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Entering blood vessels through the wrist offers an alternative procedure to treat blocked or narrowed coronary arteries, representing a ...



Above: Patricia Gullickson of rural Eau Claire, who once experienced shortness of breath, has more energy to tend to her garden since undergoing a noninvasive heart procedure last October.

Staff photo
by Andi Stempniak

Left: Dr. Mahmoud Sharaf, an interventional cardiologist at the Eau Claire Heart Institute, now is performing radial angioplasties, which are procedures used to open blocked or narrowed arteries in the heart, at Sacred Heart Hospital.

Staff photo
by Shane Opatz

Change of heart

By Christena T. O'Brien
Leader-Telegram staff

Through a needle poke in Patricia Gullickson's right wrist, Dr. Mahmoud Sharaf inserted a guide wire followed by a catheter — a long, thin tube — into her radial artery.

Relying on his training, Sharaf, an interventional cardiologist at the Eau Claire Heart Institute, threaded the catheter through her body's network of arteries in the arm and into the chest, eventually reaching her heart.

He then used a balloon on the end of the tube to open a clogged artery and placed a stent — a small, meshlike device — inside the blood vessel to help prop it open.

Sharaf performed the less-invasive procedure, known as radial angioplasty, on Gullickson in October at Sacred Heart Hospital.

"At first it sounded a little scary, but it wasn't at all," said the rural Eau Claire woman, who turned 81 on Aug. 30.

Gullickson remained awake for the procedure — something she liked. "Dr. Sharaf explained things as he went along and really talked me through it.

"There was no pain, and the recovery was just minimal," she said. "If I had to have it done again, I'd have it done just that way — through my wrist."

The radial artery isn't the only route that can be used to reach the heart for angioplasty. Physicians most often use the femoral artery, which is a major artery in the groin area.

"It's a little bit newer," Sharaf said of the radial approach. "Other countries tend to use that procedure more. It's been sort of slow to catch on in the United States."

Physicians at Luther Midelfort, includ-

ing Dr. Fearghas O'Coichlain, an interventional cardiologist, have been using radial angioplasty for at least a decade.

"It's another technique, but it's not a procedure (that's right) for everyone," said O'Coichlain, who completed fellowships in interventional cardiology at Mayo Clinic in Rochester, Minn., is trained in both femoral and radial angioplasty and has performed an extensive number of each procedure.

For example, candidates for radial angioplasty must have a good blood supply to their hands. (The hand has a dual blood supply via the radial and ulnar arteries.)

The radial artery can be permanently damaged by the procedure in a significant minority of patients, said O'Coichlain, noting this is the most important downside to radial angioplasty. The radial artery also could be used for bypass surgery in the future, and even asymptomatic damage to it may limit options for a patient's care in the future.

The radial procedure cannot be done on patients who have twisted arteries.

Physicians at Luther Midelfort performed about 350 angioplasties in the last year, O'Coichlain said. Of those, 1 or 2 percent were done via the wrist.

"It's not a one-size-fits-all procedure," said O'Coichlain, noting the right wrist is more commonly used. "You pull (the radial procedure) out of the cupboard when you need it."

Dr. Lucien Campeau, a French-Canadian physician, began using the right radial artery as an entry point for diagnostic catheterizations — tests that examine the inside of the heart's blood vessels using special X-rays called angiograms — in the late 1980s, according to the website Angioplasty.Org.

While the radial artery is slightly smaller than the femoral, it still is large enough to allow most catheters to traverse the distance to the heart.

By 1992, a group in Amsterdam, headed by Dr. Ferdinand Kiemeneij, had begun exploring ways to use the radial artery for interventional procedures, such as delivering balloons and stents, according to the website.

The early equipment somewhat limited them, but as catheters and stents got thinner and easier to manipulate, the ability of doctors to use the radial artery increased.

Sharaf, a Canadian native who completed an interventional cardiology fellowship at the University of Calgary, has performed more than 1,000 radial angioplasties during his career, including nearly 60 procedures at Sacred Heart Hospital in Eau Claire.

While also trained in the femoral technique, Sharaf uses the radial approach as his primary approach in almost all cases because, he believes, it offers patients several advantages, including comfort.

Patients undergoing radial angioplasty



O'Coichlain



Staff photo by Shane Opatz

To perform a radial angioplasty, a physician makes an incision in the radial artery in the wrist and threads a catheter into the coronary arteries to clear a blockage or places a stent to hold an artery open.

can sit up and walk almost immediately after the procedure rather than lying flat on their backs and still for a time as required after the femoral approach to prevent bleeding, he said.

The radial artery is close to the skin surface, so once the procedure is completed, a short compression of the artery can stop the bleeding, Sharaf said.

O'Coichlain believes the femoral artery is the easiest site to access, and if it is punctured correctly — over the head of the femoral bone — it is easy to compress against the bone. However, if the artery is punctured incorrectly, it can be difficult to compress as there is nothing to apply pressure against, he said.

"This is one of the reasons why your cardiologist should be careful and well-trained," O'Coichlain said.

The radial artery is thinner and offers a more circuitous route up the arm and

Angioplasty

Coronary angioplasty is a procedure used to open blocked or narrowed coronary (heart) arteries.

During this procedure, physicians usually gain access to the heart's arteries by placing a catheter in the femoral artery in the groin area and threading it up into the heart.

Some physicians are using the radial artery in the wrist to accomplish the same thing.

into the chest, he said. The femoral approach provides the physician with a direct route to the heart.

Arterial spasms are another potential complication, he said. Because of the radial arteries' small size, they can clamp shut when a catheter is inserted into them.

While he acknowledged there can be pitfalls with the radial approach, Sharaf said those typically can be overcome by an experienced physician.

Gullickson was treated using both femoral and radial approaches and prefers the latter.

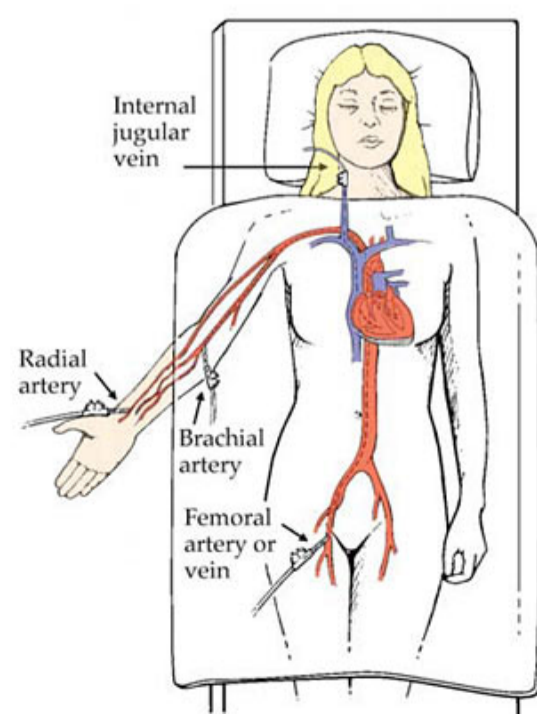
Recovering from back surgery, she suffered a heart attack last September. "If it had to happen, it sure happened in the right place," said a chuckling Gullickson, who was at Sacred Heart Hospital at the time.

The heart attack took the retiree by surprise.

"I didn't realize anything was really wrong," she said. "I was short of breath, but I thought that was normal for my age."

Going through her femoral artery, Dr. Abd Khatib, who specializes in cardiovascular disease and internal medicine, performed an angiogram, which uses X-ray imaging to see the inside of the heart's blood vessels. Gullickson then had stenting done, at Khatib's request, by another physician, Sharaf said.

Radial Angioplasty



Included in this graphic are insertion sites for radial and femoral angioplasty. The radial artery is located in the wrist near the hand, and the femoral artery is located in the groin area.

Source: Mayo Clinic