Right ventricular metastasis from internal iliac vein leiomyosarcoma: first report

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Secondary involvement of the right ventricle from leiomyosarcoma is rare. Scientific literature presents cases of right cardiac metastases from extravascular leiomyosarcomas, most of them of uterine origin and cases of cava vein leiomyosarcomas with direct intracardial extension. We present magnetic resonance (MR) images of a 65-year-old man, which showed right ventricular and pulmonary metastases of a left internal iliac vein leiomyosarcoma, identified and completely removed 4 years before. At that time, the patient presented with severe oedema of the left lower limb and ultrasound abdominal examination showed a pelvic mass. Magnetic resonance contrast-enhanced T1-weighted image demonstrated primary leiomyosarcoma arising from the left internal iliac vein and adherent to the external iliac vein (Panel A). Tumour was completely removed and a venous by-pass was performed. A complete remission of disease was observed over 4 years at abdominal MR and whole-body positron emission tomography–computed tomography (CT) follow-up (Panel B). The patient presented asymptomatic at the last abdominal MR follow-up, and a cardiac mass was incidentally observed on coronal images. Thus, a cardiac MR was readily performed and a right ventricular mass with multilobular appearance adherent to interventricular septum was confirmed by a cine steady-state free precession acquisition (Panel C). Late gadolinium-enhanced images performed 10 min after contrast medium administration showed also adhesion to the inferior wall and enhancement of the mass indicating its fibrous components (Panel D). During the same follow-up, contrast-enhanced chest CT showed few subcentimetric rounded pulmonary metastases. The patient underwent cardiac surgery with complete excision of cardiac and pulmonary metastases; histopathological examination confirmed the diagnosis of cardiac metastasis from primary leiomyosarcoma. The patient started chemotherapy 1 month later; no recurrence was observed at follow-ups performed 3 and 6 months later.

Panel A. Axial contrast-enhanced three-dimensional fat-sat T1-weighted image. Arrow indicates a primary left internal iliac vein leiomyosarcoma.

Panel B. Axial positron emission tomography–computed tomography fusion image, performed 2 years after initial surgery, shows normal appearance of the right ventricle during patient’s follow-up.

Panel C. Four-chamber steady-state free precession cine image. Arrow indicates multilobular appearance of the cardiac mass and its adhesion to interventricular septum.

Panel D. Late gadolinium-enhanced images performed 10 min after contrast medium administration. White arrow indicates adhesion of the mass to the inferior wall; black arrow indicates late enhancement of the right ventricular mass, corresponding to fibrous tumour components.

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