



Tommy Buhnerkempe got a new smile thanks to SIU School of Medicine surgeons.

About Face

Facial reanimation surgery makes smiles

Written by Karen Carlson • Photograph by James Hawker

Tommy Buhnerkempe is a tall, thin teenager, whose 20th birthday is right around the corner. A graduate of Glenwood High School in Chatham, Ill., he's a St. Louis Cardinals fan who loves cars, fishing and hunting. He's a typical teenager, except for one thing — he grew up with the right side of his face paralyzed.

A facial tumor was diagnosed when Tommy was still growing in utero at four months. "I was terrified," his mother, Barb, remembers. It turned out to be a cystic hygroma, a benign lymphatic tumor. Because of complications at birth, doctors feared Tommy might not live, and he spent the first six weeks of his life in the neonatal intensive care unit.

To remove the growing tumor from the baby boy's neck, doctors also re-

moved the parotid gland and the facial nerve on the right side of Tommy's face. That facial nerve controls the facial muscles that close the eyes, move the lips and make a smile. His right vocal cord was paralyzed, too, and the hygroma moved the side of his face out of alignment. And he couldn't move the entire right side of his face.

For the next 19 years, Tommy endured 14 surgeries performed in Springfield and Chicago to correct the effects of the hygroma. These included removing remaining tumor cells, surgeries to give symmetry to Tommy's face, orbital surgery, an attempt to graft a facial nerve, removal of tonsils and adenoids, repair of the common carotid artery and others. Among the surgeons performing these procedures were SIU School of

Medicine surgeons Dr. Horst Konrad and Dr. Stephen Hazelrigg.

The surgeries were long, as well as physically and emotionally painful. "I always had doctors and medical students poking at me," Tommy recalls. Some of the surgeries worked; some didn't.

While Tommy did face a few social challenges, the Buhnerkempes didn't dwell on his condition. His mom encouraged him to join the cross-country team, and he befriended the older kids. "We had more problems with adults treating him differently than kids," his dad, John, says. One substitute teacher ejected Tommy from class. "She saw his paralyzed side which drooped, and she thought he was making fun of her," Barb recalls. Other people wondered why Tommy was "mad all the time."

Robert Russell, M.D., clinical professor of surgery, has been Tommy's doctor since Tommy was a year old. Dr. Russell had been performing a procedure called free muscle transfer for facial reanimation for 20 years. The technique transfers muscles and nerves to the face.

Dr. Russell was ready to help Tommy with this procedure, but Tommy needed other surgeries first to correct other problems. And as the years passed, the technique evolved and refined into an even better procedure.

When Tommy was 16, everything fell into place. Plans were in the works to bring in an expert — Dr. R.M. Zuker — professor and division head of The Hospital for Sick Children at the University of Toronto — to Springfield to perform the enhanced procedure. “We kept waiting and waiting,” Mrs. Buhnerkempe says.

Finally, fortune lent a hand. Reuben Bueno, M.D., a graduate of SIU School of Medicine's Plastic Surgery Residency Program, had trained with Dr. Russell. In 2005, Dr. Bueno was finishing a pediatric plastic surgery fellowship with Dr. Zuker in Toronto and had learned the new techniques for the free muscle transfer. Following his fellowship, Dr. Bueno returned to SIU School of Medicine in 2006 to become assistant professor of plastic surgery, specializing in pediatric plastic surgery.

“Facial reanimation offers a possibility to patients that they didn't have before,” says Dr. Bueno. To dramatically impact a child's quality of life — that's exciting.”

With a surgeon experienced in the procedure along with a surgeon skilled in the newly advanced techniques, Dr. Russell and Dr. Bueno performed the 10-hour surgery to transfer a peripheral nerve and a muscle from Tommy's leg to his face. Connections were made between a nerve branch to the masseter muscle (used for chewing) to nerves that activate the newly implanted muscle. The advances in the procedure include using less muscle and attaching it to the corners of the mouth using a more advanced method. “The muscle used to be innervated with a nerve graft from the good side of the face, risking paralysis on the good side,” Dr. Russell explains. “Now it's done with a

branch of a different nerve, and the repaired nerve only has to grow a couple inches. It's a much more sophisticated procedure with faster results.”

“This surgery was the roughest,” Tommy says. He stayed in the ICU longer for this surgery and had to return for treatment when the site became infected.

But the efforts paid off; Tommy now has movement in the right side of his face — including a more complete smile.

For the healing months after the procedure, Tommy had to concentrate to use the masseter nerve — the chewing muscle — to provoke the smile. “We would watch him closely at the dinner table,” says his mom excitedly. “And every now and then his mouth would twitch!” That twitch was the first flicker of a smile and proved the surgery worked.

As he has healed, Tommy doesn't have to think so much about his smile that reveals a mouthful of braces. The smile is now more spontaneous. Dr. Bueno explains. “There is a connection between nerves in the brain that control biting and those that control a spontaneous smile. Centers in the brain are communicating in a way we don't fully understand yet.”

The family appreciates the quality of care Tommy received. “Dr. Russell has been the guiding force getting us through the medical community,” says Mrs. Buhnerkempe. “And Dr. Bueno had a really good bedside manner. I hope other people who may be on the fence about whether to try a new procedure will read this.”

Mr. Buhnerkempe adds, “The confidence of the surgeons carried us along. They were sure it would work.”

The surgeons are just as excited about the results as the family and also about the potential of nerve transfer procedures like this for other patients. “I think this is a life-changing procedure,” says Dr. Russell, noting that the improvements to the procedure made a difference. “Twenty years ago, I couldn't have gotten as good results as this,” he says.

“What we can offer in this medical community and in the SIU division are procedures that aren't done everywhere,” Dr. Bueno says. “Advancements in nerve surgery are having a dramatic impact on

what kind of surgeries we can offer patients.” Though the need for facial reanimation surgery is rare, the concepts are being used to restore function in lower and upper extremities.

New friends such as Dr. Bueno see change in Tommy beyond the physical. “Tommy was extremely shy when I first met him. The way he carries himself now, he is more open with his communication.”

“Tommy is much more outgoing now,” agrees Dr. Russell, who attended Tommy's high school graduation party last year. “He has always been a nice kid, but he was introverted; he's is more extroverted now.”

Watching Tommy progress gradually over two decades, it's tough for his family to see dramatic changes. “But if he hadn't had those surgeries, he would have a drastically different appearance,” his mom says. “I'm thrilled for Tommy. He's a fighter.”

With a stalwart support system of family and friends, Tommy has grown into a fine young adult. Self-assurance and confidence are creeping out from behind the shyness. Perhaps it's a natural progression of growing up; perhaps it's having movement on the right side of his face. Tommy shrugs. “I just keep going,” he says. Though still a little shy, Tommy says it's easier to talk to people and mingle with them. His dad jokes, “He's getting as headstrong as Dr. Russell!”

Tommy's dreams haven't changed. His friends haven't changed. But one thing has changed. “I'm putting my foot down,” he says. “No more surgeries.”

Instead, Tommy is planning a career where he will perform his own surgeries of a sort — on automobiles — working toward his degree in automobile technology at Lincoln Land Community College. “As a kid, he was always taking things apart, although he didn't always put them back together!” his mom says.

With a smile on his face, Tommy's joy is now outwardly visible. His friends and family have always seen it; now new friends can see it, too. ●●●