

Case Report

Minimally Invasive Cardiac Surgery for Resection of Right Atrial Hepatic Tumor in an Octogenarian

Tsung-Po Tsai
Jung-Min Yu

Department of Cardiothoracic Surgery,
Chung Shan Medical University Hospital;
and Chung Shan Medical University School
of Medicine, Taichung, Taiwan, R.O.C.

Removal of right atrial hepatic tumor with caval involvement requires control of bleeding, avoidance of tumor embolization, and adequate resection. We reported an octogenarian having hepatocellular carcinoma with caval and right atrial involvements who underwent successful resection using cardiopulmonary bypass and intraoperative transesophageal echocardiography. [*Chin Med J (Taipei)* 2002;65:345-347]

Key Words

cardiac tumor;
octogenarian;
minimally invasive cardiac surgery

Many people, both medical professionals and the lay public, are questioning the appropriateness of major cardiac surgical procedures in octogenarians with limited life expectancies. However, selected octogenarians such as patients with cardiac symptoms should be referred for surgical management when all other therapies have failed in order to avoid frequent admissions and to provide a better quality of life.^{1,2}

Case Report

An 83-year-old married male was admitted with a 3-month history of dizziness, repeated syncope episodes, chronic cough and dyspnea on exertion. The patient had a history of chronic hypertension, benign prostate hypertrophy and had undergone hepatic lobectomy for hepatocellular carcinoma at National

Taiwan University Hospital 6 years previously. The surgical outcome was excellent until recent examinations showed positional hemodynamic alterations that included the classical early diastolic "tumor plop" sound. Duplex Doppler scans of both carotid arteries were negative. However, color-coded Doppler 2D echocardiography as well as computed tomography (CT) of the thorax and magnetic resonance image (MRI) revealed a huge hepatic tumor mass, which extended from the inferior vena cava to the right atrium and obstructed the tricuspid orifice during the diastolic phase (Fig. 1, 2 and 3). Because of frequent admissions (3 times within 6 months) and unmanageable symptoms, the patient underwent palliative resection of right atrial hepatoma (Fig. 4) by minimally invasive cardiac surgery (MICS) through upper half median sternotomy. We used femoral arterial and bicaval cannulations for cardiopulmonary

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Correspondence to: Tsung-Po Tsai, MD, Department of Cardiothoracic Surgery, Chung Shan Medical University Hospital, 110, Sec. 1, Chien-Kuo N. Road, Taichung, Taiwan. Fax: +886-4-2472-8905; E-mail: tsai@csh.org.tw

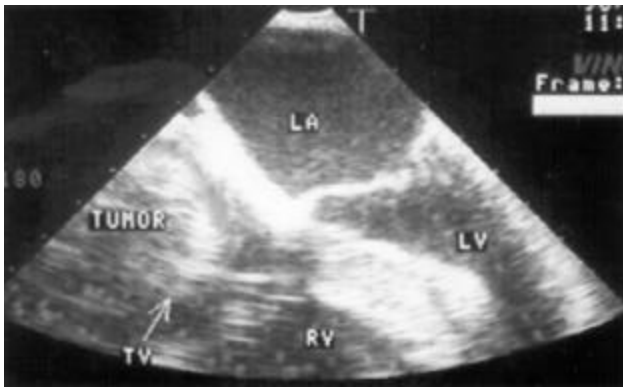


Fig. 1. 2D-doppler echocardiography before atrial tumor resection.

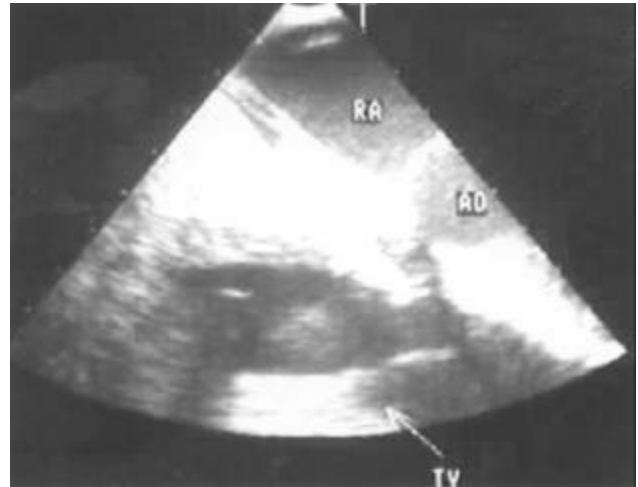


Fig. 4. 2D-doppler echocardiography (TEE) after atrial tumor resection.

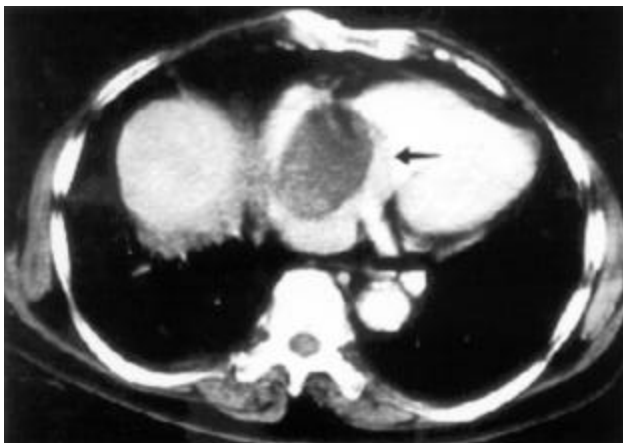


Fig. 2. CT scan of the chest after atrial tumor resection.



Fig. 3. MRI of the chest after atrial tumor resection.

by pass (CPB), aortic cross-clamping and antegrade blood cardioplegic arrest. Also intra-operative transesophageal echocardiography (TEE) was per-

formed to detect any possible tumor thrombo-embolism. The patient was discharged from the hospital 11 days after surgery. He was doing well at the 12-month follow-up. He was satisfied with his quality of life and was able to visit Japan twice and play 9-holes of golf every week. The patient died of rupture of hepatoma 13 months after surgery despite repeated transarterial embolization (TAE).

Discussion

Consideration of surgical intervention in octogenarians is made on the basis of their life expectancy in terms of other disease factors, and the risk-to-benefit ratio should be assessed individually. An improvement in functional status and acceptable long-term survival are mandatory in light of the intense scrutiny of the delivery of expensive technology under the provisions of the national health care reform in Taiwan. This is especially practically relevant because the trend is rapidly moving toward achieving cost-effective outcomes.

It remains unclear if hepatocellular carcinoma with tumor propagation into the vena cava responds favorably to excision if there is absence of extensive nodal or distant metastases. Previous techniques to isolate and excise tumor that has extended above the diaphragm have included venovenous shunting, vas-

cular isolation with cross-clamping of the abdominal aorta, balloon catheter retrieval, cardiopulmonary bypass, and hypothermic circulatory arrest.^{3,4} However, controversy remains regarding the best operative approach to tumors with extension into the suprahepatic IVC and right atrium. We now report a successful case of palliative resection of right atrial hepatoma using cardiopulmonary bypass with femoral arterial and bicaval cannulations through reversed T upper half median sternotomy approach. We used bicaval instead of femoral venous cannulations in order to avoid possible thromboembolism from dislodging tumor fragments during insertion of the femoral venous cannula.

Intracavitary cardiac metastasis is an uncommon form of secondary cardiac malignancy, and hepatoma with right atrial metastasis is even less common.⁵ Usually, the right heart involvement of hepatocellular carcinoma is not noticed until post mortem examination. Use of echocardiography and/or angiography could help physicians to more promptly diagnose and plan surgical removal of the right atrial hepatoma.⁶ By virtue of its versatility, safety and reliability in diagnosis of right atrial masses, echocardiography would be one of the most useful diagnostic tools for this entity. Therefore, we advocate routine echocardiographic examinations in those cases of hepatoma with cardiac symptoms, murmur or signs of vena cava obstructions.

In view of the high risk of sudden death from

tricuspid valve obstruction in this particular octogenarian with mobile right atrial hepatic tumor, there is little doubt that prompt diagnosis (by echocardiography, CT or MRI scans) and surgical removal prolonged this patient's life and provided a better quality of life.

References

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