

A huge Morgagni hernia with compression of the right ventricle

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A 21 year old male with no relevant medical history presented to our Institution for further assessments of a right paracardiac mass founded on a chest X-ray. Chest computed tomography revealed a wide median defect of the diaphragm at the level of xiphoid process of the sternum, with the herniation of omental fat tissue in the mediastinum. Cardiac magnetic resonance confirmed the presence of a huge hernia originating from the foramen of Morgagni (sterno-costal hiatus), displacing the heart leftwards and posteriorly and compressing the right ventricle (RV), giving to it a tubular shape. The signal characteristics were typical of fat tissue, with hyperintense signal in T1 and T2 weighted black blood images and homogeneous signal suppression on STIR T2 black blood images. Short axis real time cine images, performed during deep inspiration, showed an early diastolic ventricular septal bounce, with flattening of the interventricular septum during mid-late diastole: they represented signs of diastolic dysfunction of the right ventricle, resembling a sort of "pseudo-constrictive" pathophysiological model. The patient was thus referred to surgical repair of the diaphragmatic defect.

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A 21-year-old man with no relevant medical history presented at our institution for further assessments of a right paracardiac mass found on chest X-ray. He complained, during the

last year, of vague thoracic and abdominal discomfort with mild dyspnea during effort. Plain chest X-ray performed at another institution revealed right paracardiac opacity on the

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posteroanterior view, while the right lateral view showed opacity in the peridiaphragmatic area of the anterior mediastinum (Fig. 1A and B). We performed chest computed tomography (CT) that revealed a wide median defect of the diaphragm at the level of the xiphoid process of the sternum, with herniation of omental fat tissue in the mediastinum. It contained some linear soft-tissue opacities that represented omental vessels

(Fig. 1C and D). These findings were consistent with a large Morgagni hernia (MH). The bulk shifted the heart to the left. We decided to perform cardiac magnetic resonance (CMR) to better evaluate the mass, its tissue characteristics, and the anatomical and functional relationships with the heart. CMR confirmed the presence of a large MH originating from the foramen of Morgagni (sternocostal hiatus), displacing the heart

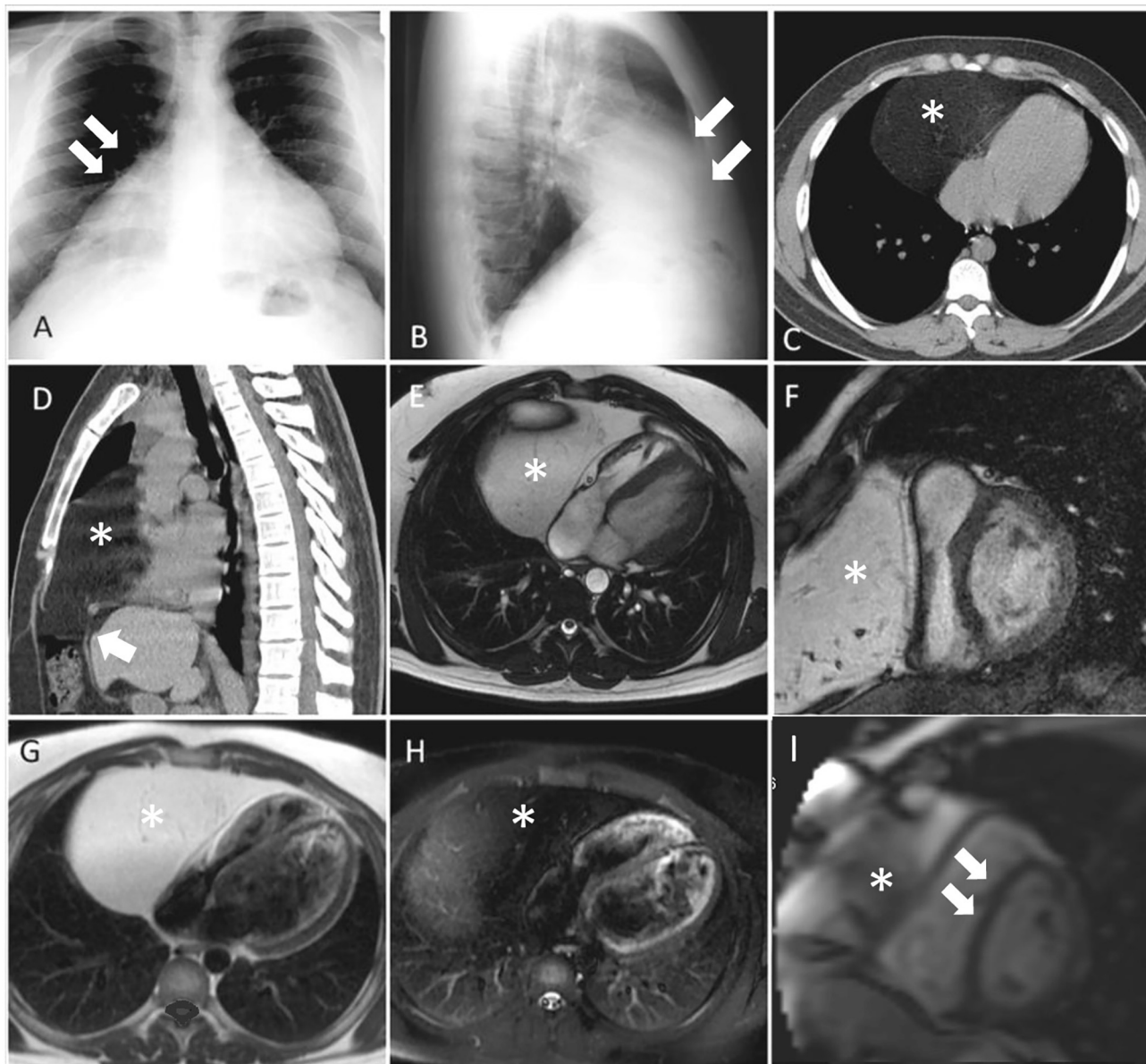


Figure 1. (A, B) Chest X-ray posteroanterior and lateral views showing a large right paracardiac opacity localized in the anterior mediastinum (arrows). (C, D) Axial and sagittal computed tomography images depicting a large diaphragmatic defect (arrow), with omental tissue in the retrosternal space (*); these are characteristic features of MH (*). (E, F) Axial and short axis steady-state free precession showing the heart dislocated leftward with compression of the right ventricle free wall from the MH (*). (G) Turbo spin echo black blood proton density axial image showing the hyperintense signal of fat tissue (*), with vascular structures inside. (H) Homogeneous signal suppression (*) on short T2 inversion recovery T2-weighted axial image. (I) Real-time cine short axis image emphasizing the pseudoconstrictive setting, with ventricular septal bounce and flattening during inspiration (arrows), compromising left ventricular filling. MH = Morgagni hernia.

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