

Where Surgery Was the Standard, Casting May Be the Future (w/ Video)

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Bryce Dupler travels from Ohio for casting with Dr. James Sanders at Golisano Children's Hospital.

(PhysOrg.com) -- New research from the University of Rochester Medical Center (URMC) may lead doctors to choose to tweak an old technology ? casting ? over using high-tech implantable devices for children with progressive infantile scoliosis. Casting has fewer, and less serious, potential complications, and it requires no surgery.

When parents are told their babies' scoliosis needs treatment, they often try bracing first. If that fails, they need surgery to place metal rods in their backs with spinal fusion later on. These [children](#) face the risk of complications from the surgery and their backs and chests may be stiff

for life.

New research from the University of Rochester Medical Center (URMC) challenges that treatment convention and may lead doctors to choose to tweak an old technology - casting - over using high-tech implantable devices. Casting has fewer, and less serious, potential complications, and it requires no surgery. In fact, with the right training and equipment, the specialized, series of casts can be done as outpatient procedures.

“Best of all, we can cure some children with progressive infantile scoliosis, something we can’t do with surgery and devices,” said James O. Sanders, M.D., chief of Pediatric Orthopaedics at the URMC and author of the research published in this month’s Journal of Pediatric Orthopedics. “If we cast these children before their curvatures become severe and before they turn 2, our chances of avoiding surgery and potentially curing them are much better.”

The study followed 55 patients with progressive infantile scoliosis (or early-onset scoliosis) a rare and potentially fatal form of spinal curvature, at Shriners Hospitals for Children in Erie, Pa., Salt Lake City and Chicago. Pediatric orthopaedic specialists used a method of casting, called EDF (for extension, derotation and flexion) that capitalizes on children’s rapid growth to untwist and un-curve their spines over time. The method uses a specialized table and casts with strategically placed holes Sanders and URMC colleague Paul Rubery, M.D., an orthopaedic surgeon, are two of only a handful of surgeons nationwide who use this specialized method with the goal of curing, not just delaying surgery.

Children are given anesthesia and ventilated during the casting because the pressure on the chest during the procedure can make breathing difficult. The cast may extend over the shoulders like a tank-top and

down to the pelvis, but large holes are left open between to relieve pressure on the chest and abdomen while preventing the ribs from rotating. The entire procedure can take less than an hour. Depending on the child's age and severity of the curvature, the series of casts (removed and refitted every eight to 12 weeks) could be completed in about two years.

Although the casts can be restrictive and cause some trouble with mobility, initially, Sanders said parents are almost always surprised by how quickly their children adapt and how little having a cast changes their lives. Children can't swim or be immersed in a bath, but they are otherwise unrestricted in their activities.

Current treatments, such as the vertical expandable prosthetic titanium rib (VEPTR), which are attached to the inside of the ribs and adjusted over time, and growing rods, which are inserted near the spine and lengthened over time, are aimed at delaying spinal fusion. They are not meant to be a cure for the disease, and they present a whole host of potential complications, such as infection, pulling loose and causing stiffness in the chest and back.

"Casting remains the only method which can cure some of these curves," Sanders said.

But casting doesn't cure all curvatures and some children may still require growing rods of the VEPTR. Among children in this study a little more than 10 percent saw their curves worsen and they needed surgery. Sanders said his future research will focus on finding the best treatment options for these children, for older children and for those with large curvatures.

Provided by University of Rochester ([news](#) : [web](#))

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