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IMAGES IN INTERVENTION

Giant Coronary Artery Pseudoaneurysm Formed After Septal Artery Perforation During Retrograde Percutaneous Coronary Intervention

A Conservative Strategy With Serial Cardiac Computed Tomographic Imaging

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A 71-year-old man underwent percutaneous coronary intervention for chronic total occlusion of the right coronary artery. Following septal dilatation with a 1.25-mm balloon, a Corsair microcatheter (Asahi Intecc, Nagoya, Japan) was advanced retrogradely through the septal artery, with substantial resistance, using the anchor balloon technique. After successful revascularization and removal of the microcatheter, a giant pseudoaneurysm of the septal artery was demonstrated (**Figure 1A**, Online Video 1). Notably, the localized pooling of the contrast medium in the pseudoaneurysm gradually drained into the right ventricle. The patient had no chest symptoms or hemodynamic instability. Post-procedural cardiac computed tomography confirmed active blood flow from the pseudoaneurysm to the right ventricle (**Figures 1B to 1D**); therefore, we managed the pseudoaneurysm conservatively. One day later, cardiac computed tomography showed a marked reduction in the dimensions of the pseudoaneurysm (**Figure 1E**). Four days later, the patient was discharged in stable condition. At 6-month follow-up, cardiac computed tomography confirmed complete resolution of the giant pseudoaneurysm (**Figure 1F**).

This is the first report of a giant coronary artery pseudoaneurysm formed after septal artery perforation during retrograde percutaneous coronary intervention, with spontaneous resolution confirmed by serial cardiac computed tomographic imaging. A retrograde approach using septal collateral channels can be safe and feasible, because most cases of septal artery perforations are often minor and asymptomatic (1). Nevertheless, in some cases, catastrophic complications such as cardiac tamponade (2) and interventricular septum hematoma causing myocardial infarction (3) or biventricular obstructive shock (4) have been reported, and the best management strategy remains uncertain.

In this case, advancement of the microcatheter caused an extensive laceration and rupture of the

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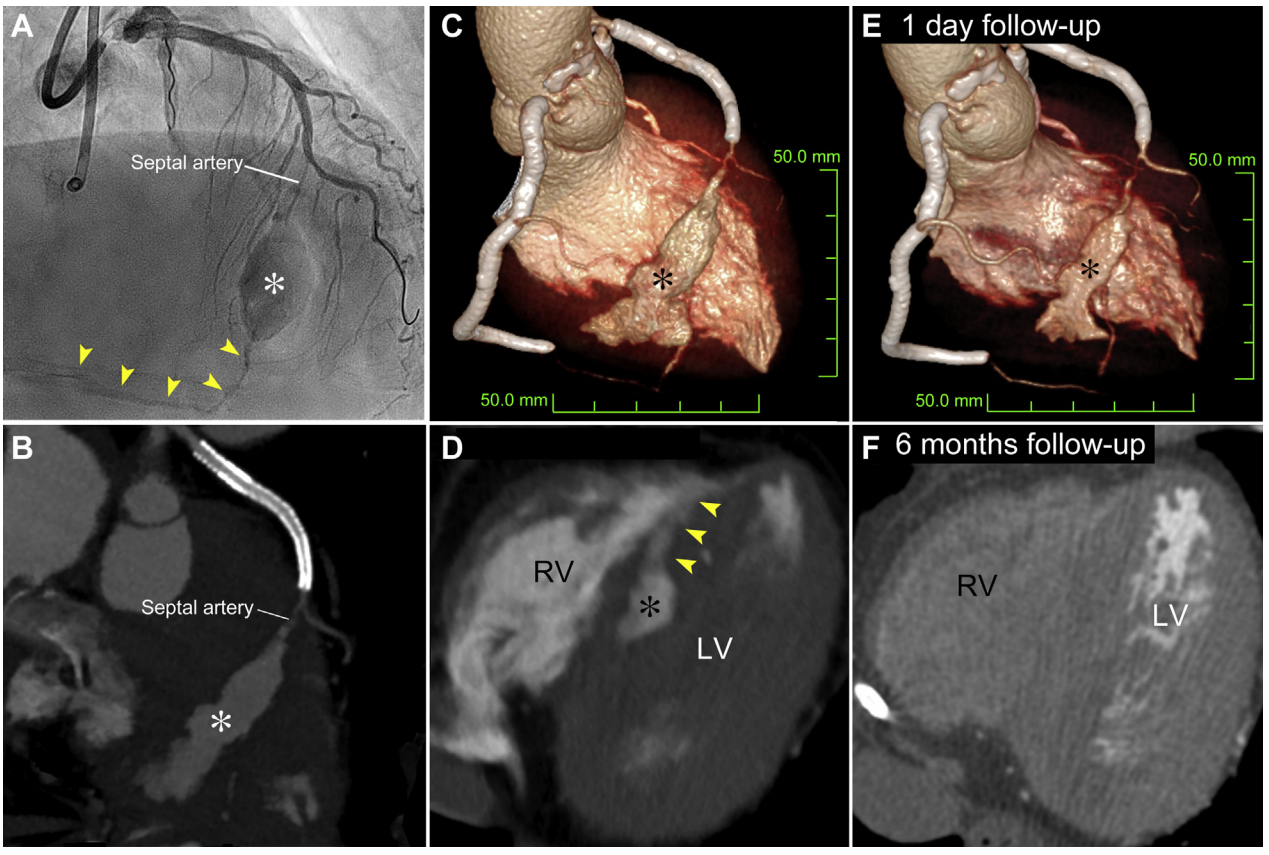
FIGURE 1 Coronary Angiography and Serial Cardiac Computed Tomography of a Giant Coronary Artery Pseudoaneurysm



(A) Post-procedural coronary angiography (Online Video 1) and **(B–D)** cardiac computed tomography (CT) showing the giant pseudoaneurysm **(asterisk)** of the septal artery. Cardiac CT demonstrating the giant pseudoaneurysm (maximal luminal diameter 8.7 × 22.4 mm, longitudinal dimension 51.0 mm) in the ventricular septum and no pericardial effusion. Note the active blood flow from the pseudoaneurysm to the right ventricle **(yellow arrowheads in A and D)**. **(E)** Follow-up cardiac CT at 1 day showing a marked reduction of the pseudoaneurysm (maximal luminal diameter 6.3 × 10.6 mm, longitudinal dimension 46.0 mm). **(F)** Follow-up cardiac CT at 6 months demonstrating complete resolution of the giant pseudoaneurysm. LV = left ventricle; RV = right ventricle.

septal artery, which was compressed by the left ventricular myocardium, resulting in partial hemostasis and formation of the giant pseudoaneurysm. However, the pseudoaneurysm had active blood flow into the right ventricle, leading to spontaneous decompression and resolution.

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KEY WORDS chronic total occlusion, complications, pseudoaneurysm, retrograde percutaneous coronary intervention

APPENDIX For a supplemental video, please see the online version of this paper.