

Letter to the Editor

Septum hematoma: A complication of retrograde wiring in chronic total occlusion

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Abstract

In spite of the remarkable technological innovation and improved outcomes with percutaneous coronary intervention (PCI), chronically total occlusion in coronary arteries (CTO) remains a formidable challenge for coronary interventionalist. Recently Japanese interventionalists have proposed a retrograde wiring technique which provides another way to resolve such difficulties. The retrograde wire in the distal CTO vessel can then be used as a clear landmark in the distal true lumen, facilitating antegrade wiring and possibly increasing the success rate of CTO-PCI. Reported here is a patient who experienced retrograde wire technique but suffered from a complication with septum hematoma and myocardial infarction. The patient had a complete recovery of chest symptoms and resolution of septum hematoma in 1 month. Retrograde wire manipulation should be used as a last resort and via a large collateral vessel in the treatment of CTO.

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A 45-year-old male came into complaining of intermittent chest tightness for around 5 months. His coronary risk factors were smoking, hypertension and hypercholesterolemia. Because his treadmill test was positive, he was admitted to cardiovascular ward for coronary angiography. Angiographic findings showed a total occlusion over proximal left anterior descending artery (LAD) with Rentrop grade II collaterals via septum from right coronary artery (RCA) (Fig. 1 A and B). First, we attempted percutaneous angioplasty intervention using the parallel wire technique, but were unsuccessful. In another attempt, we tried retrograde wiring with a slippery wire (HT Whisper MS 0.014 in. Guidewire, Guidant, Indianapolis, IN) and a microcatheter (Excelsior® 1018® Microcatheter, Boston Scientific, Galway, Ireland) from RCA to LAD via septal

collaterals (Fig. 1C). In that procedure, we manipulated the wire using multiple fluoroscopic projections, but found it difficult to move it into LAD. Therefore, we tried antegrade parallel wiring with two dedicated CTO wires (Conquest Pro, Asahi Intec, Japan). After finding the distal true lumen, we were able to successfully implant two overlapping TAXUS stents (Boston Scientific, Galway, Ireland). After stents' implantation, the patient complained of chest discomfort. Although angiography showed TIMI III flow over LAD, his cardiac enzyme was elevated (peak troponin I: 18.14 ng/mL) although there was no significant change in the electrocardiography ST-T segment change, suggesting possible procedure-related infarction. The patient was administered 2 days for anticoagulation treatment (Enoxaparin 1 mg/kg b.i.d.). Three days after the procedure, he was found to have a fever of 38.4 °C, for which he received empiric antibiotics. At the same time, echocardiography revealed a heterogeneous echogenicity mass over the interventricular septum (Fig. 1D). Multi-slice computer

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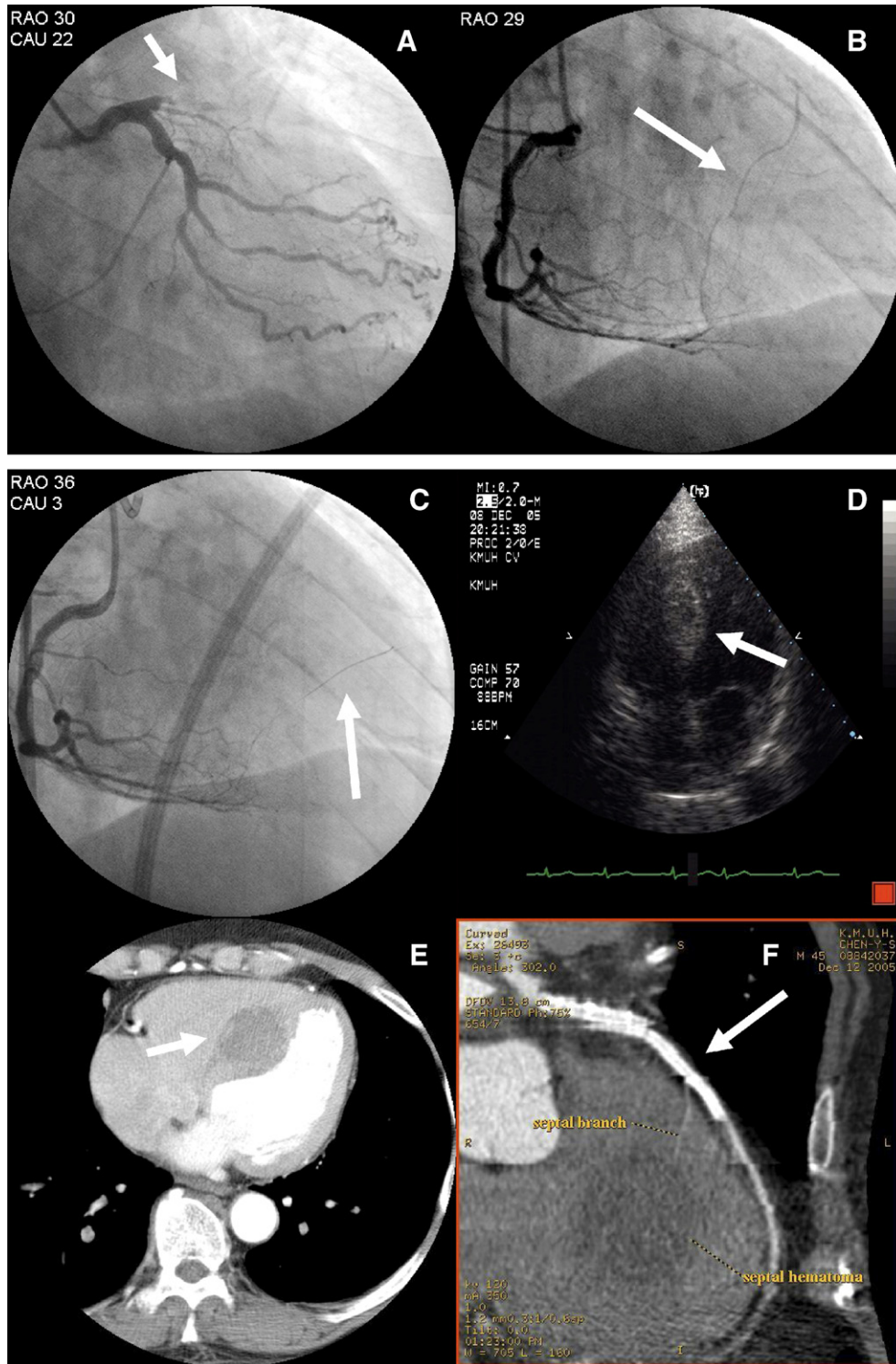


Fig. 1. (A) Baseline left coronary angiography with left anterior descending artery (LAD) total occlusion (arrow). (B) Collaterals (arrow) from right coronary artery via septum to LAD. (C) Retrograde wire (arrow) manipulation. (D) Heterogenous echogenicity mass (arrow) over interventricular septum. (E) Septum hematoma (arrow). (F) Patent two overlapping stents (arrow) and septum hematoma.

tomography showed the patent LAD stents and a large septal hematoma (Fig. 1E and F). Eight days after procedure, although the patient complained of mild, persistent anterior chest tightness, he was discharged. No more chest discomfort was complained during cardiovascular clinic

follow-up. Echocardiography 1 month after discharge showed resolution of septum hematoma.

In spite of the remarkable technological innovation and improved outcomes with percutaneous coronary intervention (PCI), chronically total occlusion in coronary arteries (CTO)

remains a formidable challenge and unresolved dilemma for coronary interventionalist. CTO not only influences symptoms and left ventricular function but also affects survival [1]. In addition the presence of a CTO was the most common reason for referral to bypass surgery. The cause of unsuccessful PCI is usually failure of the wire to cross the site of CTO. The initial success rate of PCI is as low as 60–70% in patients with CTO and the restenosis rate after restoration of patency is higher than non-CTO lesions despite stenting [2]. Recently some authors reported that the CTO restenosis rate can be reduced to very low levels using drug-eluting stents (DES) in CTO patients [3,4]. In addition several novel technologies have been proposed to facilitate CTO revascularization and a high success rate of 85–90% may be obtained if a recently developed spring wire dedicated for CTO is used appropriately [5]. However there are still some complex CTO lesions difficult to treat with the dedicated CTO wires and sophisticated techniques like the antegrade ‘parallel wire technique’. Recently Japanese interventionalists have proposed a retrograde wiring technique which provides another way to resolve such difficulties. Retrograde wiring is performed using a slippery wire with microcatheter from the donor vessel of the collaterals. The retrograde wire in the distal CTO vessel can then be used as a clear landmark in the distal true lumen,

facilitating antegrade wiring and possibly increasing the success rate of CTO–PCI. Retrograde wire manipulation should be used as a last resort in the treatment of CTO, however, because it may increase the risk of such complications as myocardial hematoma with wiring in the collateral channels. This wiring technique should only be attempted by an experienced interventionalist using a large collateral vessel.

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