A 35-year-old woman presented to the emergency room with a 2-month history of general malaise and anasarca. The chest x-ray showed cardiomegaly, and transthoracic echocardiography revealed massive pericardial effusion leading to cardiac tamponade (Figure 1A and 1B). Immediately, 1400 mL pericardial effusion (yellow exudate) was removed by needle pericardiocentesis. After the procedure, transthoracic echocardiography showed an immobile, heterogeneous tumor in the left atrium (LA) (Figure 1C and Movie I in the online-only Data Supplement).

Cardiac computed tomography revealed a well-circumscribed tumor located in the LA near the origin of the left pulmonary veins (Figure 1D and 1E and Movies II and III in the online-only Data Supplement). Cardiac magnetic resonance imaging showed that the tumor was isointense on T1-weighted images (Figure 1F) and hyperintense on T2-weighted images (Figure 1G). Coronary angiography revealed “tumor blush” with feeding arteries from the left circumflex artery (Figure 1H and Movie IV in the online-only Data Supplement), indicating hypervascularity.

Multimodality imaging (computed tomography, cardiac magnetic resonance, and echocardiography) indicated that the tumor was an LA intracavitary mass originating from the LA myocardium (LA). However, an intracavitary tumor cannot intrinsically produce pericardial effusion (the tumor must be located in the pericardial space to produce pericardial effusion). Therefore, the tumor was thought to invade the epicardium, and the differential diagnosis of hypervascular tumor included not only benign hypervascular tumor such as myxoma and hemangioma but also malignant tumor such as angiosarcoma.

After these preoperative examinations, the tumor was excised, and the patient’s recovery was uneventful. Initially, the tumor was considered to be myxoma because of its edematous, semitransparent appearance on macroscopic examination (Figure 2A). However, histopathology revealed that the tumor was a cardiac hemangioma (cavernous-capillary type) originating from the LA myocardium (Figure 2B–2E).

Cardiac hemangiomas are usually asymptomatic, but depending on the location of the tumor, they have been reported to cause arrhythmia, heart failure, outflow tract obstruction, angina, and pericardial effusion in rare cases. In our case, the tumor was initially recognized as an intracavitary mass, and it was not clear why the intracavitary tumor produced pericardial effusion. However, histology disclosed that the tumor extended to the epicardium and was located in the pericardial space, resulting in massive pericardial effusion. The tumor also forced the LA myocardium toward the LA cavity (Figure 2B and 2C), and this is why we misrecognized the extracavitary tumor as intracavitary.

References

Figure 1. Multimodality imaging of the left atrial (LA) tumor. Transthoracic echocardiography revealed massive pericardial effusion leading to cardiac tamponade (A and B). After removal of the pericardial effusion, the immobile, heterogeneous tumor was observed in the LA (C and Movie I in the online-only Data Supplement). Cardiac computed tomography (CT) showed a well-circumscribed tumor located in the LA wall near the origin of the left pulmonary veins (D and Movie II in the online-only Data Supplement). Reconstruction of CT images by the CARTO3 software (Biosense Webster, Diamond Bar, CA) indicated that the tumor was fed by the left circumflex (LCX) artery (E and Movie III in the online-only Data Supplement). Cardiac magnetic resonance imaging showed that the tumor was isointense on T1-weighted images (F) and hyperintense on T2-weighted images (G). Coronary angiography revealed “tumor blush” with feeding arteries from the left circumflex artery (H and Movie IV in the online-only Data Supplement). LAD indicates left anterior descending artery.
Figure 2. Histology of the left atrial tumor. Macroscopic view of the tumor (A). Because of its edematous semitransparent appearance, the tumor was initially regarded as myxoma. Overview of histology of the tumor (B; hematoxylin and eosin stain) and its conceptual scheme (C). The tumor invaded the epicardium and was located in the pericardial space, resulting in massive pericardial effusion. The tumor also forced the left atrial (LA) myocardium toward the LA cavity (C), and this is why we misrecognized the extracavitary tumor as intracavitary. The tumor was composed of a myxomatous area (D) and an area with multiple vessels (E). In the myxomatous area (D), a so-called “ring structure,” which is characteristic of myxoma, was not observed. In the area of multiple vessels (E), both dilated, thin-walled vessels (cavernous type) and smaller capillary channels (capillary type) were observed, indicating that the tumor was a cavernous-capillary type of cardiac hemangioma.
Rare Case of Cardiac Hemangioma Causing Massive Pericardial Effusion: Can a Left Atrial Tumor Produce Pericardial Effusion?

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_Circulation_. 2015;131:e21-e23
doi: 10.1161/CIRCULATIONAHA.114.013545

_Circulation_ is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0009-7322. Online ISSN: 1524-4539

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circ.ahajournals.org/content/131/3/e21

Data Supplement (unedited) at:
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