Chronic Total Occlusion Complicated by Dissection

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BACKGROUND

Percutaneous transluminal angioplasty (PTA) with drug-eluting technology has rapidly become a standard technique for endovascular treatment of symptomatic femoropopliteal lesions.

PTA increases vessel lumen by disrupting plaque and stretching the vessel, often causing dissection. If left untreated, flow-limiting dissections can lead to therapeutic failure and reintervention.

When deployed, Tack® implants are designed to treat acute dissections by apposing damaged tissue to the inner luminal surface with low outward radial force with resultant minimal vessel inflammation. A patient from the Tack Optimized Balloon Angioplasty (TOBA) II trial is described.

TACK® IMPLANT

The Tack device (Intact Vascular, Wayne, PA) is a self-expanding, low outward force nitinol implant (Figure 1) designed for spot treatment of dissection following angioplasty. The Tack implant is mechanically unique in that it adapts to the diameter of the artery and may be used across all reference diameters ranging from 2.5 to 6.0 mm to manage dissections with minimal metal implantation. Six implants measuring 6mm are pre-loaded onto a 0.035” guidewire compatible delivery system.

METHODS

Our patient is a 52-year-old male with HTN and dyslipidemia. Angiography revealed a moderately calcified 41mm total occlusion (Figure 2) in the right distal superficial femoral artery (SFA).

A guidewire and support catheter were used to cross the lesion. A distal embolic protection device was advanced, and a 5mm x 60mm non-coated PTA balloon was inflated for 30 seconds at 8 atm. A 5mm x 100mm drug-coated balloon was then inflated for 180 seconds at 6 atm.

Post-PTA angiography in orthogonal views revealed a type D dissection (Figure 3). A 6Fr Tack Endovascular System was advanced over the guidewire, and 3 separate Tack implants were deployed to focally treat the dissection.

Tacks were post-dilated per study protocol using a new non-coated balloon.

All angiographic findings were confirmed by a core laboratory.

RESULTS

Final angiography revealed a patent vessel with only a small residual dissection (Figure 4), confirmed by core laboratory.

CONCLUSION

Treatment of dissections with Tack implants may represent a versatile and viable alternative to stenting that markedly reduces the metal burden in the treated vessel.

CAUTION: Investigational device.

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