INTRAOPERATIVE MONITORING OF PRESSURE-VOLUME LOOPS OF THE LEFT VENTRICLE IN PERICARDECTOMY FOR CONSTRICTIVE PERICARDITIS

Hideo Kuroda, MD, Masayuki Sakaguchi, MD, Tamaki Takano, MD, Hideo Tsunemoto, MD, Masanori Shinohara, MD, Yukio Fukaya, MD, and Jun Amano, MD, *Matsumoto, Japan*

We recently encountered a case of idiopathic constrictive pericarditis with severe ascites. At the time of pericardectomy, intraoperative monitoring of the pressure-volume (p-v) loops of the left ventricle by the conductance catheter method^{1,2} was useful to evaluate the effects of the procedure.

The patient was a 58-year-old man. At 56 years old, he had discomfort in his chest and dyspnea with exertion. The symptoms did not improve with medical manage-

ment. At 57 years old, he had ascites, which gradually worsened. When he was 58 years old, he was admitted to our hospital for further examination.

His height was 165 cm, his weight was 64 kg, and the girth of his abdomen was 98 cm. Massive ascitic fluid was noted and no heart murmur was heard. Blood chemistry tests showed hypoalbuminemia (3.5 gm/dl) and marked elevation of alkaline phosphatase (1086 U/ml). An α_1 -antitrypsin clearance test of stool revealed no loss of protein into the digestive tract. Chest radiographs showed a slight increase in the size of cardiac shadow and slight left-sided pleural effusion. Computed tomography of the chest disclosed thickening of the pericardium (5 to 7 mm) and slight pericardial effusion. Cultures of pleural effusion, ascitic effusion, and sputum were free of pathogens. Preoperative cardiac catheterization data were as follows: right atrium, 25 mm Hg; right ventricle, 48/~30 mm Hg; pulmonary artery, 42/22 mm Hg; and pulmonary capillary wedge pressure, 25 mm Hg. The pressure tracing of the right ventricle showed the dip and plateau pattern. In view of

From the Department of Surgery, Shinshu University School of Medicine, Matsumoto, Japan.

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Fig. 1. Normal p-v loops (a), before pericardectomy (b), after pericardectomy between the right and left phrenic nerves (c), and after pericardectomy under cardiopulmonary bypass (d).

these clinical findings, this patient was considered to have idiopathic constrictive pericarditis in New York Heart Association (NYHA) class IV. Pericardectomy was indicated. We planned to monitor the p-v loops of the left ventricle during operation to evaluate the effects of the procedure.

In December 1994, an operation was performed through a median sternotomy. A catheter-tip micromanometer and a conductance catheter were introduced into the left ventricle through the ascending aorta. The preoperative p-v loops showed an unusual shape (Fig. 1, *b*) compared with normal p-v loops (Fig. 1, *a*). After the removal of the pericardium between the right phrenic nerve and the left phrenic nerve, a small degree of improvement was noted on the p-v loops (Fig. 1, *c*), but the shape remained basically the same as before operation. We added resection of the thickened pericardium attached to the lateral and the inferior walls of the left ventricle under cardiopulmonary bypass with cannulation of the right atrium and the femoral artery. The p-v loops after weaning from bypass were almost normal (Fig. 1, *d*). We considered the operations successful.

The postoperative course was generally good. In the early phase after operation, the patient needed relatively high doses of diuretics and plasma products. Thereafter, ascitic fluid gradually decreased and subjective symptoms showed obvious improvement. Cardiac catheterization after 42 postoperative days showed obvious improvement: right atrium, 12 mm Hg; right ventricle, 33/~12 mm Hg; and left ventricle, 105/~15 mm Hg. Blood chemistry test revealed a manifest decrease of alkaline phosphatase (660 U/L, compared with 1086 U/L before operation). The patient's body weight and the girth of his abdomen reduced and were almost stable (56 kg and 79 cm, respectively) with furosemide (Lasix) at a dosage of 80 mg orally. The patient was discharged after 45 postoperative days.

Clinical results of pericardectomy (mainly between the

right phrenic nerve and the left phrenic nerve) for constrictive pericarditis are generally stable and good for patients in NYHA classes I, II, and III, whereas results for patients in NYHA class IV are usually poor.^{3,4} In addition, there is persistent controversy regarding the optimal extent of pericardial resection for each case, and evaluating the effects of resection is difficult during operation. We therefore planned to monitor the p-v loops of the left ventricle for this patient in NYHA class IV to evaluate the effects of the procedure and to determine the optimal extent of pericardial resection. Intraoperative normalization of the p-v loops led us to expect a good postoperative course. In line with our expectations, NYHA class (postoperative class II), ascitic level, and clinical data had improvement obvious and were stable after operation.

This case showed that intraoperative monitoring of the p-v loops of the left ventricle, easily performed by the conductance catheter method, expresses well the cardiodynamics of the individual heart and is an excellent and useful technique for evaluating the effects of pericardectomy for constrictive pericarditis.

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TRANSAORTIC VIDEO-ASSISTED EXCISION OF A LEFT VENTRICULAR PAPILLARY FIBROELASTOMA

Keith B. Allen, MD,^a Marshall Goldin, MD,^b and Ramon Mitra, MD, PhD,^c *Indianapolis, Ind., and Chicago, Ill.*

Papillary fibroelastomas are rare intracardiac tumors that can arise from any endocardial surface. Before the advent of echocardiography, diagnosis was primarily an

incidental finding at autopsy or operation. Despite the diminutive size of papillary fibroelastomas, surgical excision is generally indicated to prevent life-threatening coronary, cerebral, and systemic emboli. This article reports the first video-assisted removal of an intracardiac tumor.

A 57-year-old white man was admitted for evaluation of recurrent atrial fibrillation. Previous operations included myomectomy for idiopathic hypertrophic subaortic stenosis 10 years before this admission. History, results of physical examination, and laboratory profile were unremarkable. Despite appropriate medical therapy, the patient remained in atrial fibrillation.

Before elective cardioversion, a two-dimensional echo-

From the Department of Cardiovascular-Thoracic Surgery, St. Vincent Medical Center, Indianapolis, Ind.,^a and the Departments of Cardiovascular-Thoracic Surgery,^b and Cardiology,^c Rush-Presbyterian-St. Luke's Medical Center, Chicago, Ill.

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