Management of Paradoxical Coronary Embolism

To the Editor:

I read with interest the dramatic case report by Egred et al. However, I was somewhat puzzled by the indication of a left internal mammary artery graft insertion into the left anterior descending coronary artery at the time of the emergency thromboembolectomy.

Although the patient had suffered an anterolateral non-Q-wave myocardial infarction 2 months previously, coronary arteriography revealed essentially normal vasculature apart from mild (40%) plaque disease in the proximal left anterior descending coronary artery. The most likely cause of his myocardial infarction was paradoxical coronary embolism, because he had experienced paradoxical embolism to his brain and left leg on different occasions. Coronary embolism is more common than is generally reported in the literature.

To graft a mildly (40% narrowing) diseased coronary artery may lead to lower graft patency rate due to competitive flow. Management of paradoxical coronary embolism is closure of the interatrial communication, not a coronary bypass graft, and should have been done in this patient. Today, closure of a patent foramen ovale or a small-to-medium atrial septal defect can be accomplished by a nonsurgical catheter technique, which avoids the morbidities, mortalities, and increased expenses associated with open heart surgery.

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Response

We note Professor Cheng’s comments regarding the indications for a graft insertion into a mildly narrowed left anterior descending coronary artery. He is also concerned about the need for surgical intervention to treat our patient’s patent foramen ovale. It is known that grafting mildly narrowed coronary arteries may lead to a lower graft patency rate because of competitive flow. Also, the management of paradoxical embolism is closure of the interatrial communication, which is performed mostly percutaneously, thereby avoiding the morbidity and mortality associated with surgical intervention. However, in our patient, the need for open heart surgery and bypass was based on the presence of a large thrombus straddling the patent foramen ovale. This large thrombus could not have been extracted using a nonsurgical catheter technique, because that would have carried a high risk of embolization, with subsequent morbidity and possible mortality.

The insertion of a graft to the left anterior descending artery was performed for several reasons. The previous anterolateral myocardial infarction was in the territory of the left anterior descending artery, and there was the possibility of recanalization of the artery after infarct or underestimation of the degree of narrowing on coronary angiography. Paradoxical coronary embolism leading to myocardial infarction is rare, and whether it led to our patient’s myocardial infarction is uncertain. Also, the patient had been subjected to bypass and open heart surgery, and coronary artery disease is a progressive process, which means future intervention and redo surgery would be more difficult. All this led us to proceed with open-heart surgery and grafting of the left anterior descending coronary artery.

In retrospect, this seems to have been the right decision. The patient is continuing to do well, with no evidence or symptoms of coronary artery disease or further embolization.

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