The perils of obesity: atrial myopathy and conduction disease persisting after bariatric surgery

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A 42-year-old female with a past medical history of morbid obesity and bariatric surgery i.e., gastric banding in 2008 while weighing 135 kg (BMI of 48kg/m²) presented with symptoms of dizziness, weakness, palpitations, and pre-syncopal episodes. Clinical examination was normal; current BMI of 32kg/m². Resting ECG and 24-hour Holter monitoring revealed 1st degree AV block and significant PR interval prolongation (~300ms) with periods of atrial fibrillation (panels a, b). Transthoracic echocardiography showed biatrial dilation with preserved left ventricular ejection fraction, no regional wall motion abnormalities, or significant valvular heart disease (panels c, d). Mitral annulus tissue doppler imaging showed normal e’ velocity (>10cm/s) and E/e’ ratio <8 (panel e). Due to non-specific ECG alterations and mild troponin elevation the patient underwent diagnostic coronary angiography, which demonstrated no obstructive coronary artery disease. Given the presence of conduction disease at a young age, and to exclude an underlying cardiomyopathy or infiltrative disease, a cardiac magnetic resonance (CMR) scan was ordered. CMR confirmed biatrial dilation with normal biventricular volumes and systolic function. In addition, interatrial septum thickening and significant chemical-shift artefact around the right atrium were noted, suggestive of increased epicardial adiposity (panel f). Notably, there was unusual, extensive late gadolinium enhancement (LGE) of both atria (panel g). Atrial amyloidosis can give similar appearance of LGE, although this is less likely in the absence of LV disease. Indeed, Tc99m pyrophosphate bone scintigraphy was negative for cardiac amyloidosis (panel h). An invasive tissue biopsy was not performed as there was no evidence of LV disease, while the risk of atrial wall perforation exceeded any expected benefit for the patient. There are well established links between atrial disease with morbid obesity and epicardial adiposity, to which this case of atrial myopathy was finally attributed to.

Consent statement: We confirm that an informed written consent was obtained by the patient.