

IMAGES IN INTERVENTION

Optical Frequency Domain Imaging of Covered Stent-Graft for Pulmonary Artery Pseudoaneurysm After Balloon Pulmonary Angioplasty



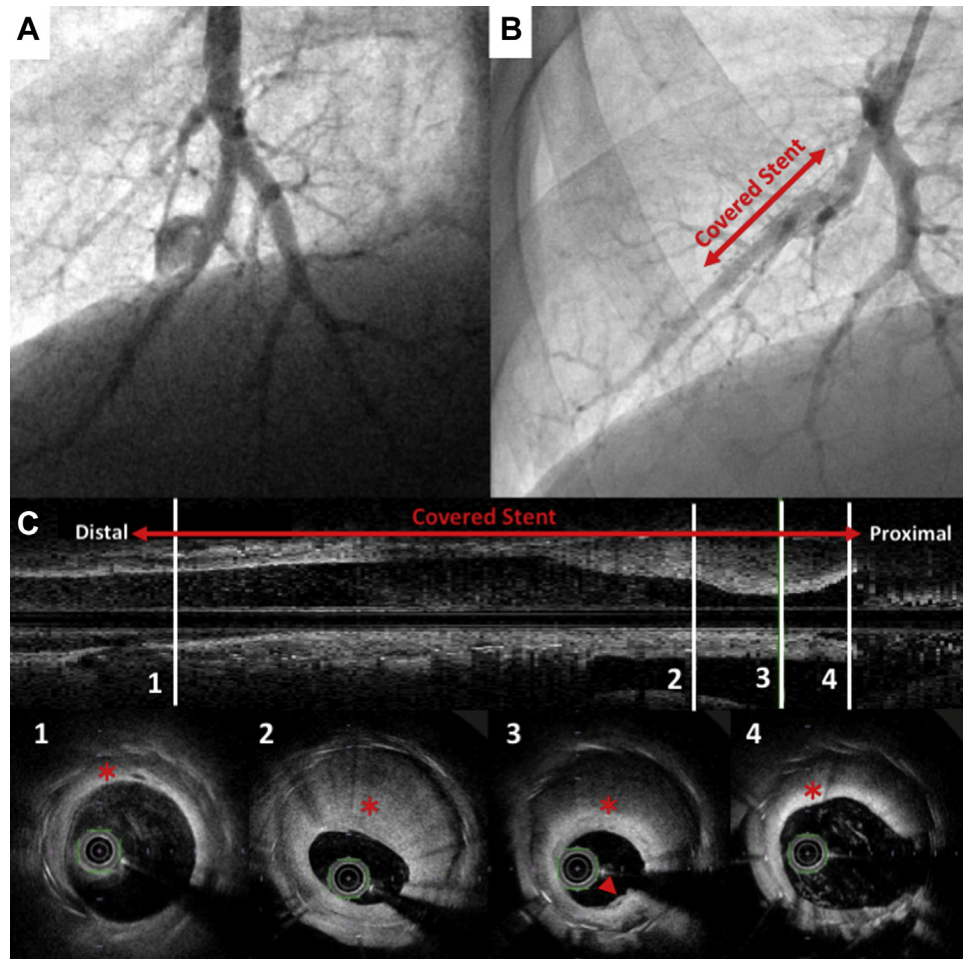
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A 60-year-old man with inoperable chronic thromboembolic pulmonary hypertension was referred to our hospital for balloon pulmonary angioplasty (BPA). Four series of BPA dramatically improved pulmonary hypertension: mean pulmonary arterial pressure from 42 to 29 mm Hg and cardiac index from 1.9 to 2.5 l/min/m². However, during the last BPA to a residual lesion (right #9), vessel rupture and aneurysmal formation occurred (Figure 1A). We implanted a covered stent (GRAFTMASTER RX, Abbott Vascular, Santa Clara, California) to seal the orifice of the pseudoaneurysm and then added aspirin to warfarin. A follow-up (18-month) pulmonary angiography showed the patency with 50% diameter stenosis of the stent (Figure 1B). Optical frequency

domain imaging (OFDI) (TERUMO Co., Tokyo, Japan) also demonstrated the high-intensity concentric neointimal layer in the stent with little thrombus (Figure 1C, Online Video 1). The covered stent was reported to be useful as a bailout tool for pulmonary artery rupture associated with BPA (1). However, its structural characteristics and long-term patency remain unknown. Our case suggested that neointimal hyperplasia might largely contribute to the in-stent stenosis in the pulmonary as well as coronary arteries (2).

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FIGURE 1 Pulmonary Artery Pseudoaneurysm After Balloon Pulmonary Angioplasty and OFDI Images of Covered Stent

(A) Angiographic pulmonary pseudoaneurysm after balloon-induced rupture. (B) Findings 18 months after covered stent implantation. (C) Longitudinal (upper) and cross-sectional (lower) optical frequency domain imaging (OFDI) of covered stent (Online Video 1). The asterisks indicate neointima and the arrowhead indicates thrombus.

REFERENCES

1. Ejiri K, Ogawa A, Matsubara M. Bail-out technique for pulmonary artery rupture with a covered stent in balloon pulmonary angioplasty for chronic thromboembolic pulmonary hypertension. *J Am Coll Cardiol Intv* 2015;27:752-3.
2. Kubo T, Tanaka A, Kitabata H, et al. Application of optical coherence tomography in percutaneous coronary intervention. *Circ J* 2012;76:2076-83.

KEY WORDS aneurysm, balloon pulmonary angioplasty, chronic thromboembolic pulmonary hypertension, complications, covered stent, OFDI

APPENDIX For a supplemental video and legend, please see the online version of this article.