Intravascular Ultrasound Diagnosis of a Coronary True Aneurysm After Palmaz-Schatz Stent Implantation

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A 60-year-old man was admitted because of unstable angina. A baseline angiogram showed a severe stenosis in the midportion of the left circumflex artery (Figure 1A). An intravascular ultrasound (IVUS) study performed before percutaneous transluminal coronary angioplasty (PTCA) showed a huge eccentric plaque in the target lesion site. We performed PTCA using a 3.0-mm balloon catheter inflated at 8 atm for 120 seconds. After balloon deflation, the angiogram showed an apparent dissection at the dilatation site (Figure 1B). Additional PTCA could not resolve the dissection, and high residual stenosis remained. Therefore, we attempted to implant two 3.0-mm Palmaz-Schatz (P-S) stents to cover both the entry and reentry of the dissection. After stenting, the angiogram showed adequate dilatation of the target site, and there was no apparent residual dissection or extravasation of the contrast agent (Figure 1C).

A follow-up coronary angiogram 6 months after stenting showed a saccular dilatation between the 2 P-S stents (Figure 2). IVUS performed at this time for differential diagnosis showed that the aneurysm was a true aneurysm (Figure 3B) with a vascular structure having normal arterial elements. Because the aneurysm was a true aneurysm without thrombus formation, surgical repair was not considered.

When ≥3 stents are needed to cover the entire dissected segment, stenting on only the beginning and end of the dissection with two stents seems an attractive alternative to reduce procedural costs. However, as shown in this case, leaving some dissection uncovered can result in a large aneurysm. Therefore, complete coverage of the dissection is strongly recommended, even in long dissection segments. IVUS can clearly differentiate a coronary aneurysm by directly visualizing the details of the wall morphology, offering potential evidence of the pathogenesis of this entity. By differentiating pseudoaneurysms from true aneurysms, the information from IVUS will lead to optimized treatment of the patients.

Figure 1. A, Left coronary angiogram showing severe stenosis in midportion of left circumflex artery (arrow). B, After PTCA, a local dissection was recognized (between arrows). C, After implantation of two P-S stents.
Figure 2. Coronary angiogram 6 months after PTCA showing saccular aneurysm at site of PTCA (arrows). A, Right anterior oblique view. B, Left anterior oblique view.

Figure 3. Coronary angiogram and IVUS imaging of left circumflex artery. Angiogram revealed saccular aneurysm between 2 stents. IVUS shows characteristic features of a true aneurysm. A, Proximal P-S stent site. B, Aneurysm between 2 stents (7.0×5.0 mm). C, Distal P-S stent site.
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