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From Cardiomyopathy to Endocrine Disorders Diagnostics Acromegaly During Routine Echocardiography

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1. Summary

The case of a patient treated so far due to arterial hypertension, requiring complex therapy who was referred to the Department of Cardiology due to ACS and suspected hypertrophic cardiomyopathy. In the echocardiography- the left ventricular ejection fraction was normal, enlargedheart cavities and concentric LK hypertrophy up to 18 mm was found. The echocardiographic result determined further diagnostics in direction of acromegaly. Characteristic clinical symptoms were noted in a severely obese patient. Additional laboratory and imaging tests were performed. The final diagnosis was confirmed in MRI revealed pituitary macroadenoma. The final diagnosis of pituitary macroadenoma was possible thanks to echocardiography.

2. A Case Report

A 42-year-old man, previously treated for poorly controlled hypertension (blood pressure was still at the level of 160-170 mmHg despite of using many drugs at maximum doses). Moreover, the patient was obese and suffered from obstructive sleep apne. Deterioration of execise tolerance and weakness were the main complaints of the patient recently. The patient was referred to the hospital due to suspicion of acute coronary syndrome and hypertrophic cardiomyopathy. Voltage criteria of left ventricular hypertrophy were the only changes on the ECG. Routinely, before coronarography, a cardiac echocardiography was performed. The obtained images pointed to myocardial hypertrophy and left ventricular dilatation. Concentric hypertrophy of the left ventricular muscle was observed in the parasternal long axis view. Ejection fraction was normal, there were no segmental abnormalities of contractility in all of the walls. Troponin level remained stable, slightly elevated (25 pg/ml; N<50 pg/ml). Based on the echocardiographic image and laboratory tests, the initial diagnosis was modified. Coronary angiography did not show any significant angiographic changes in the coronary arteries. On the other hand, there was a large heart, wide coronary arteries and a slow flow of contrast. On this basis, acute coronary syndrome was excluded in this patient. The question of the cause of the significant hypertrophy of the heart muscle and dilatation of all cavities remained unclear. Moderate aortic regurgitation and diastolic disfunction impaired of the left ventricular relaxation were also observed, decreased systolic function manifested by decreased left ventricular longitudinal strain. The polar map of the left ventricular longitudinal strain shows an uneven strain distribution The history and clinical picture did not match the echocardiographic findings. The discrepancy between the clinical symptims and the echocardiographic picture prompted doctors to look at the patient more holistically. Large hands, widened and thickened nose, prominent forehead, mandibular hypertrophy and thickened facial features are typical for acromegaly. These features of appearance were not easily noticeable due to obesity. The team expanded diagnostics towards endocrine diseases.

Acromegalic cardiomyopathy - is a specific, most common complication of acromegaly in the circulatory system.

We can distinguish three stages of the advancement of this disease.

Phase I (early) - the concentric hypertrophy of the muscle of both ventricles begins with its increased contractility,

there is an increase in heart rate and an increase in cardiac output, leading to hyperkinetic circulation.

Phase II - myocardial hypertrophy increases and symptoms of diastolic dysfunction appear. He shows up early

the filling of both ventricles is also disturbed due to their abnormal and reduced relaxation

wall flexibility. Then the systolic dysfunction is attached and the patient begins to have discomfort during

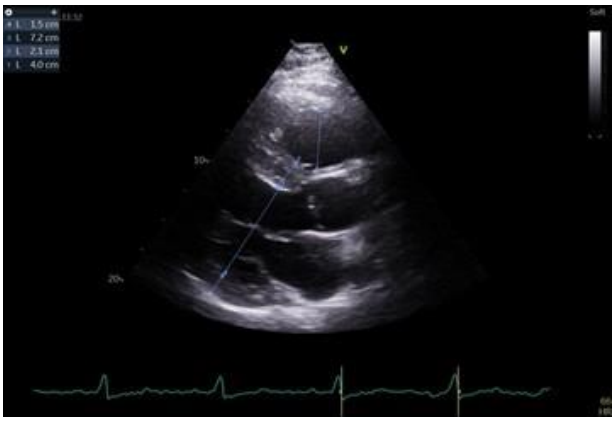
physical effort.

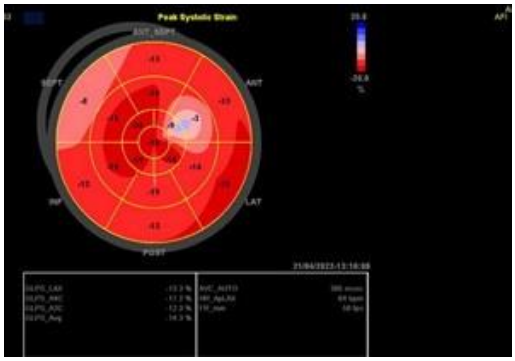
Phase III - occurs mainly in the elderly, untreated patients. The ventricles are dilated leading to

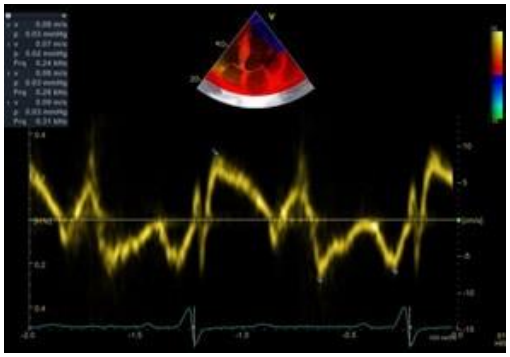
systolic and diastolic dysfunction. At this stage, the patient feels discomfort during exercise

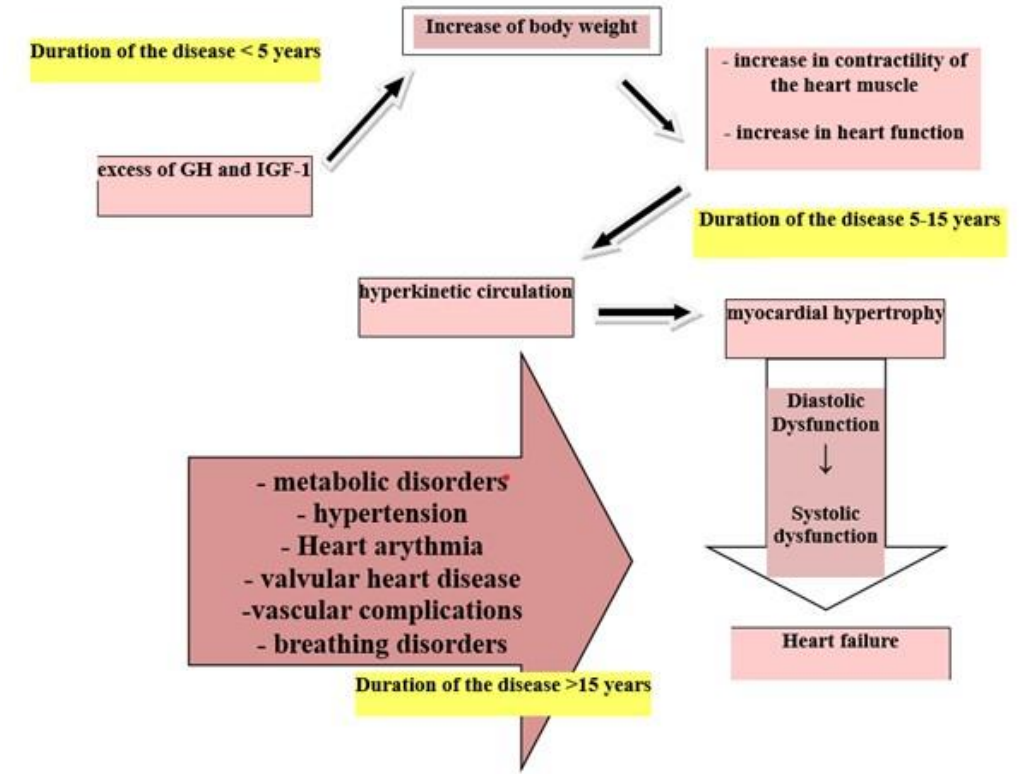
physical and at rest. Other complications such as valvular disease, coronary artery disease and chronic heart failure eventually develop. In this patient, based on echocardiography, we can suspect the degree advancement between the 2nd and 3rd phase. Sinus arrest episodes were observed with 24-hour Holter ECG monitoring with a junctional escape rhythm and a few pauses, the longest of which lasted 3 seconds. During blood pressure monitoring, elevated values were maintained (mean 150-170 mmHg). Finally, the doctors decided to measure the level of growth hormone, which turned out to be elevated (5.38 ng / ml; norm <3.00 ng / ml).

The final diagnosis was established with MRI of the head in which pituitary macroadenoma was diagnosed.

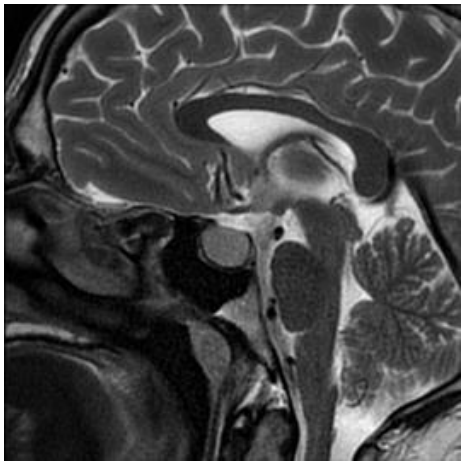


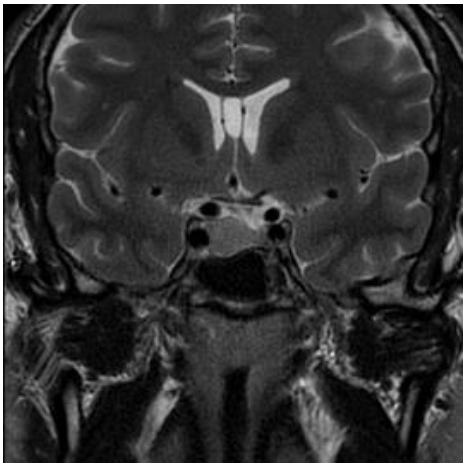






According to “Acromegaly and cardiovascular diseases” by Izabella Czajka-Oraniec, Wojciech Zgliczyński





3. Conclusions

The example of this patient shows that the causes of myocardial hypertrophy should be sought not only in

patients with heart disease. Myocardial disease may be secondary to disorders derived from

other systems or organs. Diagnostics and treatment of such patients should be multidirectional and based

on the cooperation of specialists in various fields of medicine. The atypical echocardiographic image prompted doctors to deepen the diagnostics and thus the ECHO of the heart became the examination that changed the fate of the patient.

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