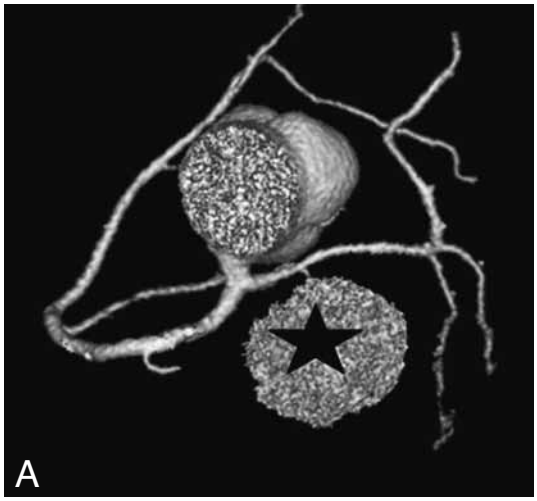
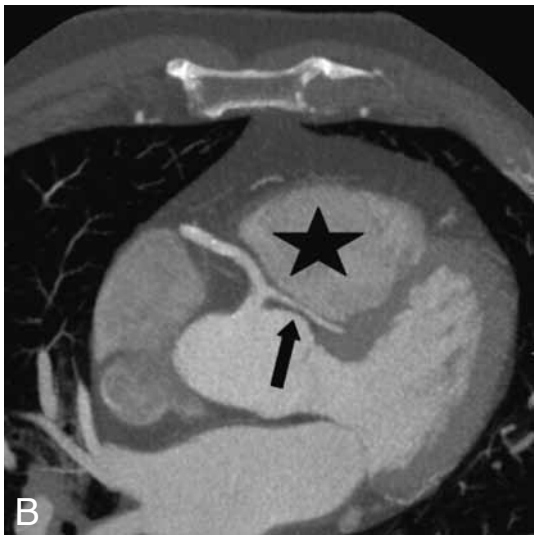
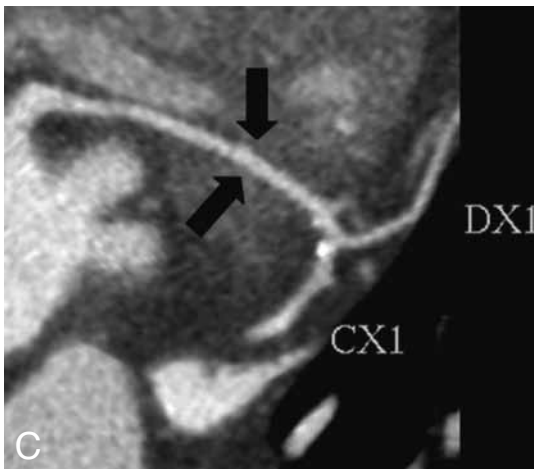
JBR–BTR, 2012, 95: 29.

IMAGES IN CLINICAL RADIOLOGY







Single right coronary artery with a "malignant course" of the left main coronary artery

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A 68-year-old patient with abdominal obesity, high cholesterol and family factors, and complaining of atypical chest pain was referred for CT of the coronary arteries to exclude significant stenosis. Cardiac CT was performed in prospective mode with injection of iodinated contrast and the following acquisition parameters: 100 kV, 600 mAs, 13.31 CTD/vol of mGy, DLP 189.56 mGy-cm and total effective dose 2.5 mSev.

The scan showed no coronary stenosis but demonstrated absence of the origin of the main left coronary artery in the left sinus of Valsalva. There was one single coronary arising of the right sinus of Valsalva. From that single coronary took of a normal right coronary artery and a long left common coronary (LCA). Fig. A is a Volume Rendering of the coronary arteries, viewed from above: LCA runs in front of the aorta and behind the pulmonary artery (star). LCA than runs into the groove between the anteriorly located pulmonary artery and the aorta posteriorly (Fig. B). The distal main LCA is embedded into the upper interventricular septum (Fig. C) before the division into a small left anterior coronary artery and a normal size circumflex artery. No fixed stenosis is demonstrated but the course of the left main coronary artery in this patient is considered "potentially malignant" for two reasons: the coronary artery can get compressed between the aorta and pulmonary artery and it can also be compressed between myocardial muscle fibres of the septum during the systole.

As CT did not show any fixed stenosis, conventional coronarography was not performed. Due to the age of the patient, medical treatment was proposed.

Comment

Single coronary artery (SCA) s a very rare congenital anomaly, the incidence in the general population being approximately 0.019-0.4%. This variation constitutes approximately < 3% of all coronary anomalies. 40% are associated with other cardiac malformations and are discovered early.

Existing classifications (1) are based on the origin of the single vessel, and on the anatomical course of the artery. When the vessel courses anterior to aorta and pulmonary artery and or posterior the aorta, the variations are considered as benign coronary course and usually asymptomatic while they are considered as potentially "malignant" types, when it courses between pulmonary artery and aorta since coronary artery can get compressed between the aorta and pulmonary artery or when it runs between myocardial muscle fibres of the septum (variation also called milking or myocardial bridge), with potential to cause sudden ischemic events and death.

Bibliography

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