

**DR. AQUILA S.** For doing a thrombectomy, and treating patients with acute ischemic stroke, the stent retriever approach is basically like a stent on a stick, where it pins the thrombus against the wall of the vessel. You leave it expanded for several minutes so that it integrates into the clot, and then the goal is that you take it out, and in the clot is integrated with the stent, and it comes out in one piece. That's the ideal situation.

**TURK:** Aspiration is something that we happened upon back in 2013. And basically, it had to do with taking large catheters up to the level of the occlusion, and just turning on aspiration. And the seminal case for us was a case where we actually did a thrombectomy with a large catheter and the stent retriever through it. And we pulled the stent retriever out, and there was nothing on it. And the catheter was clogged.

So we pulled the catheter out, thinking that we would have to go back up and do it again, and the large clot was embedded in the end of the catheter. So a light bulb went off for us saying, hey, these large catheters may actually work in this way. And that's what started us with trying to use aspiration alone.

Before that, the company sold the catheters, but they had these little wires with stoppers on the end that they used to break up the clot, and then clear the end of the catheter. But what we found was that basically just fragmented the clot, and sent more downstream. And we'd have to work our way through the vascular tree to open one size vessel, and then go to the next smaller, and next smaller. But with the aspiration alone, without breaking up the clot, we were able to pull the entire clot out the majority of the time.

So it gave us an idea, wow, if we can just take a catheter, drive it to the clot, turn on suction, and then pull the clot out, or have it get sucked through the catheter, that would be much simpler, and really a home-run way to go.

So we did a couple of studies that we've published on showing the ADAPT technique. And then from there, the next obvious level was to do a trial, and compare it to stent retrievers as well. So the COMPASS trial is a trial just randomizing patients that come in with the large vessel occlusion. And they either get randomized using an aspiration first approach, versus a stent retriever first approach.

And you have to do that for the first three attempts. And if you don't have the blood vessel by then, then you can do whatever you want to get the vessel open.

And the trial just ended here recently. We've put in Herculean efforts to get the data to where it is, to be able to give preliminary data at the upcoming International Stroke Conference in Los Angeles, here at the end of January. We plan to have the more robust and comprehensive results presenting at the European Stroke Conference in May.

But the preliminary results that we've gotten so far seem very encouraging. There was a previous trial, ASTER, that got released this past year, which is a French study doing the same trial design. And they basically showed that stent retrievers and aspiration were similar outcomes clinically, and angiographically there wasn't a significant difference. But what we've seen so far is, again, almost identical results.

And our primary outcome was a functional outcome, so that the patients were able to be functionally independent. And what we found was that in the ADAPT arm we had about 51% of patients were modified ranking 0 to 2. And in the stent retrieval first approach 49% of patients were functionally independent. So, again, not a significant difference between the two.

The advantages of ADAPT are that it's very easy and simple to do. In other words, anybody who does a catheter-- whether the patient is a neurointerventionalist, or a cardiologist, or a peripheral interventionist, or a vascular surgeon-- when we operate, in due cases, we're all driving catheters over wires through blood vessels. And if the goal is just to take a catheter and drive it to a level of occlusion, and that's all you have to do to get it open, that's about as easy as it gets.

So that also infers speed-- being fast. It infers safety-- that you're not having to deploy multiple devices. And infers lower costs. I think there's a whole lot of things that we think that it will infer. But I think it's just one of those common sense approaches across the board. That is, if it's that simple it should be the easiest way to go.

So for me the COMPASS trial was just the validating final study that gives us Level 1 evidence, that in a head-to-head fashion against stent retrievers that aspiration is at least as good. And it certainly, to me, is the way to start doing a thrombectomy procedure. And the reason I say that is because you simply drive the catheter to the face of the clot. You attempt aspiration a couple of times. If it doesn't work, then at that point you add a stent retriever. And if you do that, you'll have at least as good a success as you would using a stent retriever alone.