A 73-year-old man with unstable angina was found to have a severely calcified chronic total occlusion (CTO) of the mid left anterior descending coronary artery (LAD). Diagnostic coronary angiography confirmed the CTO to be complex, with a “flush” occlusion occurring in a segment associated with proximal septal and diagonal branches. Retrograde filling of the distal LAD occurred via 2 large septal perforators from the right coronary artery (RCA). Cardiac magnetic resonance imaging demonstrated preserved left ventricular systolic function with viability.

After discussion, the patient opted for percutaneous coronary intervention. Intervention was performed by 2 high-volume CTO operators with extensive experience of retrograde CTO percutaneous coronary intervention. An initial antegrade approach failed to negotiate the calcific CTO lesion (Figure 1A). A subsequent attempt was made to treat the CTO via a retrograde approach. Figure 1B demonstrates retrograde filling of the LAD. It was possible to advance a floppy hydrophilic guidewire (Whisper LS, Abbott Vascular, Ill) via the septal perforators from the posterior descending branch of the RCA to the LAD.
beyond the CTO. Further catheter advancement into the distal LAD system was extremely difficult because of tortuosity of the collateral channel. A low-profile over-the-wire balloon catheter was exchanged for a Corsair extra-support catheter (Asahi Intecc, Japan) (Figure 1C). During attempts to advance the Corsair to the distal LAD, the catheter sprang out of position, creating a small septal hematoma. The patient developed asymptomatic ventricular bigeminy. A contrast “stain” was demonstrated surrounding the septal collateral channel from the RCA on angiography at the end of the procedure (Figure 1D).

Postprocedure echocardiography demonstrated an echo-free space within the septum (Figure 2A and 2B and Movies I and II in the online-only Data Supplement) into which entered low-velocity diastolic coronary flow (Figure 3A and Movie III in the online-only Data Supplement). The patient remained stable, and surgical opinion was sought. Repeat echocardiogram at 2 weeks demonstrated partial hematoma resolution but a small apical ventricular septal defect (VSD) with high-velocity systolic flow (4 m/s) representing left to right shunting (Figure 3B). The hematoma and VSD resolved.
Development of intramyocardial hematoma is a rare complication of myocardial infarction and percutaneous coronary intervention. Septal hematoma formation has been described after childhood VSD repair and cardiac resynchronization therapy defibrillator implantation. This case describes spontaneous resolution of a ventricular septal hematoma and VSD after retrograde CTO coronary intervention and highlights the technical challenges associated with such cases. Caution should be used when crossing septal perforators with extra-support catheters because these have the potential to create significant injury to the ventricular septum.

Disclosures
None.

References
Figure 4. Apical 4-chamber view demonstrating resolution of hematoma and VSD after 5 weeks. LV indicates left ventricle; RV, right ventricle; LA, left atrium; and RA, right atrium.
Interventricular Septal Hematoma and Ventricular Septal Defect After Retrograde Intervention for a Chronic Total Occlusion of a Left Anterior Descending Coronary Artery
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