Finding a Lost Coronary Stent Months Later

with Use of Multimethod Imaging

Andrew N. Rassi, MD
Gus Theodos, MD
Irving Franco, MD

A 64-year-old man with refractory angina and a history of revascularization was referred after a failed attempt at revascularization. His medical regimen included maximal β-blocker, calcium channel blocker, and nitrate therapy. Cineangiograms before contrast injection suggested asymmetric calcification of the proximal left circumflex coronary artery (LCx) and showed previously implanted stents in the distal vessel (Fig. 1A). A cineangiogram after contrast injection revealed a severe lesion in the ostium of the first obtuse marginal branch (OM) and patent stents

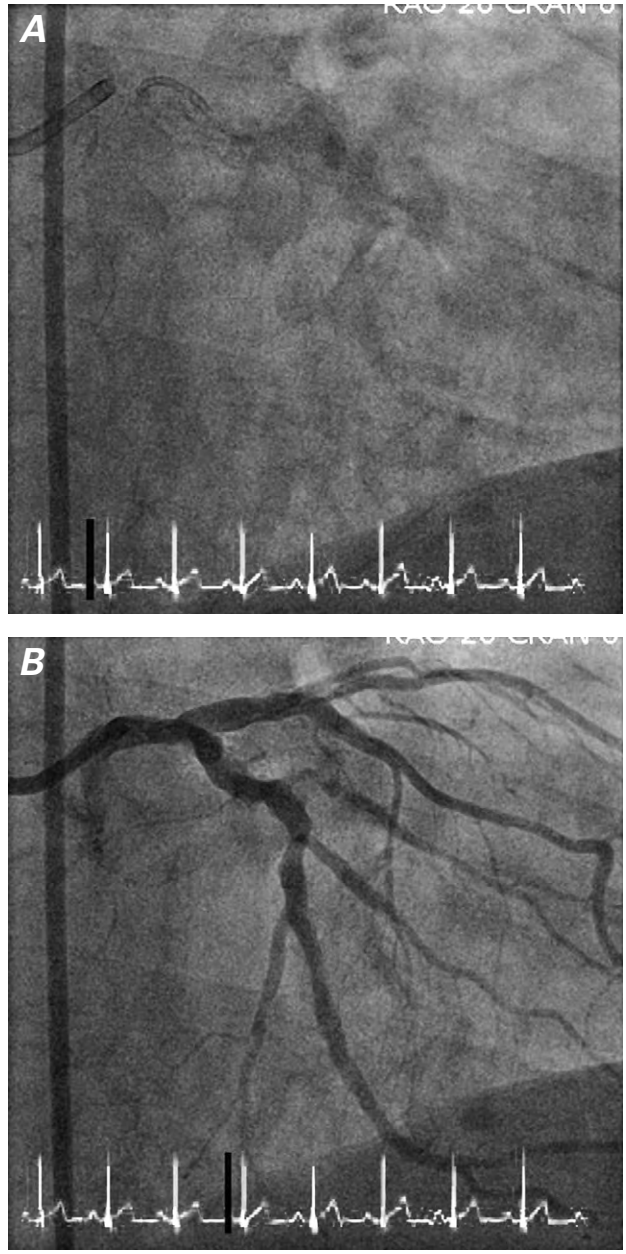

Fig. 1 ***A****) Cineangiogram before the injection of contrast material shows an area of possible calcification near the catheter tip, as well as stents deployed earlier in the distal anatomy.* ***B****) Cineangiogram after the injection of contrast material identifies the affected area as the proximal left circumflex coronary artery. A severe lesion in the ostium of the first obtuse marginal branch is also visible, along with patent stents..*

Supplemental motion image is available for Figure 1.

Section Editor: *Raymond F. Stainback, MD, Department of Adult Cardiology, Texas Heart Institute, 6624 Fannin St., Suite 2480, Houston, TX 77030*

From: *Heart and Vascular Institute, Cleveland Clinic, Cleveland, Ohio 44195*

Dr. Theodos is now at the Division of Cardiology, Naval Medical Center Portsmouth, Portsmouth, Virginia.

Address for reprints: *Andrew N. Rassi, MD, Desk GRB 852K, Division of Cardiology, Massachusetts General Hospital, 55 Fruit St., Boston, MA 02114*

E-mail: *arassi@partners.org*

(Fig. 1B). Our initial attempts to advance a stent to the OM were impeded by an area of possible calcification in the proximal LCx. We used intravascular ultrasound (IVUS) to better understand the anatomy. We noted a circular density in the proximal LCx (Fig. 2). Optical coherence tomography (OCT) identified the circular structure as an undeployed stent, presumably lost during attempted revascularization months earlier (Fig. 3). We crushed the lost stent against the wall of the proximal LCx with use of a compliant balloon, then deployed a 2.5 × 15-mm everolimus-eluting XIENCE® stent (Abbott Vascular, part of Abbott Laboratories; Redwood City, Calif) to the OM.

Comment

Lost and embolized stents are rare today because of improved stent design. Successful retrieval, deployment, and crushing of a stent have been reported in the circumstance of acute stent loss.[1] Long-term medical therapy involving antiplatelet and anticoagulant agents has reportedly reduced the risk of thrombosis at the site of acute stent loss.[2] Both IVUS and OCT provide anatomic evaluative capabilities beyond that of angiography; OCT's axial resolution of 10 to 15 µm and lateral resolution of 20 µm yield approximately 10 times more resolution than does IVUS. Typically, only one method of intravascular imaging is needed to characterize lesions, size vessels, or evaluate stent deployment. We suspected from the IVUS images that we had encountered an undeployed stent, and we confirmed this rare finding by using OCT. Our use of both methods enabled accurate characterization of the foreign body and improved our understanding of the patient's anatomy.

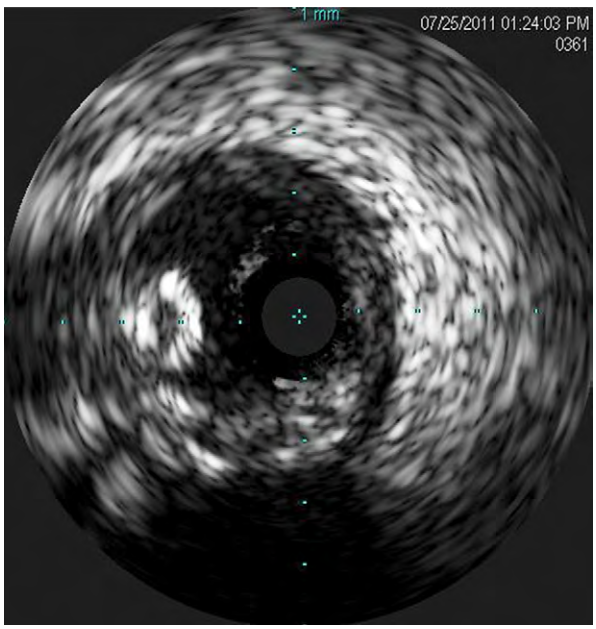

Fig. 2 *Intravascular ultrasonographic image shows a circular structure.*

Supplemental motion image is available for Figure 2.

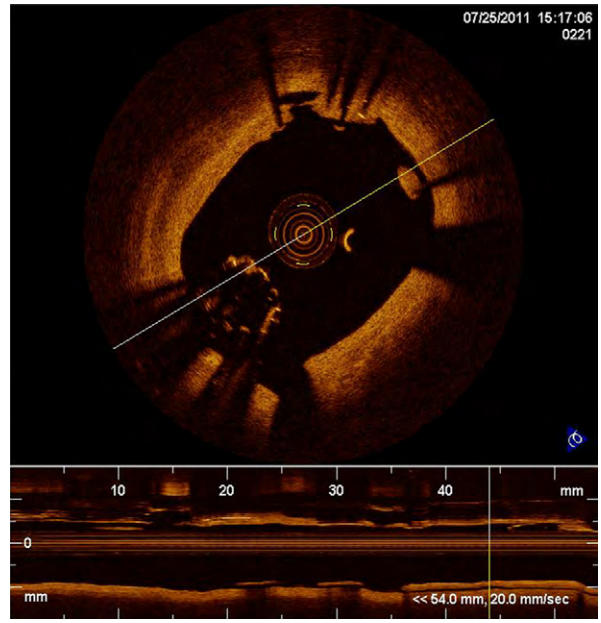

Fig. 3 *Optical coherence tomogram identifies the circular structure as an undeployed stent.*

Supplemental motion image is available for Figure 3.

References

1. Brilakis ES, Best PJ, Elesber AA, Barsness GW, Lennon RJ, Holmes DR Jr, et al. Incidence, retrieval methods, and outcomes of stent loss during percutaneous coronary intervention: a large single-center experience. Catheter Cardiovasc Interv 2005;66(3):333-40.
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