

Midwest Fetal Care Center introduces operative fetoscopy to the Upper Midwest

by Dan Deuel and Theresa Skillrud



While carrying twins can bring much excitement for expectant mothers, it can also present potentially life-threatening complications that are unique to twin pregnancies.

One third of all identical twins are at risk for developing Twin-to-Twin Transfusion Syndrome (TTTS), a condition where fetuses develop unbalanced perfusion through shared placental vasculature.

The syndrome occurs only in identical twins that are monochorionic and diamniotic. Without treatment, mortality for both twins is as high as 90 percent. Traditional treatment with serial amnioreduction can result in survivors in up to 50 percent of cases, but 25

Brad Feltis, MD, (left) and William Block, MD, said the desire to offer operative fetoscopy — specifically fetoscopic laser ablation therapy to address Twin-to-Twin Transfusion Syndrome — was the driving force behind the creation of the Midwest Fetal Care Center.

percent of amnioreduction survivors have long-term developmental delay.

Fetoscopic laser ablation therapy

Fortunately, fetoscopic laser ablation therapy, the latest advance in maternal fetal medicine to treat TTTS, is helping to significantly improve outcomes for twins affected by TTTS. Recent data shows that with



the procedure there is a 75 to 90 percent survival rate of at least one twin and a 35 to 40 percent survival rate of both twins. In addition, the likelihood that the surviving baby will develop complications or developmental delay is lowered to 8 percent.

Until last year, however, fetoscopic laser ablation therapy was only available to patients in the Upper Midwest who were willing to travel to a few centers around the country. Now it is available in the Twin Cities at the Midwest Fetal Care Center, through the collaboration of Minnesota Perinatal Physicians and Pediatric Surgical Associates. Pediatric ENT physician James Sidman, MD, was instrumental in uniting the two practices and approaching Abbott Northwestern Hospital and Children's Hospitals and Clinics of Minnesota about working together.

"The driving force behind the creation of the Midwest Fetal Care Center was the desire to provide operative fetoscopy — specifically fetoscopic laser ablation therapy to address TTTS," Sidman said.

Diagnosis and surgery

The procedure entails the use of a tiny scope inserted through the uterus to find the blood vessels connecting the two babies. A laser is then used to coagulate the shared vessels, thus allowing each

Bruce Ferrara, MD, a neonatologist and Children's professional staff member, discusses Ryleigh Hanley's progress with her mother, Jessica Peltz. Ryleigh and her sister, Skylar, were successfully treated for TTTS using fetoscopic laser ablation therapy at the Midwest Fetal Care Center.

baby its own circulation. Between 20 and 30 percent of twins sharing a placenta develop complications related to TTTS.

"The temptation is to follow obstetrical training and see all patients on a monthly basis, but TTTS can develop and accelerate rapidly," said William Block, MD, medical director of the Midwest Fetal Care Center. "In two weeks you can go from no evidence of complication to full-fledged problems. So we recommend an ultrasound every one to two weeks for at-risk twins, to monitor fluid volumes."

Ideally, fetoscopic surgery for TTTS is performed between the 18th and 26th weeks of gestation because doing so early in the pregnancy increases the babies' chances of survival.

"The earlier we can intervene in the process, the better the outcome," said Block, a maternal fetal medicine specialist with Minnesota Perinatal Physicians and an Abbott Northwestern professional staff member.

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A first for Minnesota

The center also offers diagnostic testing, fetal assessment, surgery, prenatal counseling, support services, and postnatal care. Its team of professionals can treat chest anomalies, neurological disorders, cardiac disease, twin-related conditions, fetal tumors, gastrointestinal disorders, abdominal wall defects, genital urinary problems, and other conditions.

But it is the operative fetoscopy capability that truly differentiates the center. “We could have put up a ‘fetal care center’ sign years ago, but we didn’t want to just open it in name alone,” said Brad Feltis, MD, surgical director of the Midwest Fetal Care Center. “Instead, we felt we needed to offer operative fetoscopy — a service that truly defines an advanced fetal care center.”

The Midwest Fetal Care Center is the only center of its kind in the state of Minnesota and only one of a small number of programs in the United States to



Paula Wickham, a sonographer with Minnesota Perinatal Physicians, performs an ultrasound with an expectant mother. One of the goals of the Midwest Fetal Care Center is to give patients single-site access to all the care they need.

offer fetoscopic laser ablation therapy. Few fellowship training programs in pediatric surgery and perinatology teach operative fetoscopy procedures. It has been estimated that annually only 10 percent of United States patients eligible for this procedure actually access it.

Multidisciplinary specialists; one location

“In the past, both Brad and I had patients — roughly 30 to 40 a year — leave the Twin Cities to have this kind of therapy. Neither of us felt it was right for them to have to travel to access that expertise,” Block said.

So, in January and February of 2008, Block and Feltis traveled to Leuven, Belgium — to a center that performs about 250 in-utero procedures a year — and to France for six weeks of observation and training from some of the world’s foremost experts. Another Minnesota Perinatal Physicians surgeon, David Lynch-Salamon, MD, subsequently trained in Leuven, and joined Block and Feltis to compose the core of the Midwest Fetal Care Center team.

They are supported by an interdisciplinary team of medical and surgical specialists, ultrasonographers, nurses, and care coordinators, as well as the specialized capabilities of Children’s and Abbott Northwestern.

“The Midwest Fetal Care Center is one of a few places in the country where families have access — in a single location — to a team of multidisciplinary specialists,” said Feltis, a pediatric surgeon with Pediatric Surgical Associates and a Children’s professional staff member. “Whether patients need to see a surgeon, neonatologist, geneticist, or perinatologist, we feel good about making the process as easy as possible for them. Ideally, it will enhance their well-being and increase their satisfaction,” Feltis said.

“Perfect balance of skill sets”


Block and Feltis perform procedures together — something they believe is a factor in their strong outcomes, which are better than the national average.

“It’s really the perfect balance of skill sets,” Feltis said. “Bill has the experience in prenatal diagnosis, placental physiology, and other fetal therapies. And I have extensive endoscopic surgery experience.”

“Brad will see things that I don’t see and vice versa,” Block said. “Given the highly technical nature of this surgery — you only get one chance to do it correctly — working together is certainly an advantage that we feel is important.”

“We have meetings to review results with cardiologists, pediatric ENTs, neonatology, and our nurses. We are really trying to live a multidisciplinary approach, and I think it’s made a big difference in our outcomes,” Block said. ★

Children's introduces sacral neuromodulation to pediatric patients



Yuri Reinberg, MD, performs sacral neuromodulation on 15-year-old Carsyn Juelsgaard at Children's - Minneapolis. The procedure, which is minimally invasive, uses an external neurostimulator to stimulate the S3 nerve root.

"Children come to see us wearing diapers and they go home wearing normal underwear for the first time in their life," said Yuri Reinberg, MD, of his work on sacral neuromodulation in children with dysfunctional elimination syndrome (constipation, urinary incontinence, bed wetting, and urinary tract infections).

And those patients are coming from all over the country to Reinberg and his partner, David Vandersteen, MD, both pediatric urologists at Pediatric Surgical Associates and Children's of Minnesota professional staff members. "We've had patients recently from North Carolina, Missouri, Louisiana, and the Dakotas," Reinberg said.

Our surgeons have performed more pediatric procedures than anyone else in the U.S.

Indeed, the more than 50 sacral neuromodulation procedures that Reinberg and Vandersteen, have performed on children are more than anyone else in the United States.

Success rate of 85 percent

Performed on adults for more than a decade, the procedure has only recently been performed on children. The minimally invasive procedure, which uses Medtronic's InterStim device, stimulates the S3 nerve root. "It allows the child to feel the need to go to the bathroom — something they don't have prior to the surgery," Reinberg said. As many as 20 percent of children are affected by dysfunctional elimination syndrome, although a majority of these children respond well to medical therapy.

Before a patient is considered for the procedure, they must have failed at least six months of medical and behavioral therapies — a fact that makes Reinberg's and Vandersteen's 85-percent success rate with the sacral neuromodulation procedure all the more remarkable. And the benefits of that success go beyond just diminishing the patient's incontinence.

"There's a huge psychosocial benefit for patients," Reinberg said. "Parents tell us their children are different kids. They smile, have friends, and do better in school once that fear of a sudden urinary accident has been

lifted off their shoulders. Some stop taking medications like Ritalin because they're able to concentrate on school instead of worrying about when they might become wet again." ✨

Madeline's story

Sitting in her daughter Madeline's second-grade parent/teacher conference last October, Jane Blackwell was at her wits end. "She was having 22 accidents a day and not able to concentrate in school," said Jane, of Lexington, N.C. "Her teachers didn't know what to do. They started to talk about options for home-schooling her."

In the last three years, Madeline had been anesthetized more than a dozen times for six procedures. But none of them alleviated the incontinence problem she had since she was 3. Then Madeline's physicians at Duke Children's Hospital recommended that she and Jane fly to Minnesota to meet Yuri Reinberg, MD, at Children's – Minneapolis.

"Dr. Reinberg...changed our lives."

Lying in her Children's hospital bed after being fitted for an InterStim device by Reinberg as part of a sacral neuromodulation procedure, Madeline uttered the words: "Mommy, I have to go to the bathroom."

"I couldn't believe what I was hearing," Jane recalled. "It was really the first time she'd said that."

The days that followed were full of many other milestones for Madeline. She slept through the night for the first time in her life. Her teachers noted that she began standing up and participating in class. And her incontinence episodes dropped from more than 20 a day to four or five — in three months.

"I will never be able to explain to anybody what this had done for Madeline; socially, mentally, physically," Jane said. "Dr. Reinberg and the people at Children's changed our lives."



Yuri Reinberg, MD, tells Carsyn Juelsgaard what to expect prior to her sacral neuromodulation surgery.

Children's – Minneapolis expansion update

Work is progressing on the expansion and renovation of Children's – Minneapolis. The seven-story inpatient addition and existing hospital remodel will significantly enhance Children's ability to provide next generation care.

Among the key features of the expansion and renovation will be new operating rooms, new and improved facilities for emergency and trauma services, new intensive care areas, private patient rooms, a new cardiovascular center, and an in-hospital Ronald McDonald House.

Expansion and renovation highlights

- The new Minneapolis emergency department is expected to open in October 2009.
- A new Neonatal Intensive Care Unit will include private rooms, ICC step down rooms, rooms with ECMO technology, and a new family lounge.
- New state-of-the-art surgical suites as well as pre- and post-operating rooms.
- Children's new Cardiovascular Center will integrate a Cath Lab and operating suites, a Cardiac Intensive Care Unit, and diagnostics.
- With approximately 50 percent of Children's patient beds devoted to critical care, the new Pediatric Intensive Care Unit and Intermediate Care Unit area will include more private patient rooms as well as a family lounge and consultation area.
- The expanded medical surgical floors will feature private patient rooms for enhanced privacy and infection control.





Help parents warm up to sun-, insect-protection practices

by Gigi Chawla

Springtime is exciting for all of us — a time to shed our bulky layers of heavy clothing and get outside. At this time of the year, however, it is critical to remind parents of the importance of protecting their children from the dangers posed by sun exposure and from insects.

Sun exposure

Because as much as 80 percent of our lifetime sun exposure occurs during childhood, effective sun protection greatly decreases children's lifetime melanoma risk. Fortunately, there are myriad skin-protection products and practices available.

Age guidelines

- Children younger than 6 months should avoid prolonged exposure to sunlight and wear lightweight and light-colored clothing, which can provide a sun protection factor (SPF) of up to 10.
- Children older than 6 months should use sunscreens, which absorb UVB rays, or sunblocks, which block UVA and UVB rays.

Minimum protection

- Sunscreens should have a minimum SPF of 15, even on cloudy days. The need for vitamin D, which can be satisfied by 30 minutes of sun exposure twice weekly, is not a valid reason to go without some form of sun protection.

Application

- Sunscreens should be applied in a thick layer such that it is difficult to completely rub in and should be

- applied 30-45 minutes before initial sun exposure.
- Sunscreens should be re-applied every two hours, or more often with prolonged water exposure or sweating, even if the sunscreen is waterproof.
- Alternatively, sunblocks with zinc oxide or titanium dioxide can be used for sensitive skin, as they are often free from fragrances and additives. They also offer more complete coverage, as they block both UVA and UVB rays. While sunblocks begin working immediately, they should be reapplied frequently as their effectiveness is based on forming a physical layer to block the sun.

Insects

Protecting children from insects is an equally important warm-weather reminder. Responsible repellent use helps protect against the nuisance of itchy mosquito bites as well as from viral illnesses such as Lacrosse encephalitis and West Nile.

Repellants containing DEET

Products containing 10-30 percent DEET can be used safely on any child older than 2 months of age. Care should be taken, however, to use the minimum DEET necessary to provide adequate coverage. Every 5 percent of DEET provides approximately one hour of protection. Additionally:

- DEET should only be applied once per outing and can be used on exposed skin or on top of clothing — but not under clothing.
- DEET should not be used on abrasions or cuts.

[See next page](#)

- DEET is not water soluble, so it must be washed off with soap and water.
- Combined DEET and sunscreen products are not recommended because the need for frequent sunscreen reapplication could, in rare instances, lead to DEET toxicity.

DEET alternatives

- Natural plant extracts like lemon eucalyptus oil, citronella oil, and soybean oil are non-toxic and offer up to three hours of insect protection. They are, however, about half as effective as DEET.
- Other methods of protection include simply decreasing possible exposure to insects by avoiding outdoors during dusk and dawn, wearing light colored clothing, and avoiding the use of perfumes, scented clothing detergents or fabric softeners.

In June, Children’s Marketplace opens at the new Children’s Specialty Center and features a pharmacy as well as safety products for children and their families. Pharmacists will be available to help patients and their families identify the most appropriate sun-

and insect-protection products. ★



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New to Children’s professional staff

The following providers have recently joined the professional staff at Children’s of Minnesota. For information on credentialing opportunities, contact the credentialing department at (612) 813-6121 or (651) 220-6571.

Children’s Hospitals and Clinics of Minnesota

Tonya Brakey, MD
Emergency Medicine

Nicole Helland, MSW, LICSW
Social Work

Nicole Schmitz, RN, CNP
Emergency Medicine

Mary Ellen Heezen, MD
Hospitalist Program

Cynthia Hibbs, RN, CNP
Emergency Medicine

Stephanie Tschida, RN, CRNA
Anesthesiology

David Hirschman, MD
Emergency Medicine

Danielle Patti, RN, CRNA
Anesthesiology

Shannon Wallack, RN, CRNA
Anesthesiology

Mandi Beman, MD
Minnesota Gynecology & Surgery

Robert Grossett, MD
St. Paul Radiology

Sonja Tarrago, MD
Central Pediatrics

Nanci De Felipe, DDS
Cleft Clinic/Williamson Orthodontics

Yasmin Khan, MD
Park Nicollet - Bloomington

Jeannie Klein, RN, CRNA
Associated Anesthesiologists

Amanda Engstrom, MD
HealthEast - Woodbury

Samir Khariwala, MD
Otolaryngology,
University of Minnesota

Jennifer Mears, RN, CNP
Critical Care, St. Paul Radiology