



ROBOTS FOR KIDS

WHEN HER 11-YEAR-OLD SON BEGAN TO COMPLAIN OF MILD STOMACHACHES, DENISE GONZALES AT FIRST CHALKED THEM UP TO MERELY A SENSITIVE STOMACH.

“He would only have the pain for an hour, and then it would go away,” Gonzales said. “I thought it might have been due to something he ate at school.”

Working math problems in class one day, her son, Jaime Bazan, felt a discomfort he’d experienced more than a dozen times in his lower left abdomen. This time, however, when he tried to stand up and stretch to ease the soreness, the pain nearly paralyzed him.

“I could barely walk, my side was hurting so bad,” he said.

Jaime was diagnosed with a serious kidney blockage, the real cause of those persistent “stomachaches.” An X-ray later revealed Jaime’s left kidney resembled a “blown-up flower,” his mom said.

Gonzales feared that diagnosis came too late to correct the blockage without scarring Jaime for life.

Fortunately, a special, non-invasive procedure would quiet those fears and make Jaime the first Chicago pediatric patient to undergo robot-assisted urologic surgery.

To Jaime and his mom’s surprise, he was born with this ailment. He had a malformed ureter, the muscular tube that carries urine from the kidney to the bladder, on his left side. A blockage where these two

structures meet, the ureteropelvic junction (UPJ), can inhibit the flow of urine.

“It was similar to a pond,” said Mohan Gundeti, MBBS, director of pediatric urology at the University of Chicago Medical Center. “His body wasn’t able to clean the fluid out.”

Left untreated, the fluid blockage could lead to infection and eventual kidney damage. Because this kind of deformity occurs at birth, patients are almost exclusively pediatric.

Pyeloplasty, which involves cutting the abdominal muscle to access the pelvis and drain the kidney, often requires several weeks of rest for the muscle to recover. Significant work for any parent, Gundeti said, let alone Jaime’s mom who has extensive back problems of her own. “When a child is in the hospital, you have to organize for all the family dynamics,” he said.

Fortunately, the doctor could avoid a major incision in Jaime’s stomach by performing a minimally invasive pyeloplasty and UPJ repair using a robot known as the da Vinci system. (See main story.)

“I was a little hesitant at first,” Gonzales said, “but I was comforted that they would go in and do the open surgery if they

had problems doing the procedure with the robot.”

Instead of cutting into Jaime’s side, as is done in a conventional pyeloplasty, Gundeti used special instruments and a tiny camera to operate through four tiny slits made in the boy’s body.

With surgeon Gregory Zagaja’s help, Gundeti removed the part of Jaime’s ureter that had a kink, and then reattached it to his kidney and formed a new junction. A stent was put in to help the ureter remain open, allowing urine to flow to the kidney naturally.

At his age, Jaime was old enough to be operated on using 8 and 12 millimeter instruments—the same size used for adults. Younger patients typically would be unable to undergo a robot-assisted procedure because the adult tools are too big for their bodies.

That’s changing, Gundeti said. Smaller instruments came on the market this year.

Greater accessibility to minimally invasive surgeries is great news for pediatric patients, said Donald Liu, MD, surgeon-in-chief for Chicago’s Comer Children’s Hospital.

“Besides having excellent cosmetic results where they look like they never had an operation,” he said, “we’re getting excellent operation results, and they go back to play much more quickly.”

LESS TIME RECUPERATING ALSO MEANS THAT PEDIATRIC PATIENTS MISS LESS SCHOOL AND THEIR PARENTS TAKE LESS TIME OFF WORK.

Eleven days after his surgery, Jaime was playing again. In the first few days following his surgery, there were traces of blood in his urine. But Jaime felt OK and recovered quickly. A few weeks later, Gundeti removed the stent holding his ureter open.

“You’d have to look hard to see [the scars],” Gonzales said, pointing to a tiny mark hidden by Jaime’s belly button.

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