Triumph through Teamwork

Collaboration and care coordination change future for conjoined twins at Wolfson Children’s Hospital

By Audrey Doyle

Commitment to a shared goal, open encouragement and support, mutual trust and respect, strong communication and a clear understanding of one’s role: These are the fundamental characteristics of teamwork in athletics.

They are also the qualities of a successful health care team, whether the team is involved in a common, straightforward procedure such as a tonsillectomy, or a rare, complicated procedure such as the separation of conjoined twins that was accomplished last year at Wolfson Children’s Hospital.

“Just like in sports—in health care, teamwork is essential to success,” said Veronica Scott-Fulton, vice president of Operations & Patient Care Services at Wolfson. “This separation surgery is a shining example of how great teamwork and care coordination can lead to a positive outcome.”

A Winning Combination

A nationally accredited, 216-bed tertiary care facility located in Jacksonville, Fla., Wolfson Children’s Hospital is part of Baptist Health System. Along with managing 14 neonatal intensive care unit (NICU) Level II beds at Baptist Medical Center South, Wolfson has pediatric health care partnerships with Nemours Children’s Specialty Care, the University of Florida (UF) College of Medicine, Brooks Rehabilitation and the Mayo Clinic, all located in Jacksonville.

Outstanding teamwork and care coordination among surgeons, physicians, nurses and other caregivers at facilities within and outside of Baptist Health played a crucial role in the May 2015 separation surgery of Carter and Conner Mirabal, 5-month-old conjoined twin boys. These qualities also were vital before and after the surgery.

“Throughout their time with us, we had to work exceptionally well as a team,” Scott-Fulton said. “That was the only way we’d fulfill our mission of delivering safe, high-quality care to these babies and their family.”

Conjoined twins occur when a developing embryo starts to split into identical twins but stops before the process is complete. The condition is extremely rare, occurring in about one out of every 200,000 pregnancies. Separation surgery is even rarer, because not all conjoined twins end up being separated. According to the University of Maryland Medical Center, 40% to 60% of conjoined twins are stillborn and about 35% die within a day. The overall survival rate is between 5% and 25%.

The twins’ mother was first treated at Wolfson when she was experiencing prenatal complications. It was then that Dr. Daniel Robie, chief of pediatric general surgery, and Dr. Nicholas Poulos, pediatric general surgeon, both with Nemours Children’s Specialty Care and Wolfson, began discussing with the parents the idea of separating the babies postpartum.

Because separation surgery had never been performed at Wolfson, the parents initially considered taking their babies to a children’s hospital that had done the procedure in the recent past, such as Texas Children’s; the Houston hospital had performed separation surgery in 1992 and 2015, both times with a successful outcome. However, their faith and trust in Wolfson’s pediatric surgeons, and the physicians’ confidence in the hospital’s experienced health care team, convinced the parents to have the surgery performed at Wolfson.

The babies, delivered at UF Health Jacksonville a month early, were born conjoined from the sternum to the lower abdomen. A combination of magnetic resonance imaging (MRI), ultrasound and angiography revealed that they shared a small intestine and had individual livers that were fused. The imagery also revealed that they were excellent candidates for separation surgery.
So, the next day they were transported to Wolfson. Later that day, Dr. Robie and Dr. Poulos performed emergency surgery to repair a condition that was causing the babies’ small intestine to protrude through a weak area of their abdominal wall, and they placed a mesh patch over the incision to keep the bowel inside. A few weeks later the surgeons teamed up again, this time to remove the patch, partially separate the small intestine and remove a swollen section of the intestine that was causing an obstruction. It was during this procedure that they discovered the babies’ bile ducts were also fused. The surgeons opted to wait until the separation surgery to detach the fused bile ducts and livers.

Practice Makes Perfect

The babies spent the months before the separation surgery in Wolfson’s Level III NICU under the direction of Dr. Josef Cortez and Dr. Ma Ingyinn, neonatologists with the UF College of Medicine–Jacksonville. While there, they were cared for by a team of more than 200 neonatal and pediatric critical care nurses, pediatric respiratory therapists, rehabilitation therapists, child life specialists, pediatric chaplains and other caregivers.

Initially, the surgery was scheduled for the end of the summer. “We consulted with Texas Children’s,” said Scott-Fulton. “They told us to let the babies grow and develop a stronger immune system so they’d be better prepared for the surgery.”

While the babies prepared for the surgery, so did Dr. Robie and Dr. Poulos. They began by building a 17-member surgical care team: Team A for one baby, Team B for the other. A smaller team also was formed to provide backup if necessary. In addition, they recruited Dr. Stephen Dunn, division chief of solid organ transplant for Nemours/Alfred I. duPont Hospital for Children in Wilmington, Del., to separate the fused livers and create two separate small intestines for the babies. Dr. Dunn had experience in separation surgery, having assisted in successfully separating five years earlier twins from India who were conjoined in much the same way as the Mirabal babies.

Once the teams were established, everyone got to work. Each Monday, the surgical and NICU teams met to update one another on the babies’ condition. Early in the process they discussed the surgery and studied a Gantt chart of the steps involved. Then, just like athletic teams practice over and over to prepare for a game, the surgical, NICU and pediatric intensive care unit (PICU) teams began conducting weekly practices of the surgery, from start to finish. If Dr. Dunn couldn’t be present for a practice, he consulted with the teams by phone.

Also providing valuable support were specialists from Texas Children’s, who had taken volumetric CT scans of the conjoined twins they had separated in 2015; from those scans, they had built color-coded 3D models of the twins’ organs, including their livers, to consult prior to surgery. The conjunction of the livers in those twins was similar enough to the conjunction of the livers in the Mirabal babies for the surgical team to use the models as reference during their practice surgeries.

The surgeons also collaborated weekly with the pediatric and neonatal teams to prepare them for their roles post-surgery. And throughout this time, radiologists provided up-to-date imagery of the babies’ anatomy in case their condition deteriorated and they had to be separated earlier than planned.

According to Scott-Fulton, the practice surgeries provided many benefits. “We knew which OR to use, what equipment to use, and what the surgery would entail,” she said. “We believe in evidence-based practice, and these rehearsals, combined with what we were learning from Dr. Dunn and Texas Children’s, taught us how to mitigate the risks involved in this surgery.” The practices also helped the teams prepare for complications—for example, if one or both babies started bleeding out or had difficulty breathing, or if the conjunction was more intricate than they thought.

Besides assuring the team that they were fully prepared, the practices also ensured that everyone was committed to the steps necessary to achieve their goal. “We believe leaders and staff must work together to enhance safety and improve the quality of care and that everyone must have a voice in the process of delivering care,” Scott-Fulton said. “Walking through the surgery over and over gave everyone, regardless of their role, a chance to play devil’s advocate about why a procedure was going to be done a certain way, or why a piece of equipment or a tool was or wasn’t going to be used.”

This built among the team members not only a deep sense of dedication, but also a high level of trust and respect for one another, which further enhanced their ability to collaborate and communicate. Plus, it reinforced the importance of each member’s contribution to the team as a whole, which bonded the team and shone a light on the importance of open encouragement and support in teamwork.

Communication and collaboration with the babies’ parents was also important. Every two weeks the surgical, nursing and NICU teams met with the parents to share illustrations and radiological imagery of the babies’ anatomy and answer questions. In addition, members of Baptist Health’s pastoral services team were available whenever the parents needed spiritual guidance.
Baptist Health's focus on spirituality helped the surgical team, as well. “Our spirituality gives us strength, makes us more collaborative and less judgmental, and keeps egos and competition from getting in the way of our ability to deliver safe, quality care,” Scott-Fulton said.

Due to issues with the babies’ health, the surgery was performed in May 2015, a few months earlier than planned. The 12-hour operation went well, with no unexpected surprises. After surgery, the babies were cared for by a team of UF College of Medicine–Jacksonville pediatric critical care physicians and Wolfson pediatric critical care nurses, respiratory specialists and other health care professionals, led by Wolfson PICU medical director Dr. Solange Benjamin-Thorpe. Conner was transferred to Brooks Rehabilitation for inpatient physical therapy just before his first birthday, but is now home; Carter is still at Wolfson, but hopes to join his brother in the near future. “Both babies are doing really well,” Scott-Fulton said, and added that, thanks in large part to the strong teamwork and coordination involved in their care, the babies “have the opportunity to live normal lives.”

According to Scott-Fulton, working as a team to coordinate the babies’ care before, during and after the surgery provided advantages that continue to this day. “Before this case, everybody knew their strengths as individuals,” she noted, “but they didn’t appreciate how important each person’s skill can be on a large team.”

The experience also created a more engaged workforce with a deep sense of camaraderie. “What we did for these babies and this family was a huge morale booster for us,” she said.

“We don’t work in silos, and we don’t allow egos or competition,” she concluded. “This case showed us we can win if we come together as a team, communicate well and support, trust and respect one another.”