Pathography of Superficial Femoral Artery Treated With ELUVIA™ Paclitaxel Eluting Stent

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A 77-year-old man undergoing hemodialysis presented at hospital because of intermittent claudication of his right leg. Angiography revealed 99% stenosis in the middle part of the superficial femoral artery (Figure A). Computed tomography (CT; Figure B) and intravascular ultrasound (IVUS; Figure C) demonstrated diffuse, mildly calcified, eccentric plaque. Endovascular treatment was performed, and 2 ELUVIA™ paclitaxel eluting stents (PES; Boston Scientific, Marlborough, MA, USA) were implanted. Postoperative angiography (Figure D) and IVUS imaging (Figure E) revealed no residual stenosis and well expanded stents. Dual-antiplatelet therapy (cilostazol 200 mg and clopidogrel 50 mg) for 4 months followed by single-antiplatelet therapy (clopidogrel 50 mg) was administered. After 7 months, the patient died of cerebellar hemorrhage.

Pathological sections of the treated lesion demonstrated good stent expansion and no restenosis at the stented site (Figure F). Most of the stent struts were covered by fibrin, without any overlaying endothelial cells (Figure G). The percent coverage of struts by neointima was 32%. All struts were well apposed on the vessel wall. To the best of our knowledge, this is the first case report to show co-registered angiogram, IVUS, CT, and histological sections of ELUVIA-PES that clearly show the process of healing after implantation.

Previous histological analysis has demonstrated that the main cause of stent thrombosis of TAXUS® PES (Boston Scientific), which was previously available for coronary arteries, was excessive fibrin deposition followed by stent malapposition. When the pathological findings of ELUVIA-PES for femoropopliteal arteries and TAXUS-PES for coronary arteries were compared, both stents had fibrin deposition around the struts, suggesting the drug’s effect on reducing restenosis. On the other hand, strut malapposition not being observed with the ELUVIA-PES may be due to its self-expanding stent nature. Further histopathological evaluation is needed to understand the histologic responses of ELUVIA-PES for femoropopliteal lesions.

IRB Information
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Reference