RIGHT-SIDED AORTIC ARCH WITH KOMMERELL'S DIVERTICULUM — SUDDEN ONSET IN INFANT

Daniela Iacob[1], Butnariu Angela[1], Samasca Gabriel[2], Manole Simona[3]

Russ J Cardiol 2014, 1 (105), Engl.: 54-55

Key words: right-sided aortic arch, Kommerell's diverticulum.

[1]Department of Pediatrics III; [2]Department of Immunology; [3]Department of Radiology, Iuliu Hatieganu University of Medicine and Pharmacy Cluj-Napoca, Romania.

Corresponding author. Daniela Iacob, MD, PhD, Department of Pediatrics III, "Iuliu-Hatieganu" University of Medicine and Pharmacy, Campeni Street, 2–4 No, 400217 Cluj-Napoca, Romania, Tel: +40 740 219720, e-mail: iacobdaniela777@gmail.com

Received October 14, 2013.
Revision received November 08, 2013.
Accepted November 15, 2013.

ПРАВОСТОРОННЯЯ ДУГА АОРТЫ С ДИВЕРТИКУЛОМ KOMMERELL — ВНЕЗАПНОЕ НАЧАЛО У РЕБЕНКА

Daniela Iacob[1], Butnariu Angela[1], Samasca Gabriel[2], Manole Simona[3]

Российский кардиологический журнал 2014, 1 (105), Англ.: 54-55

Ключевые слова: правосторонняя дуга аорты, дивертикул Kommerell.

Introduction

A right-sided aortic arch is an uncommon congenital defect of the aorta, being rare in the setting of a normal heart. Right-sided aortic arch may associate an aberrant left subclavian artery with a Kommerell's aneurysm producing compression of mediastinal structures [1, 2]. We report an infant with right-sided aortic arch, left descending thoracic aorta and a Kommerell's diverticulum, presenting for choking spells and acute respiratory failure.

Case report

A 10 months girl was admitted for sudden onset of choking spells and acute respiratory failure. Chest radiograph showed widening of upper mediastinum. Bronchoscopy revealed extrinsic compression of the trachea and of the right and left main stem bronchus. Echocardiography showed a right-sided aortic arch and normal heart anatomy. Computerized thoracic axial tomography and angiography revealed a right-sided aortic arch and a left descending thoracic aorta with an 8.6 mm Kommerell aneurysm involving the distal arch near the origin of the left subclavian artery (Fig. 1, Fig. 2). Serum levels of BNP and NT-proBNP were normal. It was decided to follow-up the case for the rate of growth of Kommerell's diverticulum over time.

Discussion

The right-sided aortic arch is rare, being found in 0.05–0.1% of imagistic series [1]. There are three types of aortic arch diverticulum. Type II aortic arch diverticulum associates an aberrant left subclavian artery arising as the last branch of the right-sided aortic arch or from an aortic diverticulum, named Kommerell's diverticulum [3]. Type II right-sided arch is the variant present in our patient.

In the right-sided aortic arch symptoms during infancy can be related to compression of mediastinal structures or to congenital heart abnormalities [4]. Adults present symptoms related to dissection or aneurismal dilatation compressing the surrounding structures and producing cough, choking spells, dyspnoea, stridor, wheezing [1]. Our infant presented an unusual sudden onset, with choking spells and acute respiratory failure, needing immediate bronchoscopy and computerized thoracic tomography.

The treatment of Kommerell's aneurysms varies from endoaneurysmorraphy for small aneurysms to interposition of graft for large Kommerell's aneurysms or for Kommerell's aneurysms associated with an aneurysm of the descending thoracic aorta [1, 4]. For small Kommerell's aneurysms it may be appropriate to observe the lesions and decide for intervention based on the rate of growth over time. This was the decision taken in our patient.

Conclusions

Right-sided aortic arch, left descending thoracic aorta and Kommerell's diverticulum are rare. Our infant patient presented an unusual sudden onset, with choking spells and acute respiratory failure. Computerized thoracic tomography with angiography offered essential diagnostic data, compulsory in treatment planning.

Acknowledgements

This study was financed by the Internal Grant in Pediatrics No.27020/10/15.11.2011 of the University of Medicine and Pharmacy, Cluj-Napoca, Romania.

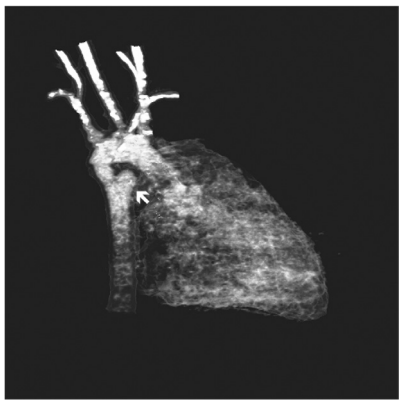

Figure 1. Computerized thoracic tomography with angiography: 3D volume rendering technique reconstruction. Normal situated left heart, right aortic arch, Kommerell's diverticulum (arrow).

Figure 2. Computerized thoracic tomography with angiography, 3D volume rendering technique reconstruction of thoracic aorta: right aortic arch with incomplete left vascular ring (star), from which emerge left common carotid artery and left subclavian artery; Kommerell's diverticulum (arrow).

References

1. Cina CS, Althani H, Pasenau J, et al. Kommerell's diverticulum and right-sided aortic arch: A cohort study and review of the literature. J Vasc Surg 2004; 39:131–9.
2. van Son AAM, Konstantinov I, Burckhard F. Kommerell and Kommerell's diverticulum. Tex Heart Inst J 2002; 29:109–12.
3. Kanne JP, Godwin JD. Right aortic arch and its variants. J Cardiovasc Comput Tomogr 2010; 4:293–300.
4. Ota T, Okada K, Takanashi S, et al. Surgical treatment for Kommerell's diverticulum. J Thorac Cardiovasc Surg 2006; 131:574–8.