

Robots aid hip surgery

Surgeons use latest technology for proper placement

By **BOB GROSS**

Orthopedic surgeons at St. Joseph Mercy Port Huron will be using GPS, not to find the best route from home to the hospital, but to find their way around a patient's hip.

The hospital is adding new surgeon-controlled robotic technology that will assist doctors doing hip replacements. It is the first in the state to do such surgery, hospital spokeswoman Stephanie Helton-Armstrong said.

Called MAKOplasty Total Hip Arthroplasty, the procedure uses Global Positioning System technology and a robotic arm to help surgeons more accurately place the cup and ball implants that replace the natural hip joint.

Better placement, said Dr. Edward Nebel of the Nebel Orthopedic Center in Port Huron, means less wear to the prosthesis components.

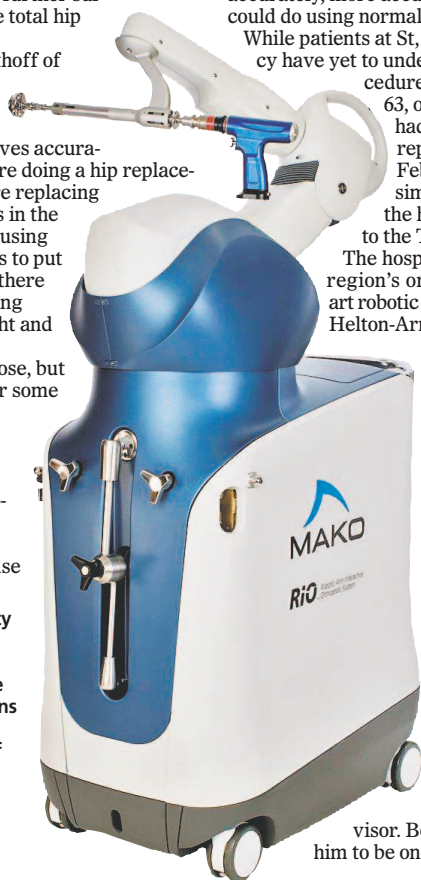
"Robots offer the potential to improve implant position," Nebel said. "That will further survivorship of the total hip prosthesis."

Dr. Scott Heithoff of Orthopedic Associates in Port Huron agrees it improves accuracy. "When we are doing a hip replacement and we are replacing the components in the patient, we are using bony landmarks to put those things in there correctly — using our own eyesight and feeling."

"It's pretty close, but there's room for some error."

Nebel, who is certified in the new total hip arthroplasty procedure at St. Joseph Mercy, said surgeons use

The MAKOplasty Total Hip Arthroplasty robotic machine is a tool surgeons can use for hip replacements, if the patient qualifies.



different strategies to place the hip socket component including external positioning aids.

"But in a study at Massachusetts General Hospital (in Boston) with a group of highly experienced surgeons, they were successful in obtaining the desired cup position in only 50% of cases," Nebel said. "These are trained orthopedic surgeons."

"These observations have led investigators to pursue the use of computer-assisted navigation and robots to improve precision and accuracy of placement of components for total hip replacement."

He cautioned the procedure is not appropriate for all patients.

The procedure begins with a CAT scan that gives doctors a three-dimensional reconstruction of the patient's hip.

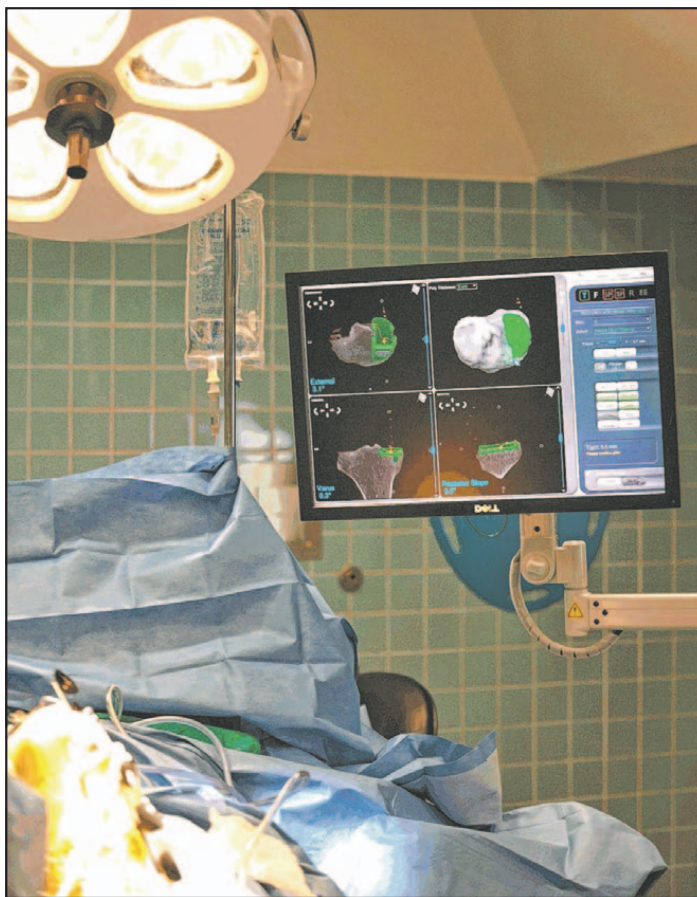
"From there, we plan out their hip replacement," Heithoff said. "And using this new robotic surgery, components are placed in the patient very accurately, more accurately than we could do using normal techniques."

While patients at St. Joseph Mercy have yet to undergo the procedure, Jim Venia, 63, of Marysville had a partial knee replacement last February using similar technology the hospital brought to the Thumb in 2010.

The hospital remains the region's only state-of-the-art robotic surgical service, Helton-Armstrong said.

"My knee was bothering me," Venia said, "and I couldn't stand on it very long without it aching, and I couldn't run without it hurting," he said.

A former football coach and currently interim athletic director and assistant principal at New Haven High School, Venia also works at Ford Field as a security supervisor. Both jobs require him to be on his feet.



Advanced robotic-assisted surgery for hip replacement is coming to St. Joseph Mercy Hospital in March. The technology is similar to what the hospital now uses for partial knee replacement, above. It includes a computer-aided Global Positioning System, allowing for pinpoint accuracy to position the implant.

His left knee, he said, had deteriorated, mainly because of "wear and tear."

"I pretty much abused my knees over the years," he said. "I played three sports in high school and a couple in college and I played recreational softball for a number of years."

He said having the knee repaired worked out great.

"I'm just about doing everything," he said. "The only limitation they put on me was no long-distance jogging, and that didn't break my heart to hear that because I'm not really a jogger anyway."

"I just wanted to be able to walk normally, to be on my feet for an extended period of time without it aching and be free to pursue other

activities later in life."

Heithoff, who is being trained and will be certified in the new hip replacement procedure, said the recovery period will be about the same, but the hip prosthesis "theoretically will last longer because it's in the correct position."

"The components should function better because they are in more accurate alignment."

He said surgeons likely will be doing more hip replacements. "As the population ages, as the baby boomers are aging, the number of hip replacements we are doing is going to go up significantly as the years progress," he said.

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