Cardiac CT in an aberrant right coronary artery

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DESCRIPTION

An 18-year-old man experienced acute chest pain. Transthoracic echocardiography was normal. ECG showed anterior ST-depression and posterior ST-elevation, and the troponin-T test was positive. Therefore the differential diagnosis included a myocardial ischaemic event. Catheter angiography ruled out coronary artery disease but detected an anomalous origin of the right coronary artery at the upper left sinus of Valsalva. Contrast-enhanced cardiac CT was subsequently performed (figure 1), with panel A (plus video 1) showing an angulated transverse reformation and panel B (plus video 2) a coronal reformation. The CT depicted a high inter-arterial course of the aberrant right coronary artery (figure 1, arrows) with acute take-off angle (20°) and slit-like compression between the aortic root (figure 1, “1”) and pulmonary trunk (figure 1, “2”). The length of the stenotic segment was about 13 mm. Its minimum vessel area was 2.8 mm², corresponding to an area with stenosis of 70%.¹ Such malignant coronary artery variants can have an increased risk of cardiac events and sudden cardiac death.^{1–3} The patient opted for coronary artery bypass grafting from the right internal thoracic artery to the right coronary artery and has been well since then.

The clinical decision of bypass surgery versus conservative therapy depends on individual factors, including whether the coronary artery variant is

Video 1 Cardiac CT, transverse plane. Please compare to figure 1 (A). This video shows the course of the proximal right coronary artery in cranial-to-caudal direction. Further details are provided in the text.

incidentally detected in an asymptomatic patient or whether it is symptomatic. In this young man it was symptomatic and bypass grafting was performed to prevent further cardiac events. The CT was valuable for confirming the coronary artery anomaly at high image resolution three-dimensionally.^{1–3}

Figure 1 Cardiac CT showing (A) an angulated transverse reformation and (B) a coronal reformation. The right coronary artery (arrow) has an interarterial course between the aortic root (1) and the pulmonary trunk (2). Further details are provided in the text.

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Video 2 Cardiac CT, coronal reformation. Please compare to figure 1 (B). This video shows the course of the proximal right coronary artery in posterior-to-anterior direction. Further details are provided in the text.

Learning points

- ▶ Cardiac CT is suitable for showing aberrant coronary arteries.
- ▶ An interarterial course of the right coronary artery belongs to the so-called 'malignant' variants that can have an increased risk of cardiac events and sudden cardiac death.
- ▶ The clinical decision between surgical versus conservative therapy depends on individual factors, such as the patient's symptoms.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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