

Successful treatment of PAD with the Diamondback 360® Peripheral Orbital Atherectomy System highlights benefits of utilizing a pedal approach.

Dr. Farhan Ali, MD, MA, MPH, FACC, FSCAI, RPVI, Interventional Cardiologist, Heart Center of North Texas, Fort Worth

INTRODUCTION

In today's challenging healthcare landscape, getting patients in and out of the hospital or clinic quickly and efficiently minimizes risks and frees up resources that are under strain. The ability to offer outpatient percutaneous peripheral intervention (PVI) procedures with fast recovery times and same-day discharge benefits patients and providers alike.

The Diamondback 360 Peripheral Orbital Atherectomy System (OAS) is a useful tool to treat complex calcified peripheral artery stenoses. Our institution has successfully incorporated Diamondback® atherectomy into our outpatient PVI program and its low profile allows for multiple access points and quick recovery time.

Advocating a pedal approach for more cases in our practice has opened a new level of appreciation seen in our patients' treatment results and overall satisfaction. Taking a "pedal first" approach has allowed us to minimize therapies for more long-term options and reduce procedure and recovery time.

PATIENT

The patient is a 72-year-old female experiencing disabling claudication of the right lower extremity, causing the patient pain and negatively impacting her quality of life. Despite prior treatments that included optimal medical therapy and a failed exercise walking program, the claudication did not improve.

The patient had also previously undergone a percutaneous coronary intervention (PCI) of left anterior descending and circumflex arteries to treat coronary artery disease (CAD).

The patient's right leg was noticeably pale, starting below the knee. Ultrasound imaging showed a velocity change in the distal superficial femoral artery (SFA) and occlusion in the anterior and posterior tibial arteries.

TREATMENT

The patient received multi-level peripheral artery disease (PAD) therapy intervention via a right dorsalis pedis access. We used an ultrasound-guided dry needling technique to address the chronic occlusion of the anterior tibial and distal pedal arteries. Below the knee of the right leg showed complete occlusion of all three vessels with slow collateral flow.



The Diamondback 360 Peripheral OAS with a 1.25 mm Micro Crown was selected. Its low profile allows for minimized arteriotomy insertion. This was used to navigate to the right anterior tibial artery and address the chronic total occlusion. A 2.0 mm Classic Crown was used to modify the occlusion in the focal distal SFA.

Orbital atherectomy and percutaneous transluminal angioplasty was performed to successfully revascularize the right anterior tibial and distal right SFA via a single access point. Orbital atherectomy was performed with one pass each at low, medium and high speeds.

The right anterior tibial artery and focal distal SFA were further treated with balloon angioplasty using a 3.0x150 balloon and a 5.0x60 balloon. We applied slow progressive inflations of 30 seconds to reach nominal pressure of 8 atm for a total of 60-90 seconds.

Post-intervention ultrasound and pulsatile sheath flow are identifiers of direct line flow to the foot once the sheath is removed. Post-procedure, the lower right leg showed three vessel runoff at the tibial trunk, with single vessel runoff of the anterior tibial and marked improved collateral flow of the mid peroneal and posterior tibial arteries compared to complete total occlusion pre-procedure.

OUTCOME

The entire procedure lasted 35 minutes. After the standard two-hour post-procedure recovery, the patient was discharged with a simple adhesive bandage on the access point in the foot.

Upon follow-up, the patient reported that her pain and discomfort had improved. A palpable dorsalis pedis arterial pulse was noted, and the pallor of the right lower leg had been restored. In the future, patient progress will be closely monitored and medically optimized.

This case's success indicates that saving the foot from the foot is an avenue worth exploring for the efficient maintenance of progressive PAD.

CONCLUSION

Many PAD patients present with unique morphology that requires interventionalists to challenge their skills. Our practice chooses the Diamondback® OAS because its orbital mechanism of action allows crown contact with 360 degrees of the vessel wall. This tool allows us the ability to scale and customize the treatment of calcific and multi-disease lesion types to meet specific patient needs. In frequent use, the Diamondback OAS continues to prove a dependable balance of vessel modification and safe outcomes.

The variety of Diamondback OAS crown options has proven effective in our practice's "pedal first" access approach. The low-profile insertions allow the ability to tunnel from the most painful treatment zone in the tibial arteries to the larger superior vessels with ease. Once we began tracking our results with the Diamondback OAS, we realized that it contributes to our practices' low instance of dissection and low rates of long vessel stenting.

Using the right tools and the right approach, our facility is experiencing an average procedure time of 30 minutes. And the recovery experience for the patient has improved. Patients who have experienced both the femoral and pedal approach prefer the faster and more comfortable recovery that the latter offers.

Indeed, going trans-pedal is not a skill set you can achieve overnight. Still, it is feasible to gain that skill set over time, similar to how many operators have moved to a trans-radial approach for coronary procedures.

As with any intervention, gaining confidence with ultrasound-guided access is crucial to a pedal first approach's success. Both pedal and tibial access success require practice to gain a mastery of awareness of where your needle tip is in relation to your ultrasound probe. However, with that practice, you will be able to offer your patients a quicker procedure and quick recovery, allowing them to get back to their lives feeling better faster.

Reminder: Do not use the device in a vessel that is too small for the crown. The reference vessel diameter at the treatment area must be at least 2.00 mm in diameter for the 1.25 mm Micro Crown.

Right Anterior Tibial



Pre imaging of Distal Anterior Tibial following successful cannulation of Ultrasound Guided Drystick Access



Fluoro capturing initial low speed pass of 1.25 Micro Crown in Distal AT via pedal access



Dense flow Post OAS PTA main body of Right Anterior Tibial free of major dissection



Post OAS PTA of Proximal Right Anterior Tibial

Right SFA



Pre-stenosis image of Hunters canal region of Right SFA



Fluoro capturing initial low speed pass of 2.0 Classic Crown in Hunters canal SFA via pedal access



Nominally inflated 5x60 mm Sterling balloon in Distal Adductor SFA



Post OAS PTA of Right SFA

Source: The Transpedal Approach is the Future of Peripheral Intervention in Office-Based Labs. <https://www.cathlabdigest.com/content/transpedal-approach-future-peripheral-intervention-office-based-labs>

Indication: The Diamondback 360® Peripheral Orbital Atherectomy System is a percutaneous orbital atherectomy system indicated for use as therapy in patients with occlusive atherosclerotic disease in peripheral arteries and stenotic material from artificial arteriovenous dialysis fistulae. **Important Safety Information:** The System is contraindicated for use in coronary arteries, bypass grafts, stents, or where thrombus or dissections are present. Although the incidence of adverse events is rare, potential events that can occur with atherectomy include: pain, hypotension, CVA/TIA, death, dissection, perforation, distal embolization, thrombus formation, hematuria, abrupt or acute vessel closure, or arterial spasm.

Caution: Federal law (USA) restricts this device to sale by or on the order of a physician.

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Dr. Ali is a paid consultant of CSI. This article is supported by Cardiovascular Systems, Inc.