

Norwalk surgeon first in Fairfield County to use custom-fitted knee prosthetics

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Published 1:15 pm, Monday, February 1, 2016



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NORWALK -- A Norwalk Hospital orthopedic surgeon is the first in Fairfield County to implement a new, hi-tech knee replacement procedure.

Working with a company called ConforMIS, Dr. Michael Lynch of the Norwalk Hospital Joint Replacement Center has begun offering a new type of knee replacement that uses a 3D printer to create femoral and tibial implants that are unique for each patient.

A standard knee replacement procedure, according to Lynch, usually involves reshaping the ends of a patient's femur and tibia so that the bones will fit one of several sizes of pre-made knee prosthetics.

Occasionally, there are problems with a one-size-fits-all prosthesis, Lynch said.

"If it overhangs (the knee bones), then a tendon might rub up against it," for example, Lynch told The Hour.

By contrast, a custom-fitted knee prosthetic could have a notch cut into it to avoid contact with the tendon, Lynch added.

In the new procedure, a CAT scan of the patient's knee is fed by ConforMIS into a 3D printer which fabricates a nylon mold that is then used to cast a metal prosthetic for the patient.

"They print a nylon mold that they then pack in sand and cast it, and then finish it so that what ultimately comes out is the knee," Lynch said. "It's pretty cool, because you just put it on and they fit like a glove."

The result is a surgery that is less invasive and has a speedier recovery time than conventional knee replacement, although Lynch said he doesn't recommend the procedure in all cases.

"It allows for us to take a little bit less bone overall, so it's a little less surgery, (which) allows for a little less trauma and a faster recovery," Lynch told The Hour.

Lynch's first ConforMIS implant surgery was performed on Alan DiPietro, a lifelong Norwalker and Norwalk Fire Department veteran suffering from severe osteoarthritis in both knees.

"I guess my body has taken some pretty bad abuse over the years, between sports -- football, lacrosse -- when I was a kid, and the 31 years on the Fire Department," DiPietro, 54, told The Hour. "I got kind of beat up in all the different jobs that I performed there."

DiPietro, who had received six prior knee surgeries, said that he was barely mobile prior to his knee replacement.

"I couldn't do hardly any walking because of the pain," DiPietro said. "When I went downstairs I had to go one stair at a time because the pain was so excruciating."

Now retired from the Norwalk Fire Department and employed part-time at Collins Funeral Home while running an embroidery and T-shirt business on the side, DiPietro said he was pleasantly surprised with the surgery's effectiveness and limited recovery time.

"You do still have some pains, but nothing like what it was before the surgery," said DiPietro, who will have his other knee replaced in April. "The recovery time was ridiculous, on the good side."

"I'm a gadget man, and I'm like, 'You know what? Technology is good,' " DiPietro told The Hour. "I'm all for it."

Lynch said that he has now performed the surgery on about 30 patients with good results.

He sees the new procedure as an important advance that will "push the needle forward" for joint replacement surgery in general.

Lynch is not the only orthopedic surgeon in southern Connecticut who has used 3D printing technology for personalized care.

Dr. F. Scott Gray, a surgeon based at Danbury Hospital with a practice in Ridgefield, has used a 3D printer to create individualized models that he said helped to greatly simplify a difficult procedure for treating an arthropathic bone-flaking condition known as Charcot foot.

"This is a really interesting application," Gray, referring to his own use of a 3D printer, told The Hour in October 2015. "It was amazing how much less complicated it made (the surgery) for me."

