

## What is Peripheral Artery Disease?

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Peripheral arterial disease like there is coronary artery disease there peripheral arterial disease which is disease of the arteries of the periphery, which is the legs and the arms. Mostly when we call peripheral arterial disease we are trying to say about the lower extremities, which is the legs. And what we have seen in patients with diabetes, hypertension, high cholesterol, and smoking history, which is like every other patient nowadays in Texas, we see that they grow into more plaque and they grow intimal thickening in their peripheral arteries, which makes very difficult for circulation to reach the muscles of the lower extremity, which gives them different symptoms including pain. But in the long run, this disease turns into what we call CLI critical limb ischemia, which is actually very debilitating for anyone because it develops into these ulcers, which then get infected and people then go on to get amputations and stuff. So initially this disease was not thought to be that severe. And nowadays, with the new research that came in, it shows us not only severe and debilitating, it's also deadly. Because most of these patients that go on to get amputations, many of die with many of them within one to two years, even die after they're above the knee amputations.

## What are the symptoms?

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Initially, you could see hair loss, you could see difficulty in walking, pain on walking, and skin changes. And you tend to ignore that, you know, when we have chest pain or headache, we run to the hospital, we call our doctor, if you have some kind of leg pain, we just tend to ignore this. But I think those are the signs that doesn't need to be ignored because if you catch it at the earliest stage, the treatment is much more easier if you catch it at a later stage. It has a lot of other issues to deal with. So the symptoms can vary by it's a variety of symptoms but usually you would have pain and tenderness in the lower extremities, and then the pain advances that not even on walking, you could have pain also on like sitting down, and then you develop ulcers and all these other manifestations including gangrene, which really becomes very debilitating to the patient.

## What are the usual treatments for PAD?

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Initially, there were only surgeries but nowadays with the latest catheters and wires and devices, the most recent devices, atherectomy devices to scrap out calcium and different technological aspects of the disease, we were able to merge to bring this technology to our community. So nowadays, we can just go in from a hole, pass the wire, we have different kinds of balloons, some of them have wires in it, some of them have drugs in it, and treated with that we have different kinds of stents, different kinds of devices. So what I'm trying to say is completely percutaneous minimally invasive manner, we can go it and treat it. But there is another aspect to this sometimes the calcification is so severe And particularly those who are long standing smokers, which in Texas is a lot in our community, it's a lot of prevalence about that. And for those actually even to pass a wire or catheter becomes very difficult. So then we depend on other technology and our skills to do that. And that's when it comes in into this new research that we have acquired. And we are offering this to our patients. And we are very fortunate to actually be first in Texas on that. And that's what we tease I tease my colleagues in Dallas and Houston as well, because they brag about their big cities and we here in Lubbock, at Texas Tech, we have this

technology that we're offering to our patients, which is like percutaneous bypass we call it usually for surgical bypass, you have to cut open the limb then you have to do this bypass this is strictly percutaneous. We just go from a hole and those patients who qualify for this study, we run through the checklist and after that, we just offered them this minimally invasive bypass that we use the vein to put a stent in from the artery to the artery, bypassing that section of blockage, and they do pretty well, they do pretty good.

## What happens if PAD is not treated?

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There are two aspects of the disease that people have to understand. One is the debilitating aspect of it the disability part because if let's say in long run, you get an amputation. amputation is not just the disease of one person is the disease what I call the entire family. Because if there's one bread earner in the family, and he loses his job because of his disease, the entire family suffers. So the consequences and complications of the disease are beyond just one person. That's one thing. There is another aspect of it you know, people think okay, if there is an amputee, what else matters and studies have shown that is above the knee amputation, one or two years people even die. So it's a deadly disease critical limb ischemia should not be taken lightly. You know, so all patients who feel like they are symptoms they can they are screening programs that we have in our clinic downstairs at the Texas Tech cardiology clinic. And if patient walks into us, we have a comprehensive program from the start to the end from just going over the educational aspects of the disease, still the testing part and the treatment part. And actually, we're very fortunate that this area, the kind of technology that we have to treat like disease is like, I'm not going to compete with the locals. I'm just gonna say at the Texas level, actually, we have some stuff that we are very proud about in our program.

## What makes someone a high-risk patient?

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So actually, when we talk about surgical risk stratification for patients going on for surgery, some of the times you worry about surgery that are high risk, versus lower surgery, high risk surgeries are usually those that you feel like they might bleed a lot. They might have some kind of bleeding disorder, or the surgeries are extensive, but there's another aspect of it as well. general anesthesia as well, because these patients are put onto general anesthesia, they need to have heart in good condition, they need to have no other comorbidities. So there's a lot of checklists, when you run for somebody that you're clearing for surgery, or risk stratifying for surgery. The good thing about minimally invasive part is we don't have to go through that. So patients usually are termed high risk for surgery because in our team, we discuss very closely with the surgeons. So if my surgeons tell me, you know, Mac, this guy is high risk for surgery, and then we think about this other thing, treatment modalities that we can offer them. So in olden days, it used to be such a few have no if you are high risk for surgery, there's no other way for you to get treated. So you just have to suffer your disease. But fortunately enough nowadays with the technology we have in our center, that is not an option to any patient. So if any patient goes anywhere, and there are some high risk for surgery, they should come over here because we have the treatment modalities to help them.

What is the new procedure you offer and why would a high-risk patient have better outcomes?

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So let's say if the patient had no other option, right, and we go through the checklist and patient qualifies for the study. This is a procedure, which actually what it does is it's actually a bypass procedure. But the aspects of the bypass is rather putting, rather putting something cutting the leg and putting it in. What we do is every artery simultaneously have a vein that goes along to it. In this case, a superficial femoral artery has an a vein which comes in so what we do is the blocked part of the artery to bypass that we make a connection percutaneously we don't do any cuts in the limb percutaneously we make a connection between the vein and artery before the blockage and the vein and artery after the blockage. And this is all internal. So there is no cuts no surgery going on. And what we do is we use a stent conduit which is FDA approved, and we connect the artery to the artery bypassing to the vein and back. Now the question would you have is would it affect the vein. Fortunately, nature has provided us plenty of veins, really big veins distended veins, that those patients According to the study, when they have the initial trials show that it doesn't impact on the veins, what it what it does help is give a chance to these patients to have a bypass done percutaneously. And what we have seen on the patients who had it done is they're doing really well and good, actually, patients we heard are back walking, back jogging, back playing doing their daily activities. So just imagine with somebody suffering from this disease, and then not only you provide them a way, you provide them their quality of life back. What could be better than that?

What is the recovery time?

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So our patient, I'm going to talk about our patient because that's, that's the greatest satisfaction we get when we did the procedure. And he went back home after a third Tuesday. We spoke to us on Friday. And then he told us that on the weekend, he was able to walk around and do great and daily activities mowing his lawn. So this is like in three days. So just imagine the difference and the guy was not able to walk properly, is now mowing his lawn.

How common is this procedure?

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Actually, the procedure is fairly new. They're done in other parts of US and Europe. But I heard that in Texas, we're the first one to do it. So that's, that's a big feather, I would say for Texas Tech cardiology, UMC that we were able to do something so unique, so new, so recent, and being the first in Texas to do that.

Anything to say to patients or people in this community?

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It used to be a time that people used to go to Dallas, Houston, Austin, these bigger cities for their care for cardiology part that will be very honest and straightforward that thanking my boss, our chair Dr. Shermer, our colleagues, my staff, my team in the cath lab, my research team under Ronnie the clinical team under Stan, I think we're very fortunate. I think the vision of Texas Tech, UMC with the leadership

over here is that we will provide all the latest research, latest technology, latest treatment and therapy models to our communities over here. And not just that they don't have to travel to other places, they will get all their care here, but an added part, we provide personalized care to our patients. So now what I'm seeing is patients in the suburb of Dallas like Abilene and stuff, what I call that nearby Dallas, even they are coming to us. So this is a message I want to give to our patients to our communities, that we have the technology, we have the therapies, nobody needs to go outside Lubbock, we can provide everything right here in Texas Tech, UMC.