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## Using the Wrist to Reduce Risk

*Cardiology Clinic Favors Radial Artery for Catheters*

By STEVE BRAWNER

For about 10 minutes, Garry Devun, 63, from Mountain View had a catheter snaking up his arm, down his chest and into his heart so his physician, William Rollefson, MD, a member of the staff at Arkansas Heart Hospital, could inject dye and look for blockages.

Soon afterward, he was sitting up in bed, chatting with loved ones and watching sports highlights – and all because Rollefson inserted the catheter into his wrist instead of his groin.

It's Devun's third catheter procedure. The first catheter was inserted 10 years ago through the groin, the traditional insertion point used by most cardiologists. The last two have been through the wrist, which Devun said he much prefers. "It was a good experience, and you're in and out, and you're home the next day," he said.

According to Rollefson, inserting the catheter through the groin is a time-tested method that, on rare occasions, can be problematic. That's because the femoral artery is located below the surface tissue, requiring a nurse to apply compression, sometimes manually for 10 to 15 minutes. The patient must lie uncomfortably still for four to six hours until the body heals the somewhat fragile artery. Though rare, bleeding can occur, and because the artery is hidden, the medical staff might not learn of it until it has become a problem.

"You cannot do a heart cath without a certain percentage – 1 to 2 percent is what's quoted – of a groin complication," he said. "That can be anything from a little pain and swelling near the puncture site, all the way to internal hemorrhage requiring an emergency surgery. So how do you get rid of that possibility? You don't stick their groin. And that has really changed my practice dramatically, and it's changing the way we do practice here in central Arkansas dramatically."

Using a radial artery catheter, according to Rollefson, enables a cardiologist to reach a vessel that is just below the skin's surface, so any problems that might arise would be obvious. Bleeding is prevented with a clear plastic band that applies pressure for about an hour. The patient can move freely – even get up to go to the bathroom – almost immediately. Many can go home the same day.

Rollefson began adopting the wrist-based technique



Dr. William Rollefson

about two years ago. He had been using groin-based catheters since he started his fellowship in 1994 but wanted to find a method that would produce better results, create fewer complications, and result in more patient satisfaction. According to Rollefson, "It doesn't matter how good of a job you did with their heart, putting in a stent or doing spectacular work. If they had a groin complication, a hematoma, a blood clot, pain – that's what they remember."

His research led him overseas, where wrist-based catheters are more common than they are in the United States. He trained himself in the technique and has since done more than a thousand radial procedures. Meanwhile, the other 14 cardiologists at the clinic began employing the method. He said it was an easy transition because inserting through the radial artery involved simply learning a new location, not a new set of skills. Moreover, the wrist is roughly the same length from the heart as the groin, so the same length catheter can be used.

"One of the things that has been an impediment to its adoption is a perception that there is a difficult learning curve to overcome," he said. "We did not identify that at all, and I don't think we're any better than anybody else. I think that we were just very committed to it and also chose wisely in terms of how to get the program going."

Cardiologists at the clinic still use the groin procedure when necessary. The radial artery is a little smaller in caliber

than the femoral artery, and it can be more of a challenge to find the inside of the vessel. That can present a special problem for petite women. Two women who have experienced both techniques, in fact, have told him they preferred the groin-based method. Some patients' circulatory systems feature a loop in the elbow area and curves in the thorax that make the groin method necessary.

But for most patients, the radial artery method is preferable. The only discomfort involved is at the insertion, which some patients have told him was less painful than the IV. Some have said it was sore for a few days. Unlike the groin method which requires three catheters, the radial artery technique requires only one. Because patients are only slightly sedated during the procedure, they can comfortably sit up immediately afterward, which makes them more attentive as cardiologists explain their condition and the medical and lifestyle choices they must make. In fact, sedatives aren't absolutely necessary,

so patients who need to drive themselves home can do so. Because there is less staff involved and fewer complications arise afterward, Rollefson said it saves on healthcare costs.

Moreover, the procedure works much better with overweight and obese patients, who may have fat deposits around the groin area that make it difficult for nurses to compress the femoral artery. That's never a problem around the wrist.

Rollefson said he inserts through the wrist 95 percent of the time. After mastering the use of a radial catheter, he began using that artery for stents and other procedures.

And he's becoming somewhat of an evangelist for the cause. After spreading the word to his fellow cardiologists at the Little Rock Cardiology Clinic, he now is teaching the radial method to others across the state. He said though most American physicians still approach through the femoral artery, the radial artery method is becoming more accepted. Catheters are now available that are specifically shaped to enter through the wrist, and the method increasingly is being taught in fellowship programs.

"Cardiologists, just like most physicians, are creatures of habit," he said. "Once they get something down pat, they're going to keep doing it the same way over and over and over again. I was looking for a way to develop a better product and also take better care of my patients, and this has been a godsend."