Nebulous Imaging
To the Editor:

We read with some concern the report by Li et al1 referring to electron beam angiography of anomalous coronary arteries. Two pictures are presented of a case diagnosed as anomalous origin of the left anterior descending artery (LAD) “from the pulmonary artery” and of the circumflex (Cx) “from the right coronary artery.” We appreciated the colorful images (even though the blue aorta would have appeared better in red), but could not refrain from noticing the following.

1. The images do not prove the origin of the LAD from the pulmonary artery. Instead, one can only say that the LAD is ectatic, and is adjacent to the pulmonary trunk (a normal course). There is no evidence, in the images provided, that the LAD has its origin from the pulmonary artery.

2. The Cx is not identified in Figure 1 and apparently is mislabeled in Figure 2. Indeed, it appears that the tortuous vessel in Figure 1 is the same right coronary artery that is labeled “Cx” in Figure 2. The Cx (labeled “RCA”) in Figure 2 is most likely a coronary vein. A left circumflex coronary artery coursing within the right atrioventricular groove, alongside a normally positioned RCA, would be a heretofore never seen (nor described) coronary anomaly.

Was traditional angiography performed in this patient to confirm these findings?

Our reason for sending this note is to caution against the tendency to inappropriately use new technology (eg, electron beam CT and multidetector CT). These new imaging procedures frequently help advance the science, but they also require grounding with expert readers and a conservative amount of electronic manipulation.

Case reports such as the present that “conclude” that electron beam CT angiography correctly detects anomalous coronary origins and course should be taken with the following reservations: (1) these reports usually present cases already diagnosed by traditional angiography, and (2) the studies are frequently incomplete, nebulous, and (most concerning) potentially misleading, if not performed by those expert in both coronary anomalies and coronary imaging.

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1. Li W, Ferrett C, Henein M. Images in cardiovascular medicine. Anomalous coronary arteries by electron beam angiography. Circulation. 2003;107:2630.

Response

First, we agree that with more rightward tilting of the images (Figure 1), a clearer picture of the left anterior descending artery origin would have been displayed.

Secondly, the origin of the right coronary artery is clearly shown to be from the aortic root. The circumflex artery, a much smaller vessel, was the first branch off the proximal segment of the right coronary artery (label displaced in Figure 2). The circumflex artery did not course within the right atrioventricular groove but turned leftward to pass behind the aortic root (retro-aortic) before entering the left atrioventricular groove. The right coronary artery took a normal course as indicated in Figure 2. The course of the circumflex artery passing behind the arterial pedicles is a recognized anomalous course1 and is more often seen in combination with complex congenital heart anomalies, eg, transposition of great arteries.2 These findings mirrored the angiographic results of the patient on two different occasions, although the electron beam (EB) scans were analyzed blindly. As the use of EB angiography is new in the field of congenital coronary artery disease, interested cardiologists need to orient themselves to different views and compare images with conventional angiography.

Finally, we agree that EB angiography should not be used in isolation for diagnosing congenital coronary artery anomalies but in conjunction with conventional angiography. However, we believe that it may have a role in alerting clinicians to the possible presence of anomalies and as a noninvasive tool for the follow-up of such patients. In fact, the main message of our report was to highlight the potential use of this technology in patients with anomalous coronary arteries. Of course, users should have acquired appropriate experience in the field of coronary artery disease in general and congenital coronary artery abnormalities in the setting of congenital heart disease in particular.

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Circulation. 2004;109:e9
doi: 10.1161/01.CIR.000011130.33177.0B
Circulation is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0009-7322. Online ISSN: 1524-4539

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circ.ahajournals.org/content/109/2/e9

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