


# Large right ventricle cardiac leiomyoma metastasis from uterine leiomyoma

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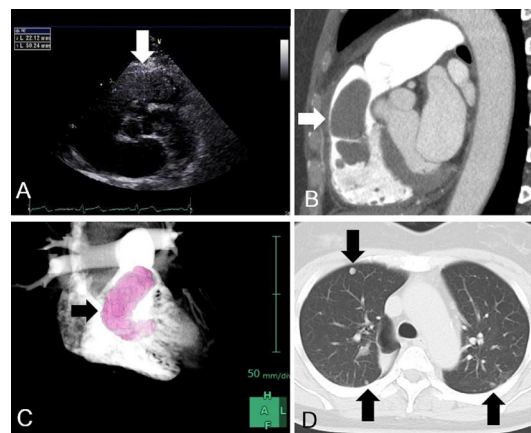
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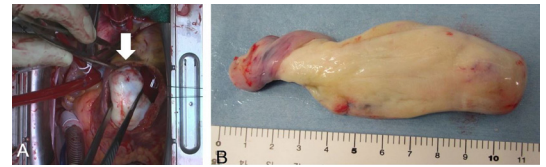
## DESCRIPTION

Most cardiac tumours arise secondary to metastatic neoplasms. Smooth muscle tumours of the heart are rare.<sup>1-3</sup> Here, we present the case of a large benign leiomyoma that metastasised from the uterus to the heart. A woman in her 40s was admitted to our medical centre with a cough, shortness of breath and abdominal pain. She had a history of uterine leiomyoma and underwent exploratory laparotomy and hysterectomy 10 years ago. Histopathological examination at the time revealed that the uterus contained multiple benign leiomyomata; necrosis, atypia or increased mitotic activity.

During her current admission, physical examination revealed a systolic murmur of grade 4/6; an abnormal 'plop' sound was also audible at the left sternal border, in the fourth intercostal space. Transthoracic echocardiography revealed a huge rod-like tumour located in the right ventricle (figure 1A) and extending into the right ventricular outflow tract. The abnormal sound was related to the movement of the tumour. We suspected that the patient's cough was caused by the tumour as it was stuck in the right ventricle outflow. Enhanced CT scan results corroborated echocardiography findings as well as revealing multiple small bilateral pulmonary nodules (figure 1B-D).



**Figure 1** (A) Transthoracic echocardiographic findings confirmed a huge rod-like mass (white arrow) located in the right ventricle extending into the right ventricular outflow tract, which may have become stuck. (B) Enhanced CT confirmed a huge rod-like mass (white arrow) located in the right ventricle extending into the right ventricular outflow tract. (C) 3D-enhanced CT confirmed a huge rod-like mass (black arrow, pink) located in the right ventricle extending into the right ventricular outflow tract. (D) CT confirmed multiple small bilateral pulmonary nodules (black arrows).



**Figure 2** Surgical findings. (A, B) The right ventricular outflow tract incision revealed a regularly movable greyish white elastic hard tumour, measuring 97 × 32 × 20 mm (white arrow). The tumour was attached to the posterior wall of the right ventricle by a narrow stalk.

Emergency cardiac surgery was performed via median sternotomy. After the right ventricular outflow incision was made, a mobile white dense tumour, measuring 97 × 32 × 20 mm, was found (figure 2A,B). The tumour was attached to the posterior wall of the right ventricle by a narrow stalk. A small spherical white nodule was also noted to be attached to the chordae, towards the anterior leaflet of the tricuspid valve. The nodule measured 20 × 5 × 3 mm. After the surgery, the patient recovered well. She was discharged home 8 days after the operation.

Histological examination of the resected tumour revealed that it was composed of spindle-like cells, and interstitial collagen, resembling benign leiomyoma. This suggested a uterine origin as the cardiac leiomyoma was similar to her previous uterine leiomyoma. Very low levels of atypia and mitoses were discovered. Margins of resection were microscopically negative for tumour cells. Immunohistochemical staining for  $\alpha$ -smooth muscle actin, desmin, and progesterone and oestrogen receptors was positive. Staining for CD34 was negative.

At follow-up after cardiac surgery, there is no cardiac recurrence and no evidence of metastatic

## Learning points

- ▶ In this case report, we have presented a rare case of a huge benign leiomyoma that had metastasised from the uterus.
- ▶ Although pulmonary nodules were left behind, our surgical procedure is still likely to benefit this patient because of prevention of sudden death.
- ▶ Through our surgical procedure and histological examination, we were able to detect and treat the benign leiomyoma. The patient is alive and well 18 months after her surgery and is undergoing hormonal therapy.



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disease, or pelvic mass. She is currently undergoing hormonal therapy.

Benign metastasising leiomyomas exhibit a different pattern of spread, whereby usually a histologically benign leiomyoma displays metastatic qualities and is discovered at sites distant to the uterus.<sup>3–5</sup>

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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