Case Report

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Pseudocoarctation of the aorta

Phong Teck Lee[1,*]; Ju Le Tan[2]

[1]Consultant Cardiologist, National Heart Centre Singapore.

[2]FACC, FESC, Senior Consultant Cardiologist, National Heart Centre Singapore.

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***Corresponding Author:** Phong Teck Lee, National Heart Centre Singapore, 5 Hospital Drive, Singapore 169609.
Email: lee.phong.teck@singhealth.com.sg

Introduction

Pseudocoarctation of the aorta was first described in 1951 and remains a relatively rare congenital anomaly [1]. We present a case of pseudocoarctation of the aorta which was detected on magnetic resonance imaging (MRI).

Case report

A 19-year-old gentleman with suspected coarctation of aorta was referred for magnetic resonance imaging (MRI). Twelve-lead electrocardiogram showed right bundle branch block. On clinical examination, there was a soft ejection systolic murmur in the left parasternal edge. He was asymptomatic with excellent exercise capacity. MRI was performed with Siemens Aera 1.5-Tesla scanner. The entire aorta was reconstructed with three-dimensional rendered imaging from non-contrast aortogram. The aorta appears elongated an unusually "high" aortic arch up to the level of the clavicle. This results in a large distance between the aortic arch and the pulmonary artery bifurcation. The descending aorta is mildly kinked at the level of the ligamentum arteriosum with no significant stenosis (Figure/Video). Phase contrast assessment at the level of the kink demonstrated absence of significant stenosis with a maximal velocity of 1.5 m/s. There was no evidence of collateral artery formation. The left ventricular volumes and systolic function were normal and there was no evidence of myocardial hypertrophy. These findings are consistent with a diagnosis of pseudocoarctation of the aorta.

Discussion

Pseudocoarctation of the aorta consists of elongation and kinking of the aortic arch and narrowing of the aortic isthmus without significant obstruction. The exact etiology of pseudocoarctation of the aorta is unknown. Postulated embryologic cause include failure of the compression of the third through the seventh segments of the dorsal aortic roots and the fourth arch segment [2].

Features of pseudocoarctation of the aorta are best visualized using three-dimensional reconstruction of the aorta by computed tomography (CT) or magnetic resonance imaging (MRI). The elongation of the arch frequently produces an unusually high aortic arch in the mediastinum and increased distance between the origins of left common carotid artery and left subclavian artery [3]. The left subclavian artery also has a more caudal origin [3]. Other features include absence or only a mild degree of luminal stenosis, absence of collateral circulation and absence of left ventricular hypertrophy and ascending aortic dilatation [4]. These features are present in our case. Concomitant congenital heart lesions have been reported in association with pseudocoartation of the aorta [2]. It could also be associated with distal aneurysmal dilatation. While pseudocoarctation of the aorta is usually benign, cases of aneurysm formation and rupture have been reported [2, 3]. As such, surgical treatment is recommended for symptomatic cases, or those associated with aneurysm formation, and regular follow-up for asymptomatic patients.

This case highlights the imaging features of pseudocoarctation of the aorta. We demonstrated the utility of CMR, especially three-dimensional reconstruction imaging and phase contrast assessment in the diagnosis of pseudocoarctation of the aorta.

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