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Endovascular management of a rare complication of an aortic coarctation

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ABSTRACT

A 28-year-old pregnant woman presents with arterial hypertension of the upper limbs. The examination suggests an aortic coarctation. After a normal delivery, a contrast-enhanced computed tomography revealed a subocclusive aortic coarctation of the descending thoracic aorta and a 33-mm aneurysm developed from the left cervical-thoracic artery. The coarctation of the aorta was treated by a stent graft, and the aneurysm was treated by an injection of thrombin and glue.

Introduction

Coarctation of the aorta (CoA) is a relatively common defect that accounts for 5%-8% of all congenital heart defects. CoA may occur as an isolated defect or in association with various other lesions. Late aneurysmal formation in the proximal or the distal aortic arch is a well-recognized sequela of untreated coarctation and is associated with increased risk of aortic rupture and death [1]. We present a rare complication of a CoA and its endovascular management.

Case report

During her obstetrical consultation, a 28-year-old pregnant woman presented with arterial hypertension of the upper limbs. She was not found to have proteinuria or other clinical or biological sign of pre-eclampsia. An aortic coarctation was suspected. After a normal delivery, she presented with persistent high blood pressure of the upper limbs and low blood pressure of the lower limbs with an ankle brachial index of >20 mm Hg.

Contrast-enhanced computed tomography (CT) (Fig. 1A and B) revealed a subocclusive coarctation of the descending thoracic aorta and a wide aneurysm (33 mm). During aortography, selective injection through the left subclavian artery (LSA) confirmed the diagnosis, revealing an enlarged cervical-thoracic artery afferent to the aorta (Fig. 2). A 6-mm balloon dilatation (Mustang 5F Boston Scientific Benelux, 75 cm 6 × 20 mm) of the CoA was performed through a percutaneous approach of the left brachial artery because the balloon did not pass the CoA by a right arterial femoral access. Thereafter, a 16 mm × 4 cm stent graft (Advanta V12; Atrium Europe B.V.

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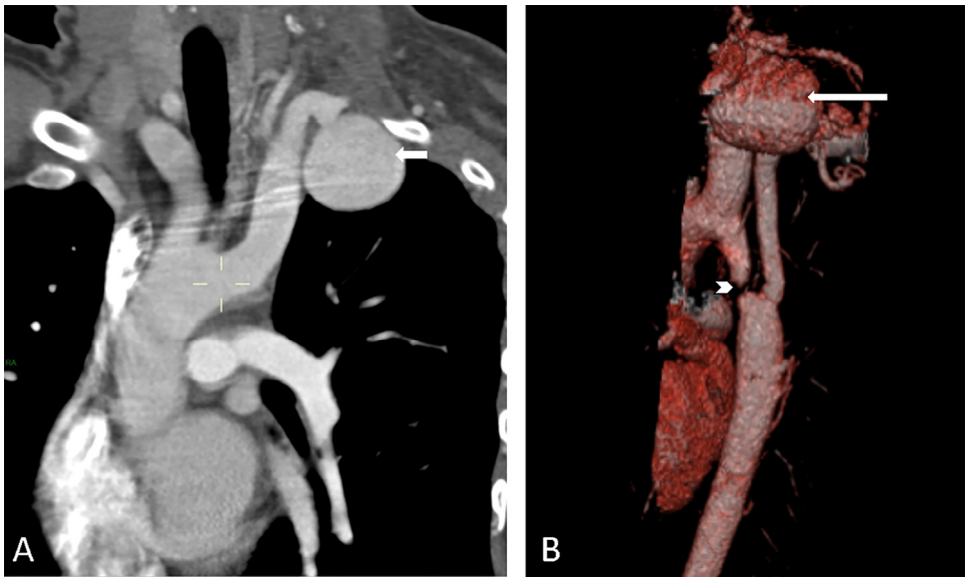

Fig. 1 – (A) Initial computed tomography with contrast enhancement. Coronal reconstruction shows a left large aneurysm (arrow). (B) Three-dimensional surface reconstruction demonstrates a subocclusive coarctation of the descending thoracic aorta (arrowhead) and the aneurysm (arrow).

Mijdrecht, The Netherlands) was introduced through an arteriotomy of the right femoral artery. The stent was placed at the aortic isthmus and covered the CoA. The postoperative CT 5 days later showed a well-deployed stent graft but a persistent flow into the aneurysm of the left cervical-thoracic artery. Angio-CT 3 months later revealed aneurysm patency despite the stent (Fig. 3).

Fig. 2 – Opacification of the aneurysm (arrow) of a developed left cervical-thoracic artery (arrowhead) through the left axillary artery.

Fig. 3 – Angiocomputed tomography 3 months after stenting. Three-dimensional surface reconstruction demonstrates the aneurysm patency (arrowhead) despite the stent (thin arrow) and the collateral (arrow).