

Early Closure Of Coronary Cameral Fistula In A 3.9 kg Infant

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ABSTRACT

Congenital communications between the coronary artery and cardiac chambers are rare. The majority of cases present in adulthood. We report a patient with a coronary cameral fistula in which surgical closure of the fistula was performed at 10 weeks of age at a weight of 3.9 kg. We recommend early closure of coronary cameral fistula in symptomatic patients. Low weight or young age at presentation should not be a limiting factor.

Keywords: coronary cameral fistula, surgery

INTRODUCTION

Congenital communications between the coronary artery and cardiac chambers are rare. The majority of cases present in adulthood and neonatal presentation is less common⁽¹⁾. Although many authors advocated surgical closure even in asymptomatic patients, others have expressed doubts about surgical treatment as spontaneous closure or regression of the lesion has been reported⁽¹⁻⁴⁾. We present a case of a neonate who presented with a coronary cameral fistula in which surgical closure of the fistula was performed at 10 weeks of age at a weight of 3.9 kg. We recommend that coronary fistula should be closed at an early age especially if symptomatic.

CASE REPORT

A 3.35 kg infant girl born after an emergency Caesarean section had a cardiac murmur detected on the second day of life. A 2-D and doppler echocardiogram was performed and revealed a large right coronary artery measuring 8 mm which emptied directly into the right ventricle. She was followed up and noted to have poor weight gain and required lasix and digoxin for control of cardiac failure. At the age of 12 weeks, she weighed only 3.9 kg. She was tachycardic with a heart rate of 140 beats per minute. There was a grade 3/6 pan systolic murmur heard over the left sternal edge. She was tachypnoeic with a respiratory rate of 60 per minute and her liver was palpable 4 cm below the costal margin. Cardiac catheterisation was performed and confirmed the presence of a large right coronary artery which emptied directly through a single communication into the right ventricle.

At surgery, the right coronary artery was found to be aneurysmal measuring approximately 1 cm (Fig 1). The coronary artery was opened along its length and the fistulous opening to the right ventricular

chamber was identified. As the tissue of the coronary artery surrounding the fistula was pliable, it was easily closed using a two-layer of running 7/0 prolene suture. The coronary artery itself was then closed using a single layer of 7/0 prolene suture. The patient's postoperative course was essentially uneventful with improvement of the congestive cardiac failure and disappearance of the heart murmur. At time of discharge, there was no fistula detected on 2-D and doppler echocardiography.

DISCUSSION

Direct communications between the coronary arteries and any of the cardiac chambers are termed coronary arteriovenous fistulae or coronary cameral fistulae. The natural history of these fistulae is not precisely known but these fistulae are thought to be present at birth or develop early in life. Daniel et al reviewed the literature and found that if congestive cardiac failure did not occur early in life, it rarely occurred before the second decade⁽⁵⁾. In symptomatic patients, it is widely accepted that surgical closure should be

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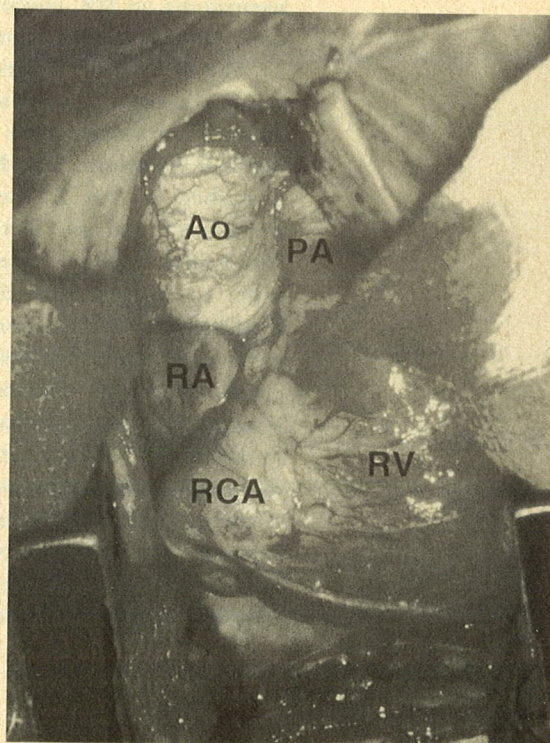


Fig 1 - Surgical appearance of coronary cameral fistula. (Ao = aorta, PA = pulmonary artery, RA = right atrium, RV = right ventricle, RCA = aneurysmal right coronary artery).

performed and some authors advocate surgical closure even in asymptomatic patients because of the uncertainty of the natural history as well as the low risk of surgery especially if the shunt is large⁽²⁾. Others have expressed doubts about surgical treatment in asymptomatic patients as spontaneous closure or regression of the lesion has been reported^(3,4). Diagnosis is easily established on 2-D or doppler echocardiography although coronary angiographic assessment should be undertaken to identify all communications between the coronary artery and the draining chamber. Various techniques of surgical closure with or without cardiopulmonary bypass have been described with good results. More recently, percutaneous transcatheter techniques have been reported⁽⁵⁾. In patients with aneurysmal coronary arteries as in this case, the coronary artery was opened along its length so that all fistulous connections could be identified. Direct suturing of the fistula was done as the tissue on the coronary aspect of the fistula was pliable. Congestive cardiac failure in the first year of life is rare and most patients present in adult life⁽¹⁾. With the widespread availability of echocardiography, more patients are being diagnosed at an earlier age although surgical correction in the neonatal period is not well documented. The youngest patient reported

was a five-week-old infant whose weight was not stated⁽⁶⁾. The smallest patient reported was by Daniel et al who presented a patient operated at 6 weeks of life weighing approximately 4.1 kg. Although it is probable that infants smaller than our patient have been successfully treated surgically, to our knowledge, this has not been reported in the English literature. We recommend early closure of coronary cameral fistula in symptomatic patients and young age at presentation should not be a limiting factor.

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