An unusual echocardiographic image of a hiatal hernia

Nietypowy echokardiograficzny obraz przepukliny rozworu przelykowego przepony

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Abstract

Diagnosis of a hiatal hernia (HH) is typically made using an upper gastro-intestinal barium X-ray. A complementary test is gastroscopy or upper-intestinal endoscopy. There are reports in which HH has been diagnosed by echocardiography. We here describe a case of a HH visible on an echocardiogram in a female with palpitations.

Key words: hiatal hernia, echocardiography

INTRODUCTION

A 47 year-old woman with a history of recurrent episodes of rhythmic palpitations, not stress related, was referred for evaluation to our Department. She was a smoker (5–6 cigarettes/day), on pharmacological treatment for hypertension. Her cardiologic history was unremarkable. She had been in physiological menopause for at least one year, and had not been in receipt of any hormone replacement therapy. In blood tests taken a few days previously: Hb 13.7 g/dL, red corpuscles 4,800,000/µL, white corpuscles 6,700/µL, glycaemia 89 mg/dL, Na+ 141 mmol/L, K+ 3.8 mmol/L, tT4 and TSH were normal. She was given an electrocardiogram (ECG) that showed sinus tachycardia, normal atrio-ventricular (AV) conduction, and aspecific alterations of ventricular repolarisation (Fig. 1). We submitted her to transthoracic (TTE)/transoesophageal (TEE) and tridimensional echocardiography. Those showed a large amorphous mass impinging on the posterior left atrial (LA) wall. By analysis of the echocardiographic findings, we suspected a hiatal hernia (HH) (Figs. 1, 2), which was confirmed by barium examination and computed tomography.

DISCUSSION

Hiatal hernias may present with caustic epigastralgia and regurgitation due to concomitant gastroesophageal reflux, or it may be asymptomatic. It may also have a wide spectrum of manifestations mimicking acute cardiovascular events such as postprandial syncope and angina-like-chest pain. The ECG changes may result in a misdiagnosis of myocardial ischaemia [1]. The clinical presentation of HH-induced cardiac compression can range from dyspnea to impaired respiratory func-
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An unusual echocardiographic image of a hiatal hernia, recurrent acute heart failure, and ultimately haemodynamic collapse. Further cardiac complications include the formation of gastropericardial fistula, pericardial effusion and arrhythmia.

Diagnosis of a HH is typically made through an upper gastro-intestinal barium X-ray. A complementary test is gastroscopy, or upper-intestinal endoscopy. Literature has cases in which HH has been diagnosed via an echocardiogram. Probably the first report of the visualisation of a HH by TTE came from Nishimura et al. [2] more than 20 years ago. They noted a LA mass on two-dimensional (2D) sonographic imaging encroaching on the posterior aspect of the LA, and sometimes posterior to the left AV junction; it was of maximal size when the LA was imaged in a posterior plane, but smaller or absent as the LA was imaged in more anterior planes, where the mass progressively ‘disappeared’. D’Cruz and Hancock [3] reported additional echocardiographic abnormalities. Firstly, respiratory fluctuation in degree of encroachment of the HH ‘mass’ on the LA could be seen on realtime 2D imaging as a respiratory cyclic widening and narrowing of the LA space between the aortic root and the anterior border of the HH as it abuts the LA posterior wall. Secondly, the normal sonolucency of the descending thoracic aorta, postero-lateral to the LA or posterior to the left AV junction, was obscured by superimposition of the large ill-defined HH echogenicity. Various intracardiac or extrinsic lesions can resemble the echocardiographic appearance of HH. These include vascular formations, such as descending aorta aneurysm or dilation of the coronary sinus, and inflammatory conditions, as in the case of a mitral ring abscess. Several features may help to distinguish between a large HH and an atrial mass on 2D echocardiography. The echo density of a HH will extend beyond the margins of the atria. With angulation of the transducer, the mass will not be confined to one atrium, but may appear to be in either atrium because the hernia is a posterior structure separate from the heart. This ‘swirling effect’ is a very useful feature in identifying HH. The echo reflections from a HH that contains stomach contents and air will demonstrate changing echo densities within the mass. The ingestion of carbonated beverages has been shown to be a method of differentiating a HH from a tumour in TTE diagnostics, where the structure goes from being echodense to an echo-free space because of the gas in the beverage [4, 5]. The use of TEE for correct diagnosis has been suggested previously [6] and it could be safe when normal TTE and echo-contrast are not available for diagnosis.

Conflict of interest: none declared

References
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