

IMAGES IN MEDICINE

Phantom Stent Thrombosis

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ABSTRACT

Initial visualization of only the left circumflex coronary artery during coronary angiography in a 71-year-old patient with prior stenting of the left anterior descending (LAD) coronary artery would have led to an erroneous conclusion of a thrombosed stent and occluded coronary artery with its consequent management problems, before it was disclosed that the LAD originated from a separate ostium.

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absent left main coronary artery;
separate ostia of left coronary arteries*

A 71-year-old gentleman with a history of coronary artery disease was admitted for scheduled coronary angiography due to stable angina class II symptoms and positive thallium scintigraphy. The patient had been submitted to percutaneous coronary intervention 3 years earlier with stenting of the left anterior descending (LAD) coronary artery due to unstable angina and critical coronary stenosis at that time. No recorded imaging was available for review from this previous intervention.

With the first injections into the left coronary artery, only the left circumflex coronary artery was visualized, while it was apparent that the LAD was missing at its origin and only the contour of a stent (arrows) could be discerned along the imaginary course of its proximal segment in both left anterior oblique projections with cranial (Figure 1, panel A) and caudal (panel B) angulations. The right coronary artery was patent (not shown). An initially presumed occlusion of the LAD did not entirely fit the clinical scenario of this patient particularly in the absence of collaterals to the LAD noted during repeated contrast injections into the right coronary artery and delayed cine-angiographic views obtained for this purpose. Thus, the angiographer made further attempts to localize the missing LAD and he was finally successful to engage a separate LAD ostium at the left sinus of Valsalva in juxtaposition to the ostium of the left circumflex coronary artery, revealing a patent LAD and non-occluded stent with no significant restenosis (short arrows, panels C and D).

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Congenital anomalies of the coronary arteries account for ~1% of all coronary angiographies being performed, and among them an absent left main coronary artery is detected in ~0.4%.^{1,2} In the majority of such cases, two separate adjacent coronary ostia are identified in the left aortic sinus of Valsalva, whereby the LAD and the left circumflex coronary arteries have their separate origins. This was the situation in the present case, which was finally correctly identified and serious consequences of a misinterpreted coronary angiogram were averted. In this particular case of a previously stented LAD, the obvious but erroneous conclusion would have been that of a

ABBREVIATIONS

CT = computed tomography

CTA = computed tomography coronary angiography

LAD = left anterior descending (coronary artery)

LAO = left anterior oblique (angiographic view)

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PHANTOM STENT THROMBOSIS

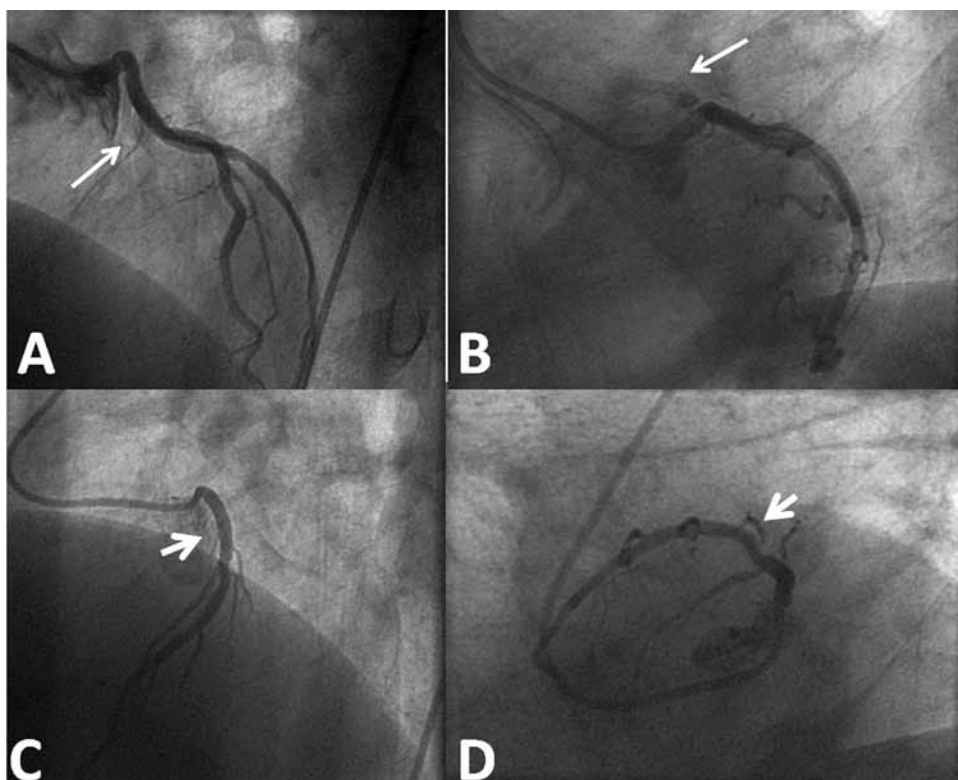


FIGURE 1. Left anterior oblique (LAO) views are displayed of the left coronary arteries indicating in the upper panels (panel A, cranial angulation; panel B, caudal angulation) that the left anterior descending (LAD) coronary artery was totally occluded at its origin at the level of the stent (arrows). The lower two panels (C and D with similar angulations respectively), disclose the independent origin of the LAD from a separate ostium (absent left main trunk).

thrombosed stent and occluded LAD, leading to management decisions which would not have been appropriate. An important clue of a non-occluded LAD was the absence of collateral vessels from the right coronary artery to the LAD. Of course, the simplest way to a correct approach to this patient would have been the review of the previous coronary angiogram, but this information was unavailable. However, when coronary angiography is performed for the first time, in a good percentage of cases¹ there are technical difficulties in cannulating the separate ostia and adequately visualizing both coronary arteries even with use of several different types of catheters and assistance from experienced operators. Key to all this is, of course, an adequate suspicion of a coronary anomaly³ in order to embark on a search expedition, otherwise serious clinical and surgical problems may ensue. Nowadays, another way to approach such difficult cases of an absent coronary artery and avoid prolonged or repeated catheterizations would be to resort to computed tomography (CT) coronary angiography (CTA), which is a promising new noninvasive modality to correctly diagnose anatomic variations and anomalies.^{4,5}

Technical advances in this field promise to reduce the radiation exposure that this method entails.

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