Left Ventricular Cardiac Hemangioma Presenting With Atypical Chest Pain
Mattias Roser, Ashraf Hamdan, Takeshi Komoda, Charalampos Kriatselis, Philipp Stawowy, Rudolf Meyer, Roland Hetzer, Christoph Knosalla and Ingo Paetsch

Circulation. 2008;117:2958-2960
doi: 10.1161/CIRCULATIONAHA.107.737486
Circulation is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2008 American Heart Association, Inc. All rights reserved.
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/117/22/2958

Data Supplement (unedited) at:
http://circ.ahajournals.org/content/suppl/2008/06/12/117.22.2958.DC1.html

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Circulation can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Circulation is online at:
http://circ.ahajournals.org/subscriptions/
A 54-year-old male patient presented with atypical chest pain and exertional dyspnea. The physical examination and chest x-ray were unremarkable; the ECG showed sinus rhythm with left-axis deviation and a pathological Sokolow-Index with concomitant ST-depression in leads I, aVL, and V5–V6. Transthoracic echocardiography revealed the presence of a homogenously echodense, mobile left ventricular mass (dimensions: 15 × 11 mm) attached to the intraventricular septum (Figure, E). Cardiac magnetic resonance imaging was performed for tissue characterization: On T1-weighted imaging (Figure, A), the mass was isointense compared with the left ventricular myocardium, whereas on T2-weighted imaging (Figure, B), homogeneously bright signal intensity was found. No signs of infiltrative growth were seen. During first-pass infusion of a gadolinium-containing contrast agent, no relevant signal intensity increase could be detected; however, on postcontrast imaging (delayed enhancement technique), some contrast agent uptake was detected.

A differential diagnosis of benign cardiac tumors with high signal intensity on T2-weighted imaging includes hemangioma and highly vascularized myxoma. Although myxoma are rarely located on the ventricular level and tend to show a heterogeneous signal intensity distribution resulting from cystic-regressive and necrotic areas, the homogeneously bright signal on T2-weighted imaging (light bulb sign) together with left ventricular localization favored the diagnosis of hemangioma. Invasive coronary angiography (Figure, C and D) excluded obstructive epicardial coronary disease; however, septal branches of the left ascending artery gave rise to an extensive capillary-like vascular net, and a typical tumor blush could be seen. Surgical resection of the mass was performed, and histopathologic evaluation (Figure, F through H) revealed mostly capillary-type vessels separated by sparse connective tissue. Immunohistochemically, a thin internal layer of cells with endothelial origin was established (endothelial marker CD31), thereby corroborating the diagnosis of capillary-type hemangioma (Figure, G). Our patient recovered uneventfully and was discharged home in good condition.

Primary tumors of the heart are rare and often diagnosed postmortem because of a mostly asymptomatic clinical course. The frequency of primary cardiac tumors seen at autopsy is approximately 0.02%.1 Three quarters of cardiac tumors can be classified histologically as benign, with myxoma being the most frequent entity. Hemangiomas of the heart are extremely rare, accounting for only 2% to 3% of all benign primary cardiac tumors. Hemangiomas can present at all ages, though the diagnosis is preferentially made during the 5th decade of life.2 Although cardiac hemangiomas are often asymptomatic, the main symptoms include dyspnea, palpitation, atypical chest pain, and arrhythmia. Other symptoms may result from compression of surrounding structures, obstruction of the outflow tracts, pericardial effusion, or embolization.3 Echocardiography represents the diagnostic imaging modality of choice to appropriately screen for cardiac tumors.4 Computed tomography and magnetic resonance imaging are complementary methods in the diagnostic workup of cardiac tumors. Magnetic resonance imaging is highly flexible with regard to the selection of imaging planes, which may prove helpful during preoperative planning. In addition, its inherently high soft-tissue contrast using different weightings usually provides a more distinct tissue characterization of the mass. In the present case, the cardiac hemangioma appeared isointense compared with the surrounding myocardium on native T1-weighted images, whereas it was homogeneously hyperintense on T2-weighted images (so called light bulb sign, which is due to the higher signal arising from the slowly flowing blood within the capillarized tumor).5 Coronary angiography will usually be an...
Figure. A, T1-weighted imaging with fast-spin echo and blackblood suppression in 4-chamber view. The tumor has an intermediate signal intensity, similar to myocardium. B, T2-weighted imaging with fast-spin echo and blackblood suppression in 4-chamber view showing high signal intensity of the tumor (arrow). C and D, Coronary angiography in right (C) and left (D) anterior oblique view demonstrating the vascular supply of the tumor via 2 septal branches of the left anterior descending coronary artery. Vascular lakes are also visible within the tumor (arrows). E, Transthoracic echocardiogram (apical 4-chamber view) showing a homogeneous, globular cardiac mass attached to the interventricular septum of the left ventricle. F, Surgeon’s view through open aortic valve demonstrated a smooth-walled, purple nodule 15 mm in diameter. G and H, Microscopic examination revealed large, endothelial-lined, blood-containing spaces with thick fibroblastic walls. Areas of capillary-type vessels were present. The channels were separated by sparse connective tissue. Immunohistochemical staining with the endothelial marker CD31 confirmed the presence of an internal layer of thin endothelial cells. G, CD31 staining, magnification ×10. H, Hematoxylin-eosin staining, magnification ×10.
integral part of the preoperative assessment to exclude obstructive coronary artery disease and to evaluate the feeding arteries or reveal encasement of coronary vessels by the tumor. Surgical resection is the treatment of choice for symptomatic cardiac hemangioma and is considered to be curative in most cases.6,7

Disclosures
None.

References