



JOHN PEMBERTON/The Times-Union
Carolyn Greiner's son, Max, broke his leg while at day care. The device in his thigh bone, called a PediLoc, allows a faster way for the bone to heal without restrictions on the growth plate. The PediLoc is made specifically for pediatric patients.



JOHN PEMBERTON/The Times-Union
An X-ray shows Max Greiner's left leg and the long metal plate that was attached to his femur after a clean break.

Max Greiner hobbled around his family's Lego-strewn living room, swinging his left leg as if it were a piece of lumber jutting from his hip.

"This," said the 4-year-old's mother, Carolyn, "is a first since yesterday."

Those small, tentative steps Tuesday afternoon represented significant progress for a St. Johns County boy who nearly a month earlier lay on a surgical table with a femur snapped clean through.

The solution - a stainless steel plate that is the first of its kind designed specifically for kid-size limbs - may set a standard in the treatment of fractured bones in children, Max's doctors say. He was the first patient to be implanted with the device, which was approved by federal regulators in January.

"In the past, it's really been a matter of talking to the companies that make instruments for adult patients and trying to work with them to make things that will work for children," said Kevin Neal, the Nemours Children's Clinic orthopedic surgeon at Wolfson Children's Hospital who performed Max's surgery.

For years, pediatric surgeons have been bending and cutting adult-size plates in the operating room to fit children. Their bones are shorter and more bowed and remain so until the child stops growing, Neal said.

"We say they're the MacGuyvers of surgery," said Greg Downey, vice president of business development for a device maker called OrthoPediatics, of pediatric bone surgeons. "They're incredible at what they do and with few resources."

The company is the maker of Max's plate.

Medical device makers traditionally have shied away from designing plates for children because the adult market, with its replacement knees and hips, is so lucrative. Downey's Indiana-based company a few years ago became the first manufacturer to focus solely on children's orthopedics.

"The entire growth in the adult market in a year is our entire market," he said.

But surgeons who work on children say that OrthoPediatics' emergence is long overdue. Although other device makers would adapt adult plates for children, they never seemed to have the right feel, said Craig Robbins, an orthopedic surgeon in Jackson, Miss.

"I personally would prefer to use a plate that is based on the anatomy of a child and precontoured to fit that child's bone than a plate made for an adult that has to be contoured for a child," Robbins said.

The device embedded in Max's thigh bone, known as a PediLoc, was approved for marketing by the U.S. Food and Drug Administration based on its similarity to previous devices. It has not been formally tested against other devices on the market.

In marketing materials, the PediLoc resembles a metallic ruler with holes punched in it. Besides a pair of fading scars on the outer side of the leg above the knee and below the hip, Max's plate is invisible.

His leg shattered during a brief tussle with a larger child at day care. Doctors gave his parents two options: surgery or six to eight weeks in a body cast.

"He's a child who is active," Carolyn said, explaining their decision to go with surgery, which occurred April 24.

His recovery has been swift. After four days in a wheelchair, the boy graduated to a walker. As of last Monday, he could walk on his own. On the following day, he rolled around on the couch and stumped around the house without assistance, apparently without pain.

"It's not hurting anymore," Max told visitors at his home Tuesday. "I can move again."