

IMAGES IN INTERVENTION



5-Year Follow-Up After Stenting for Iatrogenic Coronary Stenosis Due to Mitral Annuloplasty

Insights With Multiple Imaging Modalities

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A 59-year-old woman with severe mitral regurgitation underwent mitral annuloplasty (MAP) with a 28-mm Carpentier-Edwards Physio II annuloplasty ring (Edwards Lifesciences, Irvine, California). On post-operative day 10, the patient complained of chest oppression with ischemic changes on an electrocardiogram during rehabilitation therapy. Coronary angiography (CAG) showed severe focal stenosis in the middle of the left circumflex artery (LCx) that had not been detected by pre-operative CAG (Figures 1A to 1C). Pre-procedural optical coherence tomography (OCT) showed severe narrowing (lumen area: 0.8 mm²), with no evidence of hematoma, plaque, or thrombi. The vessel was compressed from the outside (Figure 2A), with normal vessel structure of the 3 layers at the site of the culprit lesion. In addition, intravascular ultrasound (IVUS) showed that the vessel was bent with some force from the epicardial side (Figure 2B). These intravascular images suggested that this new focal stenosis may have been caused by accidental ligation of the LCx during MAP.

Considering the high risk of repeat open surgery, the heart team opted for percutaneous revascularization.

Pre-dilation was performed gently with a 2.5-mm noncompliant balloon, followed by implantation of a 3.0 × 18-mm Driver stent (Medtronic CardioVascular, Santa Rosa, California) (Figure 1D). Post-procedural OCT and IVUS showed good stent expansion and apposition (minimal stent area: 6.1 mm²), with no evidence of coronary injury (Figures 2C to 2E). At 5-year follow-up, CAG with aspirin alone (Figure 1E), OCT, IVUS, and multidetector computed tomography showed no evidence of significant stent recoil (minimal stent area: 5.6 mm²) (Figures 2F to 2H). Furthermore, the echocardiogram showed no recurrent mitral regurgitation at that time.

To the best of our knowledge, there are no reports regarding long-term follow-up after stenting for iatrogenic coronary stenosis (1). Our case suggests that bailout stenting with a bare metal stent for iatrogenic coronary stenosis may be associated with favorable long-term outcomes.

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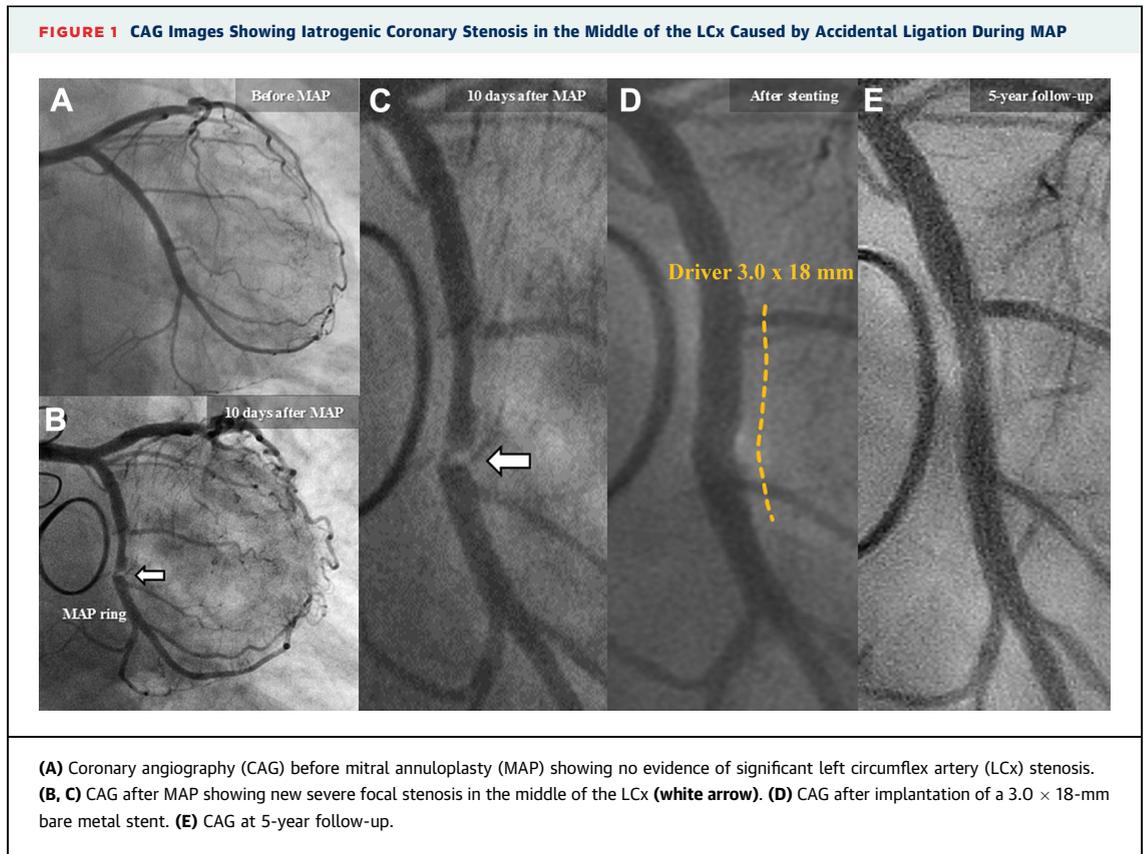
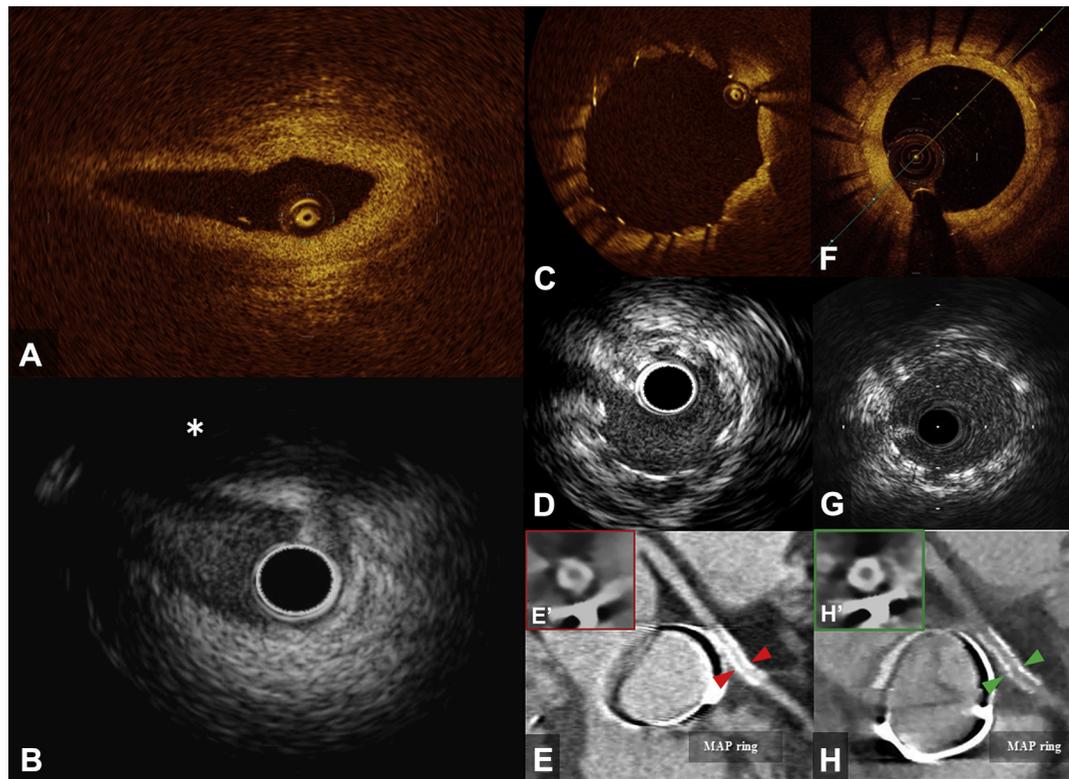


FIGURE 2 Images of Iatrogenic Stenosis Due to Ligation During MAP Before and After Stenting and at 5-Year Follow-Up



(A) Pre-procedural optical coherence tomography (OCT) image showing a compressed vessel with 3 normal layers. (B) Pre-procedural intravascular ultrasound (IVUS) image showing a vessel bent from the epicardial side (*). (C, D) Post-procedural OCT and IVUS showing good stent expansion and apposition (minimal stent area [MSA]: 6.1 mm²). (E) Post-procedural longitudinal multidetector computed tomography (MDCT) image showing a well-expanded stent adjacent to the MAP ring. (E') Post-procedural short-axis MDCT image showing a well-expanded stent adjacent to the MAP ring (red arrowheads). (F, G) Five-year follow-up OCT and IVUS images showing a stent covered with homogeneous neointima without significant stent recoil (MSA: 5.6 mm²) or stent fracture. (H) Five-year follow-up MDCT image showing a well-expanded stent adjacent to the MAP ring without deformation. (H') Five-year follow-up short-axis MDCT image showing a well-expanded stent adjacent to the MAP ring (green arrowheads). Abbreviations as in Figure 1.

REFERENCE

1. Grande AM, Fiore A, Massetti M, Viganò M. Iatrogenic circumflex coronary lesion in mitral valve surgery: case report and review of the literature. *Tex Heart Inst J* 2008;35:179-83.

KEY WORDS iatrogenic coronary stenosis, intravascular imaging, percutaneous coronary intervention