We present a 72-year-old man who was referred to our hospital due to chest pain. The patient complained of dyspnoea during moderate exertion (New York Heart Association functional Class II/IV). The results of a 12-lead electrocardiogram showed no significant alterations. Troponins were slightly elevated at first and normalized in serial analysis. Chest radiography showed mediastinal widening (Panel 1). The 64-slice computed tomography revealed a large, solid, multinodular mass in the diaphragm (Panel 2). Furthermore, the CT showed pericardial infiltration and moderate pleuro-pericardial effusion without signs of tamponade (Panel 3). Magnetic resonance showed parietal invasion of the right atrium (Panel 4). A histological examination revealed proliferation of malignant neoplastic cells (Panel 5). Additionally, rhabdomyosarcoma was positive for desmin and miogenin. These findings are consistent with pleomorphic rhabdomyosarcoma in the diaphragmatic region (Panels 6 and 7).

The patient began treatment with vincristine, actinomycin D and cyclophosphamide but he died a few weeks later.

Non-cardiac tumours may invade the heart and pericardium by means of lymphatic or haematogenous dissemination, local extension, or a transvenous route.

Diaphragmatic rhabdomyosarcoma in adults is an extremely rare occurrence. Rhabdomyosarcomas are malignant solid tumours derived from mesenchymal cells in the striated muscle, typical of children, but rare in adults. Such tumours are very aggressive and are often scattered at the time of diagnosis. To our knowledge, diaphragmatic rhabdomyosarcoma with direct extension into the heart and pericardium is extremely unusual.

Echocardiography is the method of imaging most frequently used to explore the heart and pericardium. MR and CT offer advantages when metastasis is in question. Both imaging modalities provide a large field of view, which allow optimal evaluation of the disease throughout the thorax. MR imaging offers excellent contrast resolution with optimal differentiation between tumour and myocardium.

The authors certify the authorship of the manuscript.

Patient’s anonymity has been carefully protected.

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