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Complete Percutaneous Obliteration of a Post-Infarction Left Ventricular Inferior Wall Pseudoaneurysm

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A 67-year-old woman, with a history of inferior wall myocardial infarction, presented at a general hospital with a 4-week history of sudden onset heart failure in New York Heart Association functional class III. Echocardiography revealed inferior wall pseudoaneurysm formation, probably because of recent myocardial infarction (Fig. 1A). Because the patient refused the proposal of immediate surgical treatment, we planned a percutaneous procedure. Coronary angiography revealed occlusion of the peripheral segment of the right coronary artery, multilevel critical stenoses in the left ante-

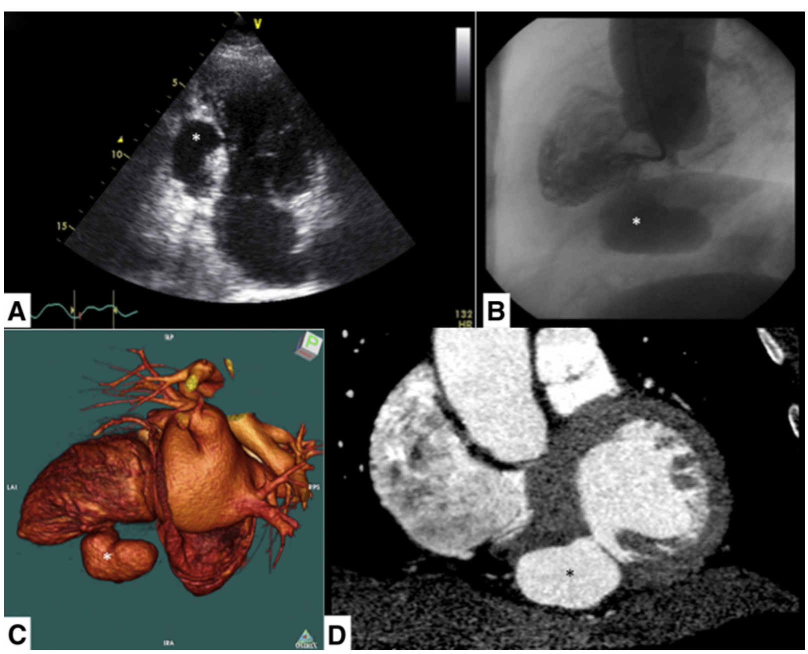

Figure 1. Inferior Wall Pseudoaneurysm Formation

(A) Echocardiography (apical 2-chamber view): inferior wall pseudoaneurysm cavity. **(B)** Left ventriculography view: rupture in the left ventricular inferior wall and opacification of pseudoaneurysm cavity. **(C)** Multislice computed tomography reconstruction: for optimal visualization of pseudoaneurysm cavity, the right ventricle was removed. **(D)** Left ventricle and pseudoaneurysm cavity— largest dimension cross-section: noticeably thinned myocardium within post-infarction necrotic tissue in the region of inferior wall and myocardial discontinuity visible. Posteromedial papillary muscle is localized superior to the pseudoaneurysm orifice. *Pseudoaneurysm cavity.

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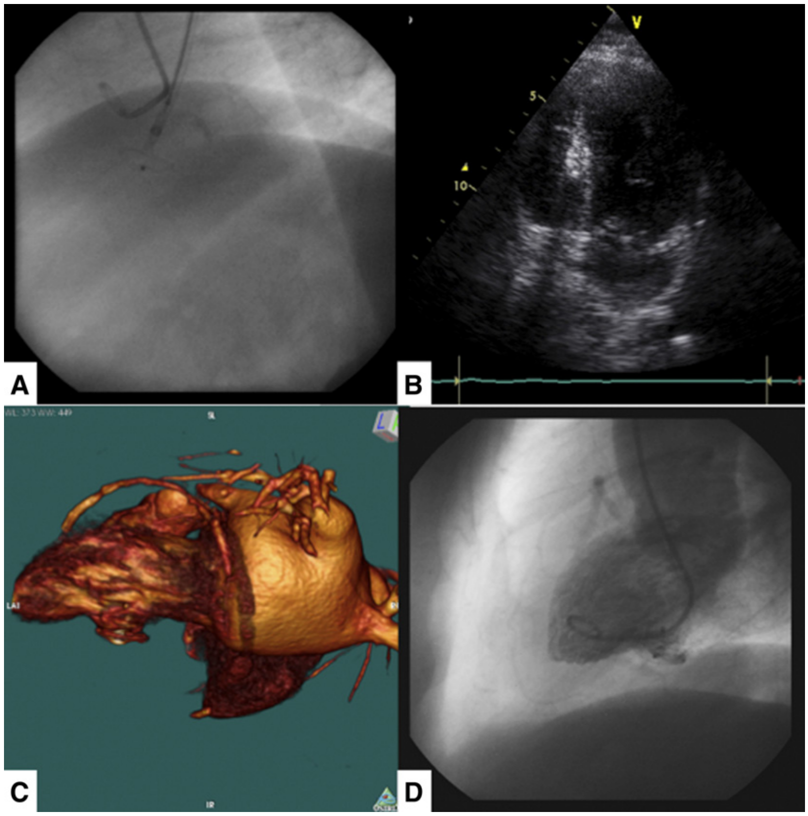

Figure 2. Procedure Views

(A) Pseudoaneurysm closure with occluder: distal disk placed in the pseudoaneurysm cavity. Proximal disk placement was preceded by pigtail catheter maneuver to temporarily "displace" the postero-medial papillary muscle body. **(B)** Transthoracic echocardiography 3 weeks after pseudoaneurysm closure: 8-mm atrial septal occluder tightly covers the tear of the inferior wall of the left ventricle. **(C)** Multislice computed tomography reconstruction 3 weeks after pseudoaneurysm closure: the occluder is localized in the former rupture site. **(D)** Left ventricle ventriculography 3 weeks after pseudoaneurysm closure: pseudoaneurysm cavity is not opacified.

rior descending coronary artery (LAD), and rupture of the left ventricular inferior wall with opacification of a pseudoaneurysm cavity (Fig. 1B). Cardiac imaging was supplemented by multidetector computed tomography, which visualized the pseudoaneurysm cavity (Fig. 1C) and noticeably thinned necrotic tissue within the inferior wall and allowed us to precisely determine the relation between rupture site and papillary muscle (Fig. 1D). Therefore, we decided that a staged procedure should be performed: a percutaneous closure of the pseudoaneurysm, and afterward elective LAD angioplasty. A pigtail catheter was introduced transfemorally into the left ventricle, and another one—via transbrachial access with a 7-F sheath—served as a gateway for the closing device delivery system. The procedure was performed under fluoroscopic and transthoracic echocardiographic guidance. During the implantation, the pigtail catheter was used to temporarily move the papillary muscle body away from the lesion (Fig. 2A). This technique facilitated accurate placement and full expansion of an 8-mm Amplatzer Septal Occluder. As a result, complete sealing of the pseudoaneurysm orifice was achieved. Moreover, originally moderate ischemic mitral regurgitation diminished to trivial instantaneously (probably due to ventricle geometry improvement promoted by inferior wall stabilization). No early complications occurred; and after 2 days, the patient, in New York Heart Association functional class I, was discharged from the hospital. Three weeks later complete pseudoaneurysm closure was confirmed by echocardiography (Fig. 2B), multislice computed tomography (Fig. 2C), and ventriculography (Fig. 2D), and elective LAD angioplasty with implantation of 2 drug-eluting stents was performed. At 6-month follow-up, the result of the aforementioned staged procedure was satisfactory, and our patient was asymptomatic.

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