Congenital Fistula of the Right Coronary Artery-Left Ventricle
— A Case Report —

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ABSTRACT: While the incidence of right coronary artery-left ventricle fistulae is low, cardiac catheterization, ascending aortogram and selective coronary angiogram led us to suspect the presence of such a fistula in a 10-year old female patient. Arteriorrhaphy with additional ligation was performed and the patient is in good health more than one year after surgery.

KEY WORDS: coronary artery fistula, coronary angiogram, arteriorrhaphy, intratrabecular sinusoid, heart failure, myocardial ischemia, bacterial endocarditis, arrhythmia.

INTRODUCTION

The incidence of congenital fistulae of the coronary artery is low. Krause was the first to describe such a case in 1865 and since then, about 200 additional cases have been reported. Fistulae between the right coronary artery and left ventricle are extremely rare. To our knowledge, only 10 such cases have been reported to date. Eight of these 10 patients underwent surgery and seven were in good health at the time of this writing. In this paper, we describe a case of congenital fistula between the right coronary artery and the left ventricle. The case was successfully treated by surgical closure of the communication.

CASE REPORT

A 10-year old female was admitted to Osaka Medical College Hospital in September, 1975 for surgical repair of the fistula. Her mother had been in good health during the pregnancy, and the patient was born at full term weighing 3.6 kg. During the neonatal period and childhood, the patient had been in good health and physical and mental development was normal. A heart murmur was discovered at the age of eight years, but was not accompanied by exercise intolerance, dyspnea, palpitation, weakness, or fatigue.

Physical examination of the patient revealed her to be of healthy appearance, 148 cm in height and 41 kg in weight. The heart rate was 80/min with regular rhythm. The pulse was celer and the blood pressure was 120/50/0 mmHg. The precordium showed no deformity and no thrill was palpable. A grade 2/6 soft early systolic murmur and a grade 3/6 holo-diastolic murmur were heard in the precordium. These murmurs were found to be transmitted to the left axillary and left upper back region. The second sound was

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ECG findings

slightly accentuated and normally split. A pistol-shot sound was audible on the bilateral femoral arteries. ECG showed a normal sinus rhythm and slight left ventricular hypertrophy. A small Q-wave was found in leads III and aV₉ (Fig. 1). Roentgenogram showed an almost normal cardiac silhouette and pulmonary vascularity with a cardiothoracic ratio of 51 per cent (Fig. 2). Right cardiac catheterization revealed normal pressure and blood-gas levels of the right side of the heart and pulmonary artery. Left ventricular end diastolic pressure was 11 mmHg. No left-to-right shunt was evidenced. Cardiac index was 4.3 L/min/m².

Selective coronary angiogram demonstrated a strikingly dilated right coronary artery terminating in the posterior wall of the left ventricle. A jet-like opacification was seen, directed towards the anterior wall of the left ventricle. The dilated right coronary artery was smooth-walled and neither tortuous nor calcified. Dilatation increased and became more apparent during the diastolic phase (Fig. 3).

Surgical repair of the fistula was performed on December 19, 1975. The heart was exposed through midsternal splitting. The heart size was within normal range and the great vessels were positioned normally and showed no abnormalities. The color of the myocardium was almost normal and neither necrosis nor scars were detected. The left coronary artery appeared to be normal. The right coronary artery, although its origin and course were almost normal, was dilated to about 8 mm and terminated at the pos-