A CASE OF EPICARDIAL CYST

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A rare case of epicardial cyst diagnosed at surgery was presented.
A 64-year old woman was admitted for evaluation of a mediastinal mass shown by echocardiography to be adjacent to both ventricles. Computed tomography (CT) and magnetic resonance imaging (MRI) studies were performed. On CT, there was evidence of an abnormal mass lesion at the lateral side of the outlet of the right ventricle. The CT number of the mass was 24.7, suggesting cystic lesion. MRI revealed that the intensity of the lesion signal was higher than that of subcutaneous fat on the T2 weighted image. On the T1 weighted image, a low intensity was identified in the same region. During operation a mass originating from the epicardium was diagnosed as an epicardial cyst.

Cases of pericardial cyst have been reported by many authors. However, case reports of an epicardial cyst are extremely rare. We have found only 2 case reports of an epicardial cyst, one by Edwards in 1972 in the United Kingdom, and another by Komeda in 1985 in Japan. We recently diagnosed an epicardial cyst and accomplished a successful resection.

CASE REPORT
A 64-year-old Japanese housewife was admitted to our hospital detailed evaluation of an abnormal mass lesion shown adjacent to the ventricles by echocardiography (Fig. 1).
She was 155 cm in height and 55 kg in weight. Her blood pressure was 110/70 mmHg, and pulse was 80/min and regular. Heart sounds were normal in intensity and there were no audible murmurs or a friction rub. There were no other abnormal physical findings in the chest and abdomen.
Laboratory data on admission were as follows: RBC 363×10^6/mm^3, Hb 11.7 g/dl, Ht. 34.8%, WBC 2700/mm^3, platelet 17.9×10^4/mm^3, total protein 7.6 g/dl, total bilirubin 0.4 mg/dl, SGOT 12 KU/ml, SGPT 10 KU/ml, LDH 248 IU/l, total cholesterol 216 mg/dl, BUN 13 mg/dl, creatinine 0.8 mg/dl, Na 146 mEq/l, K 3.6 mEq/l, Cl 105 mEq/l, CRP (−).

The chest roentgenogram showed a projection of a part of the lower left cardiac segment (Fig. 2). Cardiac pool scintigraphy using 99 mTc-HSA showed a spindle-shaped area of decreased radioactivity immediately above the left ventricle on the anterior view (Fig. 3). The electrocardiogram revealed a normal sinus rhythm, counterclockwise rotation of the QRS long axis and high R waves in the left precordial leads and left ventricular hypertrophy pattern (Fig. 4). There was evi-

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Fig. 1. The short axis view of the echocardiogram shows an anechoic mass lesion adjacent to the right and left ventricle.

Fig. 2. The chest roentgenogram shows a projection (†) of a part of the lower left cardiac segment.

Fig. 3. Cardiac pool scintigraphy (15mCi of 99mTc-HSA) A spindle shaped area of decreased radioactivity (†) is shown just above the left ventricle.

Evidence of an abnormal mass lesion at the lateral side of the outlet of the both ventricles on CT. The contour of the mass lesion was smooth, and its density was homogeneous. As the CT number of the mass lesion was 24.7, it was suspected to be a cyst (Fig. 5). MRI revealed that the intensity of the lesion signal was higher than that of subcutaneous fat on the T2 weighted image. On the T1 weighted image, a low intensity was identified in the same region. The results of these imaging procedures suggested a pericardial or epicardial cyst (Fig. 6). Cardiac catheterization and angiography were performed for further evaluation of the mass lesion. No apparent abnormal feeding

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arteries or neovascular development were shown in the lesion adjacent to the anterolateral wall.

On operation, the pericardium appeared normal. After pericardiectomy, the heart and the cyst were exposed (Fig. 7A). The cyst was $30 \times 30$ mm in size, elastic, soft, and well distended. It was situated on the right and left ventricles, mainly on the anterior wall of the left ventricle, and was covered by the epicardium on its surface and compressed the left anterior descending artery to the right. There was no adhesion between the cyst and the pericardium. Free wall tissue of the cyst was resected, with care being taken to not injure the coronary arteries and their branches (Fig. 7B). The cyst was opened into the pericardial cavity and found to contain 18 ml of yellow fluid. Cytologic studies of the fluid revealed no malignant cells. The protein level of the fluid was 5.8 g/dl., GOT 9 KU/ml, LDH 257 IU/l, Na 143 mEq/l, K 3.8 mEq/l, Cl 102 mEq/l. Histological examination of the cyst demonstrated a fibrous wall lined by a layer of mesothelial cells (Fig. 8). The wound was closed in a routine manner.

**DISCUSSION**

Cases of pericardial cyst have been reported by many authors. According to Le Roux, the incidence is 1:100,000. In Japan,
Fig. 6. Magnetic resonance imaging
Low intensity in T1 weighted image (T1) and high intensity in T2 weighted image (T2) of the mass lesion can be identified.

Fig. 7. A: On pericardiotomy the epicardial cyst was found to be located above the left ventricle.
B: The cyst was incised showing its inner structure.

Fig. 8. Photomicrograph of the resected specimen shows a fibrous wall lined by a layer of mesothelial cells.

the first case of a pericardial cyst was reported by Kasai et al in 1957 and since then about 200 cases have been reported. However, case reports of an epicardial cyst are extremely rare. We found only 2 case reports of an epicardial cyst, one by Edwards in 1972 in the United Kingdom, and another by Komeda in 1985 in Japan. Lambert considered that extrapericardial cysts would develop as a result of failure of coalescence of these mesodermal space. Lillie et al, however, suggested that these malformations could occur when the coalescence was complete; at this stage the pericardial cavity.
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communicates with the peritoneum by means of the paired pleuropertitoneal canals running dorsally and also possesses 2 ventral recesses which end in the transversal septum. Abnormalities of development of the ventral recesses would explain not only the presence of an extrapericardial cyst, but also pericardial diverticula.

The patient with an epicardial or pericardial cyst is generally asymptomatic. However, when the cyst grows large enough to compress the surrounding organs, symptoms will appear. Moreover, the possibility of malignancy cannot be ruled out without exploratory cardiotomy.

Differential diagnosis from several other tumors is required; teratomatous cyst, bronchogenic cyst, lymphangioma, pericardial fat tissue, aortic aneurysm, lung cancer and malignant lymphoma. Chest X-ray films, two-dimensional echocardiography, CT and MRI are useful in diagnosing a cystic lesion, although these procedures will not distinguish between epicardial cysts and pericardial cysts.

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REFERENCES