A case report of acromegalic cardiomyopathy with severe left ventricular hypertrophy

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Topic(s):
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Introduction: Acromegaly is a rare disease, mostly caused by a growth hormone (GH)-secreting benign pituitary tumor, with an increased production of GH and insulin-like growth factor 1 (IGF-1). One hallmark feature of the disease is acromegalic cardiomyopathy, a syndrome of progressive cardiac dysfunction characterized by left ventricular hypertrophy, diastolic dysfunction, and combined systolic and diastolic dysfunction in the very advanced stage.

Clinical case: A 54-year-old male with history of arterial hypertension and abnormal electrocardiogram (ECG) for more than 10 years was diagnosed with active stage of acromegaly (IGF-1-1711ng/ml, cardiac magnetic resonance (CMR) – pituitary tumor). Surgical treatment was recommended. He was referred for preoperative cardiac evaluation preceding transsphenoidal resection of a pituitary adenoma. He denied syncope or any chest pain. The standard 12-lead ECG demonstrated sinus rhythm, left atrial enlargement and left ventricular (LV) hypertrophy with deep negative T waves in V3-V6 leads. Holter monitor demonstrated episodes of non-sustained ventricular tachycardia. Transthoracic echocardiography revealed severe asymmetric LV hypertrophy without LVOT obstruction at rest and maneuver Valsalva (max. grad. – 19mm. Hg) with mildly abnormal LV ejection fraction (48%, range =52%), severe reduced global longitudinal strain (-8.2%, range <-18%) and grade II diastolic dysfunction. CMR imaging was performed. According to CMR suggested hypertrophic cardiomyopathy (HCM) demonstrating area of myocardial fibrosis on extensive late gadolinium enhancement, maximal LV wall thickness of 40 mm, increased myocardial mass (index 277g/m2, range 68–103g/m2) and mildly reduced systolic LV function (LVEF - 54%, range 57-74%). Coronary angiography did not show significant stenosis. After cardiac examination, transsphenoidal adenomectomy was done. There are currently no algorithms sudden cardiac death (SCD) for patients with acromegalic cardiomyopathy, but he was recommended implantation of cardioverter defibrillator devices on a scale for HCM (Risc SCD – 4.17%). Acromegaly-induced cardiomyopathy can mimic HCM. He was also recommended genetic typing for HCM, considering the results of MRI.

Conclusion/Discussion: Reduction GLS might be expected to result in a fall in LVEF, however this is often not the case in hypertrophic LV diseases. It is important to note that measures of regional function such as myocardial strain may actually reflect global systolic function better than the ejection fraction. The results may improve our ability to provide a more accurate prognosis and better assessment of actual systolic function. Because cardiomyopathy is an important cause of mortality in acromegaly, diagnosis and appropriate management are critical to improve survival.
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