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CARDIOVASCULAR FLASHLIGHT
Cardiac Imaging

Multimodality imaging in complex aortic arch anomaly

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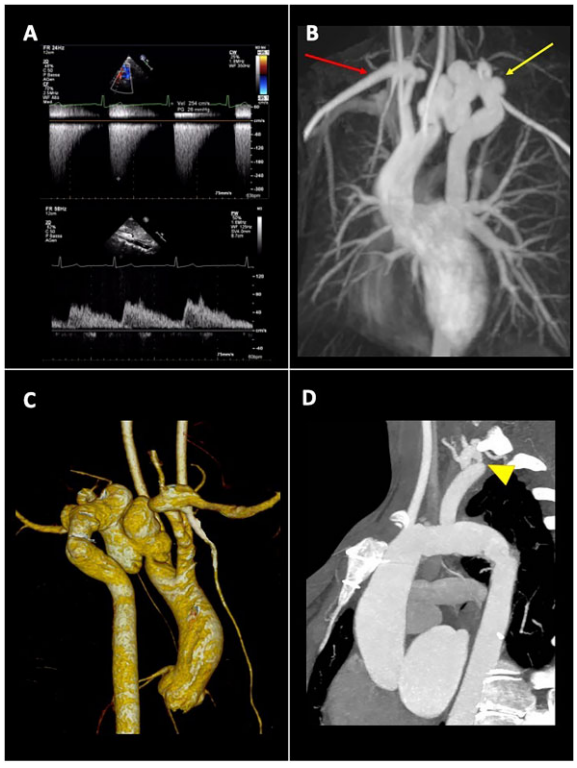
A 5-year-old female was referred to our centre for evaluation of a cardiac murmur. Transthoracic echocardiography showed a cervical aortic arch (AA) with mild flow acceleration at aortic isthmus. Owing to a suspicion of aortic coarctation (CoA), a computed tomography (CT) was performed, revealing a dysmorphic and tortuous S-shaped left AA without signs of CoA. The patient underwent an annual



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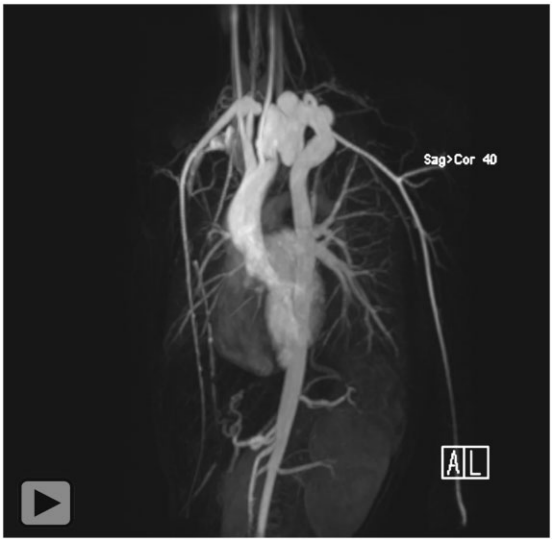
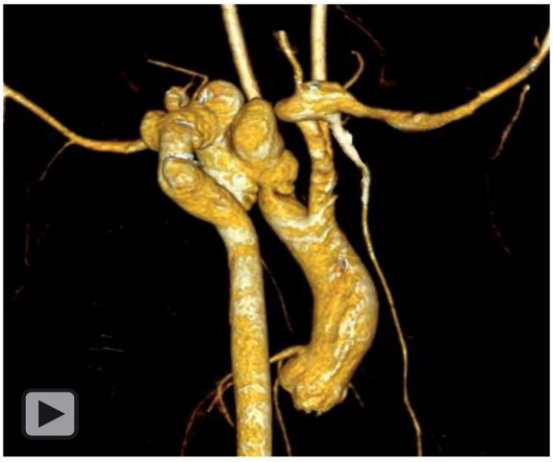


Video 1 Baseline angio-CMR of aorta showed multiple kinking and aortic arch dilatation.

follow-up. At the age of 14 years, echocardiographic findings consistent with the diagnosis of CoA were detected (diastolic run-off at aortic isthmus and demodulated pattern flow in the abdominal aorta; *Panel A*). Cardiovascular magnetic resonance (CMR) was performed, showing multiple kinking, AA dilation, and proximal right subclavian artery ectasia (*Panel B*, yellow and red arrows, respectively; *Video 1*). Genetic analysis showed pathogenetic mutation in transforming growth factor-β2 gene, associated to Loeys-Dietz syndrome. Two years later, CMR showed a worsening of AA findings with maximum dilation of 40 mm with obvious flow acceleration just proximal to the aneurysmal site. Following a new CT (*Panel C*; *Video 2*), the patient was scheduled for an intervention of AA reconstruction with conduit; moreover, an additional conduit was implanted at the left subclavian artery origin. Six months later, a CT revealed harmonious repaired AA morphology with only discrete stenosis at subclavian artery-conduit anastomosis (*Panel D*, yellow arrowhead), the latter was successfully treated percutaneously.



Video 2 Preoperative angio-CT showed a worsening of kinking and aortic arch dilatation.

Genetic aortopathies are complex conditions requiring a multidisciplinary approach.

Multimodality imaging is of paramount importance in the management of aortopathies, from diagnosis to follow-up and it may guide timing and type of treatment.

Consent: The authors confirm that written consent for submission and publication of this case report including images and associated text has been obtained from the patient in line with COPE guidance.

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