A 14-year-old girl with a history of a congenital cardiac tumor presented to our echocardiography laboratory for a routine reexamination. The diagnosis had been made in our laboratory in 1991 on her seventh day of life using an old-generation ultrasound machine (SSH-40A, Toshiba Medical Systems, Tokyo, Japan). The newborn had undergone echocardiographic evaluation because of a systolic murmur. Despite the low technical quality of the images (Figure 1 and Movie I), a large mass involving the interventricular septum (4.2 × 1.5 cm, as measured from the apical 4-chamber view), suggestive of a congenital cardiac tumor, was visualized. Subsequent analyses had supported the diagnosis of cardiac rhabdomyoma. No other significant comorbidities, including tuberous sclerosis—a genetic condition often associated with rhabdomyoma.1–3 No significant changes were noted in the dimensions of the mass (3.7 cm × 1.5 cm × 3.0 cm, volume: 13.9 cm3).

Congenital cardiac tumors are rare occurrences, having a prevalence of 0.14%.2 Rhabdomyomas are the most common tumors, accounting for about 50% of all cases in children.3 A strong association with tuberous sclerosis has been reported. Among subjects with cardiac rhabdomyoma, 51% to 86% have tuberous sclerosis, whereas more than half of patients with tuberous sclerosis show cardiac rhabdomyomas.4 These rhabdomyomas are usually characterized by multiple masses, with a pedunculated or rounding intramural shape, and they most commonly involve the ventricular myocardium. Cardiac rhabdomyomas may present at birth with a wide spectrum of clinical features, ranging from occasional echocardiographic detection in asymptomatic newborns to presentations with cardiac rhythm disturbances, Wolff-Parkinson-White syndrome, congestive heart failure caused by flow obstruction or valve regurgitation, and/or sudden death. Cardiac symptoms represent a common finding in the first years of life, but spontaneous regression of the tumor occurs in the majority of cases.4

These images illustrate the echocardiographic history of an isolated congenital cardiac rhabdomyoma in an asymptomatic female patient. The evolution of ultrasound techniques—particularly the possibility of performing real-time 3-dimensional imaging—has allowed considerably higher definition of tumor characteristics throughout years. The following unusual aspects should also be pointed out: 1) The tumor was not associated with tuberous sclerosis; 2) the rhabdomyoma was characterized by a single, multilobed mass; 3) the patient did not develop any cardiac symptom; and 4) the dimensions of the mass did not change significantly during a 14-year follow-up.

Acknowledgments
The authors thank Massimiliano Faberi, MCSE, for his important support in the digital acquisition and processing of the original echocardiographic video, stored on a VHS videotape in 1991.

From the Cardiology Operative Unit, S. Andrea Hospital, La Spezia (A.M., P.B.); Department of Pediatrics, University of Florence, Anna Meyer Children’s Hospital, Florence (A.M., M.d.M.); and Department of Cardiology, Fatebenefratelli ed Oftalmico Hospital, Milano (S.G.), Italy.

The online-only Data Supplement, which contains 5 movies, can be found at http://circ.ahajournals.org/cgi/content/full/114/21/e591/DC1.

Correspondence to Dr Piercarlo B allo, U.O. Cardiologia, Ospedale “S. Andrea,” Via Veneto 197, 19100 La Spezia, Italy. E-mail pcballo@tin.it (Circulation. 2006;114: e591–e593.)

© 2006 American Heart Association, Inc.

Circulation is available at http://www.circulationaha.org

DOI: 10.1161/CIRCULATIONAHA.106.637116
Figure 1. Original echocardiographic image obtained in 1991 using an old-generation ultrasound machine and stored using a VHS videotape. Despite the poor quality of the image, a large mass, highly suggestive of a congenital cardiac tumor, was detected within the interventricular septum (white arrow). LV indicates left ventricle; RV, right ventricle.

Figure 2. Echocardiographic parasternal long-axis view of the tumor (white arrow) at end-diastole. LV indicates left ventricle; RV, right ventricle.

Figure 3. Echocardiographic off-axis apical view, obtained by modifying a standard 4-chamber view to optimize visualization of the tumor (white arrow) at end-diastole. LV indicates left ventricle; RV, right ventricle.

Figure 4. Echocardiographic parasternal short-axis view of the tumor (white arrow) at end-diastole. LV indicates left ventricle; RV, right ventricle.

Figure 5. Three-dimensional echocardiographic image of the septal rhabdomyoma. The mass was characterized by an irregular multilobed architecture (white arrows) with inhomogeneous echogenicity. LV indicates left ventricle; RV, right ventricle.

Figure 6. Three-dimensional echocardiographic image showing the tumor as seen from the apex of the left ventricle. The mass showed 2 main lobes in the posterior portion of the septum (white arrows). IVS indicates interventricular septum; MAL, mitral anterior leaflet; MPL, mitral posterior leaflet; TAL, tricuspid anterior leaflet; TPL, tricuspid posterior leaflet; and TSL, tricuspid septal leaflet.
Disclosures

None.

References
Echocardiographic History of an Asymptomatic Congenital Cardiac Tumor: No Changes in Mass Dimensions During a 14-Year Follow-Up
Andrea Motto, Piercarlo Ballo, Arianna Bocelli, Silvana Gramenzi and Maurizio de Martino

Circulation. 2006;114:e591-e593
doi: 10.1161/CIRCULATIONAHA.106.637116
Circulation is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2006 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/114/21/e591

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/