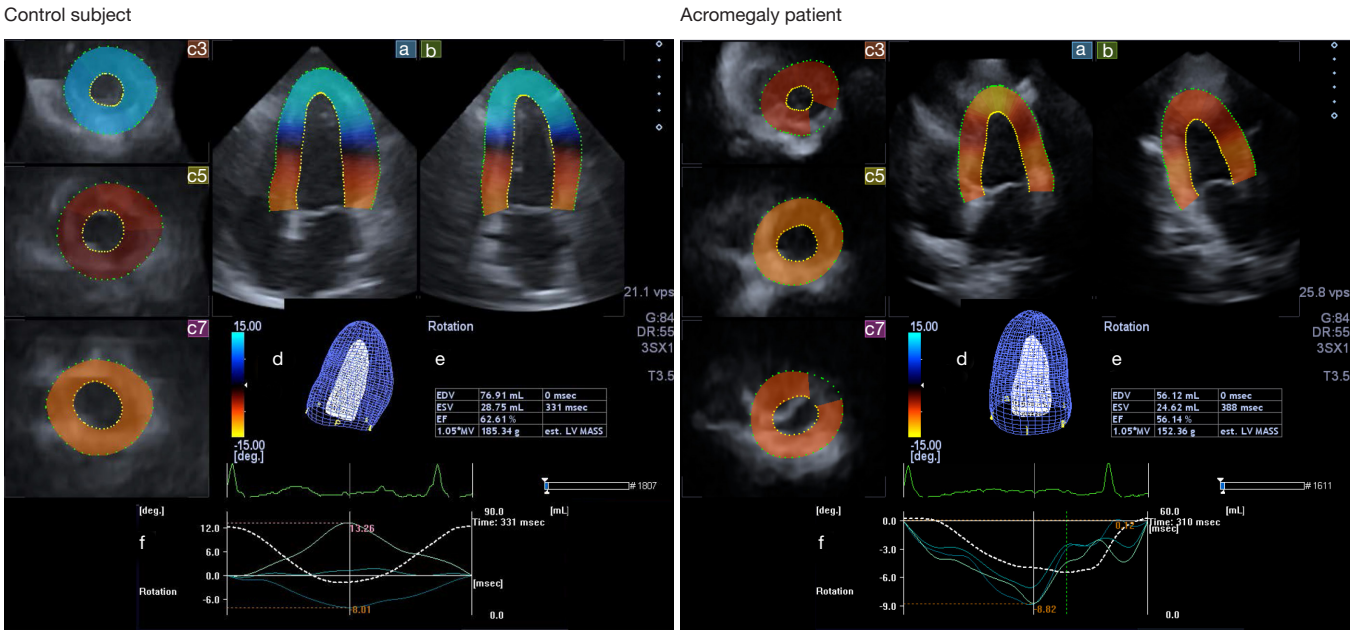

Figure 1 Three-dimensional speckle-tracking echocardiography-derived left ventricular (LV) analysis is presented. (A) Control subject; (B) acromegaly patient. Apical four-chamber (a) and two-chamber (b) views and three short-axis views (c3, c5, c7) at different LV levels, three-dimensional LV cast (d) and LV volumetric data (e) of the acromegaly patient and that of a control female subject in the same age group are presented together with time—LV apical (white line), midventricular and basal (blue line) rotation curves (f). Dashed curve represents LV volume changes during the cardiac cycle.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Informed Consent: All procedures contributing to this work comply with the ethical standards of the relevant national guidelines on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008, and has been approved by the institutional committee of the University of Szeged.

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