Percutaneous Reconstruction of Interrupted Aortic Arch in an Adult

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Percutaneous stenting seems to be an attractive and preferred alternative to surgical therapy for treatment of aortic coarctation in the adolescent and young adult. However, percutaneous reconstruction of an interrupted aortic arch is challenging.

Figure 1. Angiographic Reconstructions of Images

(A, B) 64-slice multidetector computed tomography showing interrupted aortic arch just distal to origin of left subclavian artery. (C, D) Simultaneous anterograde and retrograde aortography showing interrupted aortic arch (Online Videos 1 and 2).

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A 38-year-old woman was referred to our unit for clinical evaluation of uncontrolled systemic arterial hypertension. On clinical examination, all pulses in upper limbs and carotids were bounding, and blood pressure in the upper limbs was 220/120 mm Hg. Abdominal aortic and all peripheral pulses in lower limbs were absent, and blood pressure was unrecordable. There was a soft murmur over the intercostal spaces. The clinical examination was suggestive of severe coarctation of the aorta.

Angiographic reconstructions of images obtained with a 64-slice multidetector computed tomography unit showed an interrupted aortic arch just distal to the origin of the left subclavian artery with a gap of 8 mm between the proximal and distal gap (Figs. 1A and 1B).

Percutaneous reconstruction of the interrupted aortic arch was planned. Right radial artery and right femoral artery access was obtained. Simultaneous antegrade and retrograde aortogram was done in diagonally opposite projections to analyze the relation between proximal and distal segments (Figs. 1C and 1D, Online Videos 1 and 2). A Judkins 6-F guiding catheter was firmly engaged in the floor of the proximal segment, and the proximal cap was perforated antegradely with Conquest Pro 8–20 (ASAHI INTECC, Santa Ana, California), a 0.008-inch coronary guidewire that was snared from the femoral entry. The lesion was sequentially dilated with an incremental-sized balloon, and antegrade flow was achieved (Figs. 2A and 2B, Online Videos 3 and 4). The lesion was stented with a 16- × 50-mm uncovered balloon-expandable Palmaz stent (Cordis Corp., Miami Lakes, Florida) (Figs. 2C and 2D, Online Videos 5 and 6). There were no residual gradient or procedure-related complications. At 6-month follow-up, she was asymptomatic, and her blood pressure was controlled without any medications. Repeat 64-slice multidetector computed tomography showed a properly positioned stent with no complications (Figs. 2E and 2F).

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