Interrupted Aortic Arch in an Asymptomatic Adult*

Cheuk-Kit Wong, M. B.; Chun-Ho Cheng, M. B.; Chu-Buk Lau, M. B.; Wing-Hung Leung, M. B.; and Fu-Luk Chan, M. B.†

Isolated interrupted aortic arch is a rare congenital cardiac disorder believed at one time to be incompatible with life once the ductus arteriosus closed. To our knowledge, only 12 cases have been reported in the literature and mostly in children. The diagnosis was made in all of them by catheterization. We report the first adult patient with an asymptomatic interrupted aortic arch diagnosed by computed tomography. (Chest 1989; 96:676-79)

Interruptation of the aortic arch is a rare anomaly. Although commonly associated with serious complex cardiac lesions with a poor prognosis, cases of isolated interruption have been reported with symptoms of exertional claudication and paresthesia in childhood. The site of the interruption has been used for classification. Type A interruption occurs distal to the subclavian arteries, type B occurs distal to the left common carotid artery, and type C just distal to the origin of the innominate artery. The genesis of aortic interruption and the more commonly encountered aortic coarctation have been investigated by various workers. CT appearance of aortic coarctation has recently been described. We report the first adult patient with an asymptomatic type A aortic interruption diagnosed by CT.

Case Report

A 33-year-old man presented to our medical unit for investigation of hypertension. On physical examination he was well built, with blood pressure of 160/100 mm Hg. The pulses were equal over both upper limbs, and a radial-femoral delay was noted. Both femoral pulses were equal but weak. The blood pressure measured 70/50 mm Hg over both thighs by Doppler measurement. The heart was mildly enlarged with a left ventricular impulse. The auscultatory findings were normal. Fundoscopy showed grade 2 hypertensive changes. An ECG confirmed left ventricular hypertrophy with a strain pattern. A chest roentgenogram showed bilateral rib notching. An echocardiogram showed concentric left ventricular hypertrophy with a normal tricuspid aortic valve. He was diagnosed as having coarctation of the aorta and given antihypertensive drugs. The patient was reluctant to undergo cardiac catheterization. A CT of the thoracic aorta was performed on a General Electric CT 9800 scanner utilizing dynamic scanning with table incrementation during rapid injection of contrast medium by a power injector (Fig 1 and 2). The aorta was found to be interrupted at the level of the

*Department of Medicine, University of Hong Kong.
†Department of Diagnostic Radiology, Queen Mary Hospital, Hong Kong.
there were no evidence of intracardiac shunting. Ascending aortogram (Fig 3) confirmed the abrupt interruption 2 cm distal to the origin of the left subclavian artery. There was delayed filling of the distal aorta via multiple collaterals. The patient refused surgical intervention and received maintenance antihypertensive treatment.

**DISCUSSION**

Isolated aortic arch interruption without the presence of a patent ductus arteriosus had been considered a fatal condition. However, since the first case reported in 1964,11 11 other patients have been described in the literature. Type A interruption was common, although other varieties also occurred. Indeed, it has been postulated that some cases of type A interruption represented progression of severe coarctation to complete occlusion of the aorta. As shown in our patient, there was calcification on the wall of the upper end of the distal thoracic aorta, which was a relatively low-pressure system. It was possible that the present aortic interruption had followed severe coarctation, and the turbulent flow across the coarctation had caused vascular trauma and resulted in mural calcification. The clinical course described has been uniformly benign as in our case. The patients were all asymptomatic during infancy and usually presented with exertional claudication or paresthesia in childhood. Although cardiac catheterization and angiography give the best preoperative information in cases of aortic coarctation, CT has recently emerged as a valuable adjunctive diagnostic investigation. It is also useful in the postoperative period for evaluation of recurrent stenosis and complications such as dissection or aneurysm. As illustrated, CT also had important diagnostic value in cases of aortic arch interruption and should be recommended to patients unwilling to accept invasive cardiac investigation.

**REFERENCES**

2 Dische WP, Tsi M, Balthaze HA. Solitary interruption of the aortic arch: clinicopathologic review of eight cases. Am J Cardiol 1971; 27:271-77
10 Cholankeril JV, Ketyer S, Cholankeril MV. CT detection of coarctation of the aorta. CT 1981; 5:335-38

**Airway Pressure Release Ventilation in a Patient with Acute Pulmonary Injury**

Orlando G. Florete, Jr., M.D.,† Michael J. Banner, R.R.T., Ph.D.,‡ Tina E. Banner, R.N., B.S.N., C.C.R.N.;§ Julio C. Rodriguez, M.D.;† and Robert R. Kirby, M.D.¶

Airway pressure release ventilation is a recently described method of ventilatory support. It allows spontaneous ven...