ILLUSTRATIVE ECHOCARDIOGRAM

Echocardiographic Demonstration of Bilateral Atrial Myxomas*


The echocardiographic manifestation of both left and right atrial myxomas has been previously reported, and numerous articles attest to the contribution of echocardiography to the diagnosis of these important tumors.1-5 This report concerns a case in which bilateral atrial myxomas were diagnosed by echocardiogram, and it emphasizes the possible multichambered location of myxomas and the usefulness of echocardiographic studies in the diagnosis.

CASE REPORT

A 15-year-old girl was admitted to Fitzsimons Army Medical Center for evaluation of syncope, a changing cardiac murmur, and arrhythmia. A cardiac murmur had been noted in the first year of life, but no specific diagnosis had been made. The murmur was heard intermittently throughout childhood, when the patient was examined for repeated respiratory infections. The possibility of acute rheumatic fever was considered but not confirmed.

From the age of six to nine years, the patient was seen by a pediatric cardiologist, and a presumptive diagnosis of Ebstein's anomaly of the tricuspid valve was made. This possibility was investigated by right cardiac catheterization in 1970. The study was interpreted as showing no evidence of abnormal placement of the tricuspid valve. Right atrial angiograms to delineate the tricuspid valvular position showed distortion of the right atrial chamber, raising the question of an intracavitary mass. Repeat cardiac catheterization was recommended because of the question of an atrial mass and the changing auscultatory findings during repeated follow-up examinations. Because of the asymptomatic status of the patient, the recommendation was declined by the family. She remained asymptomatic during the subsequent four years, until an episode of protracted syncpe prompted hospitalization and reevaluation.

The patient was an agitated young lady with frequent premature ventricular contractions. Positive findings were limited to the cardiovascular examination. The most noteworthy auscultatory finding was a prominent early and mid-

FIGURE 1. Echocardiogram showing bilateral atrial myxomas. Note left atrial myxoma (LAM) behind anterior leaflet of mitral valve (ALMV) prolapsing from left atrium in ventricular diastole. Right atrial myxoma (RAM) is represented by shower of echoes prolapsing into right ventricle (RV) behind tricuspid valve (TV). S, Interventricular septum.
diastolic rumbling murmur heard both at the lower left sternal edge and at the apex. The murmur varied markedly in intensity and duration, being particularly prominent after an extrasystole and during inspiration. The cardiac findings and prior history suggested the possibility of a mitral obstruction lesion and prompted echocardiographic study. The echocardiogram (Fig 1) clearly demonstrated the presence of bilateral atrial masses, consistent with chamber myxomas.

Surgery was performed, with excision of the bilateral atrial myxomas; the left atrial mass measured $3 \times 4 \times 3$ cm, and the right atrial tumor measured $5 \times 6 \times 6$ cm. The myxomas originated from the same area on each side of the atrial septum. A separate and much smaller mass was present in the left atrial appendage. The postoperative course was uneventful. Postoperative echocardiograms showed normal motion of both mitral and tricuspid valves (Fig 2 and 3).

DISCUSSION

This briefly reviewed case demonstrates many of the problems encountered in numerous case reports of patients with atrial myxomas. The possibility of congenital or acquired mitral or tricuspid disease were recurrent themes as she was evaluated by numerous physicians throughout her childhood years. The definitive diagnosis of bilateral atrial myxomas was established by echocardiographic studies, making it possible to avoid additional invasive cardiac studies prior to surgery.

A review of the technical aspects of the echocardiographic recording seems warranted. An 11 mm 2.25-MHz transducer was utilized for this study, with the conviction that the smaller transducer facilitated the examination of the right side of the heart. The best "window" for the echo beam was located at the fourth intercostal space approximately 8 cm from the left sternal edge. From this area the dense echoes of the left atrial myxoma behind the mitral valve were easily seen. When the transducer was shifted to define the motion of the interventricular septum, it was noted that there were identical-appearing echoes of the right atrial myxoma, prolapsing with the tricuspid valve into the right ventricle. With slight angulation of the
beam in the medial and anterior position, the closing motion of the tricuspid valve could be seen, followed by a shower of dense echoes as the valve opened. It was thus possible to demonstrate simultaneously the echocardiographic appearance of both the right and left atrial myxomas. Postoperative echocardiograms showed the absence of the echoes behind both mitral and tricuspid valves.

Emphasis has been placed on the need of each echocardiographic examination to be a "complete study." The value of such a discipline is demonstrated by this case and suggests that in the future, additional multichambered myxomas may be encountered by this noninvasive technique. As additional experience is obtained with such studies, echocardiograms may obviate the need for cardiac catheterization or chamber angiographic studies and may remove the possibility of dislodging the tumor during manipulation of the cardiac catheter.19

REFERENCES
4 Prichard RW: Tumors of the heart: Review of the subject and report of 150 cases. Arch Pathol 51:98-128, 1951
8 Goodwyn JF: Diagnosis of left atrial myxoma. Lancet 1:464-467, 1963

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