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Amyloidosis with phenotype of hypertrophic cardiomyopathy

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A 57-year-old woman with a hypertrophic cardiomyopathy (HCM) and end stage renal disease treated with hemodialysis was admitted with symptoms of decompensated heart failure in New York Heart Association class III. The serum levels of N-terminal pro-B-type natriuretic peptide and troponin were elevated (> 35000 pg/mL and 0.161 ng/mL). The electrocardiogram (ECG) revealed sinus rhythm, first degree atrioventricular block (PQ 215 ms) and increased QRS voltages (Sokolow-Lyon criteria of left ventricular [LV] hypertrophy [LVH] 4.5 mV and Cornell index 3.8 mV), repolarization abnormalities with deep T-wave inversion in I, aVL, V5–V6 leads reflecting LVH (Fig. 1A). Transthoracic echocardiography showed marked concentric LVH (interventricular septum 23 mm, posterior wall 17 mm) with heterogeneous, speckled pattern of the myocardium (Fig. 1B), evident systolic anterior motion (SAM; Fig. 1C) resulting in moderate telesystolic mitral regurgitation and LV outflow tract obstruction (LVOTO) with peak systolic gradient up to 100 mmHg (Fig. 1D, E). Tissue Doppler assessment confirmed significantly impaired LV relaxation (Fig. 1F). Signs of elevated LV filling pressure with E/e' ratio 22.5 were observed. LV ejection fraction was not decreased. Intensified hemodialysis resulted in improvement of the patient's clinical condition. A bone marrow and heart biopsy were performed and a diagnosis of AL amyloidosis with heart and kidney involvement was made. Echocardiography and ECG suggested obstructive HCM (sarcomeric disease), while hematologic evaluation confirmed a diagnosis of HCM caused by AL. Electrocardiographic features of LVH are not typically found in amyloidosis. Echocardiographic findings generally can be present in both HCM and amyloidosis, but LVOTO and SAM occur rarely in amyloidosis. Cardiac amyloidosis is usually diagnosed late because of its non-specific symptoms.

Conflict of interest: None declared

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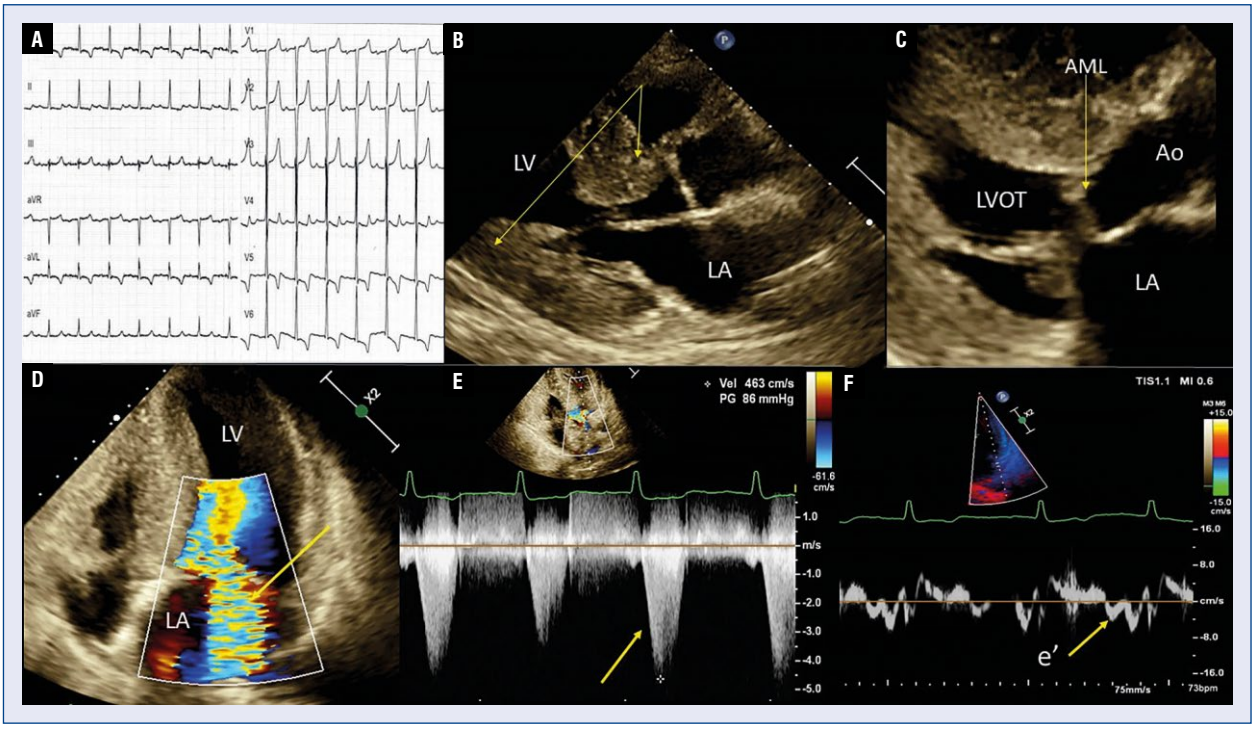

Figure 1. Electrocardiogram and transthoracic echocardiography (TTE); **A.** Electrocardiogram features of the left ventricular hypertrophy; **B.** Significant hypertrophy of the interventricular septum and posterior wall, with speckled pattern of the myocardium (arrows); TTE, long axis view; **C.** Systolic anterior motion (SAM) — displacement of the distal portion of the anterior mitral leaflet obstructing the left ventricular outflow tract (arrow); TTE, long axis view; **D.** Moderate mitral regurgitation (arrow) as a result of SAM; TTE, color Doppler, four chamber view; **E.** Spectral Doppler across the LVOT; TTE, continuous wave Doppler; **F.** Decreased myocardial velocity of the lateral mitral annulus (e') indicating significantly impaired LV relaxation; AML — anterior mitral leaflet; Ao — aorta; LA — left atrium; LV — left ventricle; LVOT — left ventricular outflow tract.