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Cutting Down on Cutdowns With the Pounce™ LP Thrombectomy System

A conversation with Dr. Christopher Leville.

Vascular surgeon **Dr. Christopher Leville** is associated with the CentraCare-St. Cloud hospital, located an hour's drive northwest of Minneapolis, Minnesota. He serves a patient population of 800,000, spread out among several rural counties reaching as far west as South Dakota. At least half the patients he sees have lower extremity chronic or acute ischemia. Dr. Leville was an early adopter of the original Pounce™ Thrombectomy System (Surmodics, Inc.), intended for 3.5 to 6 mm arteries, and now also uses the Pounce™ Low-Profile (LP) device in 2 to 4 mm vessels, notably including the tibials. We spoke with Dr. Leville about the patients he treats and the role of the Pounce™ System in his practice.

What is the care pathway for acute limb ischemia patients at your facility?

When someone comes in with leg pain or swelling, our emergency room (ER) staff always perform a deep vein thrombosis (DVT) scan first because DVT is by far the most common issue. If the DVT scan is normal, patients typically receive a quick arterial duplex ultrasound scan. If that shows obstruction or thrombus, or there's a pulseless leg, they call us. Then, depending on the patient, we will look further with CT.

I usually see the patient first in the ER, and there I can usually determine whether an intervention needs to be done right away or if it can wait 24 hours. If they've been having symptoms for 2 weeks, they're much more likely to have chronic disease. If they've had symptoms for 3 hours and have paralysis of their foot, then it's obvious that intervention is needed right away.

How do you treat patients who do not require immediate intervention?

As a surgeon, I prefer whatever is least invasive and safest for the patient. In the case of a patient with neurologic function and pain, that often means thrombolysis if angiography indicates it is likely to be effective within 24 hours and the patient is a good candidate. That's the traditional role of tissue plasminogen activator (tPA), especially if the patient has had previous bypass surgery and there's scar tissue. If tPA fails after 24 hours, I may try another percutaneous approach, but if the patient has, say, long-segment thrombosis through a stent or bypass, I'm more likely to opt for open surgery.

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Having said that, I've found the Pounce™ System to be a good day 2 device after using tPA. There's almost always some residual clot after tPA, and that clot tends to be more chronic. By using the Pounce™ System in these situations, I've been able to avoid some surgery with cutdowns and Fogarty thrombectomies.

What's your approach to treating more acute patients?

For the patient who has loss of neurologic function, you can't wait 24 hours for thrombolysis to work. You have to either do a surgical thrombectomy or a percutaneous intervention, either with a mechanical or aspiration device. The Pounce™ System has been a good mechanical option for many of those acute cases. If you have chronic thrombus or embolic plaque that has embolized distally during a planned case, the Pounce™ System gives you the option to retrieve clot or debris without having to convert to open surgery. If there's no disease in the arteries and extensive clot, it can be fairly simple to use aspiration thrombectomy, but it can be really hard to use aspiration thrombectomy in diseased arteries. I'm much less likely to use aspiration in that situation because I'm worried about embolizing plaque.

Why is that?

When you're using aspiration, regardless of which device you use, you're typically treating from top-down: proximal to distal

through the thrombus. Usually you're keeping wire access and depending on the device not to embolize clot distally. But I find that it's harder to prevent embolization working proximal to distal if there's a stenosis or a severely diseased artery.

What I like about the Pounce™ System is that it behaves more like a Fogarty balloon. You start distal to the thrombus and withdraw back, just as you would with a Fogarty. In situations where you're concerned about distal embolization, it can make more sense to use a Pounce™ System. We do Fogarty procedures without wire access all the time—you just thread the catheter down the leg, inflate the balloon, and withdraw the clot. The Pounce™ System behaves very much like that. That's why I use it. The last thing I want to do is to have to convert a case from percutaneous to open surgical or overnight tPA in the intensive care unit if that's not what we had planned. The Pounce™ System gives me a third option.

How did you deal with embolized clots in the tibials before you had the Pounce™ LP System?

Embolizing plaque is terrible, and we really have had limited options to get that embolus out. We used to try to use Export™ catheters (Medtronic) or other devices, or even a SpiderFX™ filter (Medtronic) or other off-label uses, but everything was suboptimal. In these situations you can use the Pounce™ LP System on label very quickly, without major setup. You just open the package, get out the embolus, and a major problem is often resolved within minutes without surgical cutdown or another procedure with tPA.

Along the same lines, sometimes you get called in for a patient with atrial fibrillation who has a cold leg and they have a focal clot at a specific spot. That's an easy surgical case—you just do a little cutdown to get the clot out. But even in those cases, the patients are usually sick or hemodynamically unstable, so doing a cutdown with sedation can be hard on them. It's nice to have the Pounce™ System as an option because, in my experience, a one-stage percutaneous intervention is much better tolerated from an anesthesia and blood loss standpoint and reduces risk of complications. It's evident after you do a few procedures with the Pounce™ System successfully that it's better for the patient compared with having to do a cutdown. Sometimes we can remove a short clot with one pass of the device. Longer clots may require more passes.

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How has the availability of the Pounce™ LP System impacted your treatment of tibial vessels?

With the original Pounce™ System (indicated for 3.5 to 6 mm vessels), you were typically limited to going down to the popliteal or maybe the tibial peroneal trunk for some patients. The smaller Pounce™ LP System (indicated for 2 to 4 mm vessels) is much better suited for the tibials. Typically, it's long enough to allow you to reach down to the ankles from a contralateral approach.

If it's a chronic limb-threatening ischemia case, where we're not dealing with thrombus, we always start with angioplasty or atherectomy for tibial arteries, but those arteries can shut down and clot. In those situations, you can use the Pounce™ LP System to resolve the clot.

Has your use of the Pounce™ System at all changed or evolved since you began using it?

Yes, I'm now more inclined to work on cleaning more clot from targeted vessels. Even after restoring blood flow during an intervention, there are often these little hanging clots left behind. Before we had the Pounce™ System, we were more likely to say blood flow is okay, and even though there's still a little bit of clot, it'll clean up with anticoagulation. Unfortunately, these patients often come back with more problems if you don't clean everything out. I don't do that at all anymore. Now, if there is remaining thrombus, I can go after it. ■

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