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A medical miracle at death's door

By Mary Ann Roser

The doctor looked at the teenager, white as paper, still in cardiac arrest, his leg ripped apart from his groin to his knee. He was almost certain the patient was dead.

Dr. John Uecker, an unassuming, unflappable trauma surgeon at Brackenridge Hospital, had seen lots of terrible injuries in his dozen years as a doctor and could generally gauge a patient's survival odds with little more than a look.

He had been making rounds July 1 and was nearing the end of a 24-hour shift when he rushed to the emergency room after getting the call about 18-year-old Jacob Brochtrup.

The teenager's leg had been caught in a boat propeller on Lake Austin less than an hour earlier. The wound was so huge that Jacob had lost almost every ounce of blood, causing his heart to stop. He had been in cardiac arrest for at least 45 minutes. The STAR Flight helicopter delivered him to the emergency room clinically dead.

Uecker (pronounced EE-ker) joined about 20 people crowded around Jacob in trauma room 9, where emergency room physician Tracey Weir was leading a desperate fight to revive him. Weir had medications coursing into Jacob's veins, nurses were doing CPR, and a breathing tube was sticking out of his mouth.

Most victims of cardiac arrest suffer brain death within four to six minutes. CPR rarely succeeds after 10. Jacob had been getting CPR for about 40 minutes. He still showed no sign of life.

Uecker and Weir were ready to pronounce him dead. They checked one more time for a pulse. To their astonishment, it was there. Faint, but undeniably there.

Uecker ordered blood, and a machine quickly replaced six of the 10 units -- essentially his entire blood volume -- that Jacob had lost at the lake.

Jacob had youth and resilience in his favor. "When they're young . . . you try to throw everything at them," Uecker said.

Even so, he did not expect Jacob to survive. None of the medical personnel who worked on Jacob did.

More than two months after the accident, Uecker cannot explain why Jacob lived that day. Harder still is trying to explain what he saw over the subsequent days and weeks. The 38-year-old father of two reaches for a word that he is not prone to utter.

Maybe, he says, what happened was a miracle.

Jacob had spent that Friday, the kickoff to the long Fourth of July weekend, wakeboarding with three friends at Emma Long Metropolitan Park. He had just finished his turn, and two friends were in the water, ready to go next, when the tow rope popped off the back of the white Sea Ray ski boat.

Jacob jumped out of the boat to grab the line. Unaware that Jacob was in the water behind him, the 18-year-old driver, Patrick Houston, put his family's boat in reverse.

The propeller caught the top of Jacob's right leg and twisted it around, chopping deep into flesh, muscle and bone.

Burwell "Taylor" McClendon and Travis Downing, Jacob's best friend since middle school, were in the water about 50 feet away when they heard Jacob scream: "My leg's gone. We need to go to the hospital." They swam to him.

"I was swimming in his blood," Downing, 19, said. "Have you ever seen 'Jaws'? It was pretty much like that, a shark attack."

Downing said he freed Jacob's leg from the propeller and helped him on to the boat. McClendon, 15, called 911 from a cell phone. Downing screamed for help.

On the shore at the Pier restaurant, Steve Siegwalt, a 46-year-old Austinite enjoying a day at the lake with his family, heard Downing yelling.

He and his stepbrother jumped into Siegwalt's boat and quickly covered the 40 or 50 yards to the Sea Ray. Siegwalt said he leaped on to the other boat, grabbed a rope and used it as a tourniquet, tying it around Jacob's leg. Meanwhile, his stepbrother threw a rope to McClendon and towed the Sea Ray toward the shore. Siegwalt said the Sea Ray's driver seemed to be in shock.

Jacob had already lost most of his blood. He was starting to lose consciousness.

The Sea Ray scraped bottom in shallow water about 10 feet from shore. A woman splashed over and began performing CPR on Jacob.

The first rescuers were dispatched at 12:11 p.m. Travis County Fire Control was about 2 1/2 miles down City Park Road from the victim, and firefighter Daniel Mendoza, who also was trained in emergency medicine, and his partner were on the scene in 10 minutes.

To Mendoza, Jacob looked dead. To have any chance at all, he had to get to Brackenridge's trauma center fast, Mendoza thought.

An Austin Fire Department crew pulled up as a STAR Flight helicopter landed at 12:24 p.m. The flight crew carried Jacob from the boat to the grassy shore.

"It looked like he had stepped on a land mine, " flight nurse Howard Polden said.

Pilot Kevin McDonald had seen what land mines can do when he was a Navy pilot flying injured soldiers during the Persian Gulf War. A land mine usually severs a leg at the knee, McDonald said. This was worse. Jacob's leg was shattered to the hip.

McDonald also thought Jacob was dead.

But no one mentioned how hopeless the situation looked.

"We just kept working on him, " Mendoza said. "Nobody gave up. He was a young kid, and he was out having fun. They had to save this guy."

Jacob had no pulse, no brain function, no heartbeat, and he wasn't breathing, Polden said. But he and his colleagues knew that they had one thing in their favor: They had gotten to him quickly.

The Fire Department members took turns doing CPR. Stephen Maier, the STAR Flight paramedic who was directing the care, inserted a breathing tube. He called for fluids.

Jacob got shots of epinephrine and atropine to jump-start his heart. He started to respond. He still did not have a pulse, but the heart monitor showed some electrical activity, enough to encourage the flight crew.

They loaded Jacob on to the helicopter. Maier remembers thinking: "There's nothing else we can do at this point."

Jacob's mother, 44-year-old Jan Shope, was at her South Austin home getting ready to meet a friend for lunch when the call came.

The boat driver's father, Sam Houston, told her that Jacob's leg had been hurt at the lake and that he was being flown to Brackenridge.

A friend who happened to stop by Jan's house rushed her to the hospital. She got there a few minutes after the STAR Flight chopper landed. Jacob reached the emergency room at 12:53 p.m.

Jan and Jacob's father, Joe Brochtrup, an Austin engineer, had been divorced since Jacob was 4, Jan said. He was at the hospital, too.

The staff would not let her see her son "because of the extent of his injuries," she said. Instead, a social worker led her to a room.

"They're taking me into a soundproof room so that I can't scream in front of all these people in this waiting room," she recalled thinking. "That's when it dawns on me that, oh my God, this is something huge. . . . I'm not going to be able to handle that. My brain is saying this is not happening."

Jan said the social worker seemed to be trying to prepare her for the news. She cut her off. "Is my son alive?"

"Yes, he's alive," the social worker said, "but he's not expected to make it."

"I'm not going to believe that," Jan told her.

Jan's 20-year-old daughter, Joelle Brochtrup, had been born with a skin and bone disease, and doctors had said she would not live long enough to go home from the hospital. Jan said she spent the first year of Joelle's life worried that she would die. Now, her daughter was walking into Brackenridge, telling her: "Mom, I was your first miracle child. You're getting ready to have another."

As a trauma surgeon in the military who did a stint in Iraq, Uecker had done plenty of amputations but never one at the hip.

He was not hopeful when Jacob was wheeled into the operating room at 1:20 p.m., about 80 minutes after the accident, to have the remains of his leg removed. The damaged leg, soaked in dirty lake water, was beyond saving.

"I didn't think he was going to survive all of this," Uecker said. "I really didn't think he was going to get out of the operating room."

He calmly reviewed Jacob's injuries.

All of his quadriceps muscles were cut, as were all the major blood vessels. His femur, the thick bone inside the thigh, was broken in two.

"But he wasn't bleeding at all, and he had this wound that was open from his groin all the way down to his knee," Uecker said. "The leg was rotated . . . 450 degrees, all the way around."

Even worse, Jacob was comatose, and his pupils were fixed and dilated, indicating a lack of brain function. He still had no blood pressure, and his blood would not clot.

From the operating room, Uecker called William Deaton, a pulmonary and critical care doctor in the intensive care unit. He asked whether Deaton thought Jacob should receive hypothermia therapy, an unusual treatment that had shown success in preserving the brain function of cardiac arrest patients. It would involve cooling Jacob's body for 24 hours and then gradually warming him to normal temperature, one degree every few hours.

Jacob was not the typical patient for hypothermia therapy because he was a trauma patient; his cardiac arrest was the result of blood loss rather than heart disease or some other ailment.

Deaton, a physician for 30 years who was known for being calm, smart and demanding, did not hesitate. He wanted the treatment to start as soon as Jacob left the operating room and came to the intensive care unit.

Uecker finished removing Jacob's leg and closing the wound. Jacob needed 14 units of blood during the surgery. To Uecker's surprise, Jacob not only pulled through the surgery, but his vital signs also were improving by the time he left the operating room at 2:50 p.m. He now had a decent blood pressure.

But Uecker, who also loves to wakeboard, knew the teenager faced an uphill battle. He went to find Jacob's family.

"I told his parents that this is a very bad situation and I didn't think he was going to survive," he said. And if he lived, "I also didn't think his brain would be anywhere close to normal."

Deaton was waiting for Jacob in the ICU.

Jacob was placed on a bed in room 20 at the end of the hall in which a boxlike machine on the floor was turned on to cool the water inside it. Brackenridge had just gotten the Arctic Sun machine on a trial basis about eight days earlier, Deaton said.

The machine had hoses extending from it, feeding a hard plastic vest and pads that contained tubes to circulate cold water. The vest wrapped around Jacob's torso. Blue pads were strapped over his thigh and upper arms.

In 20 minutes, Deaton and the ICU nurses had Jacob cooled to the target temperature, 91.4 degrees. Jacob's body would be held at that temperature for 24 hours and then gradually warmed to a normal 98.6 degrees.

Deaton told Jacob's parents that they would not be able to determine how Jacob's brain was responding to the therapy until the end of the 48 hours.

"I told the family it would be a period of anguish because neither you, nor I, nor a neurologist, nor anybody taking care of him . . . can tell what the prognosis is, " he said. "We have to keep the patient completely shut down."

At 62, the married father of two grown children, Deaton thought the best thing that he could do for Jacob's parents was be honest. He said Jacob had a 1 percent chance of surviving.

But he told Jacob's parents that he and Uecker, the nurses and the staff at Brackenridge would do all they could to help their son live.

"Dr. Deaton was cool as a cucumber, " Jan said. "He was calm, and I was very reassured by it."

At last, it was time for Jan to see her son.

She looked at Jacob, at his straight blond hair with bangs, his unusually long eyelashes. He looked terrifying. She had never seen more bags and tubes coming out of a person.

Later that night when Jacob's wound began bleeding, Jan was praying again.

" 'Please, Lord, save my baby, save baby.' That was all I could do, " Jan said.

Jacob's friends had already begun crowding the ICU waiting room the day of the accident. Among them were Downing and Houston.

During his three years at Westlake High School, Jacob was well-liked and known for his sense of humor. He played football his freshman year and excelled in the technical theater program doing video, lighting and set construction.

"I noticed very quickly he was a very hard worker, very technically inclined . . . and fun to work with, " said Assistant Principal David Poole, head of the theater program.

Jacob also could be stubborn, quick to question authority and willful. Nicknamed "Hyper, " he had left Westlake his senior year because he wanted less structure and more freedom to go at his own pace. He graduated in May from the Academy @ Hays, an alternative school in Buda.

But Jacob's friends from Westlake did not forget him, and on Saturday night -- a day after the accident -- dozens gathered to pray for Jacob at the hospital, including members of Westlake Bible Church.

Downing led one prayer: "Lord, all of us love Jacob so much, we know he's going to pull through this, we just ask you to help him fight the battle . . . and bring him back to us."

Jan kept her Bible at the nearby Ronald McDonald House on 15th Street, where hospital officials let Jacob's family stay so they would not have to drive back and forth from far South Austin every day. Jan reread the story of Jacob. In the book of Genesis, Jacob wrestles with God, and God touches Jacob's hip, wrenching it at the socket and causing him to limp.

Jan believed God would let Jacob live through the 48 hours of hypothermia. After that, she was afraid of what would happen.

She thought about her son, how he always wanted to know why and tried to understand how things work.

"He always pushed the limits, " she said. This time, he was pushing death.

Deaton arrived at the hospital at 6 a.m. Saturday and went straight to Jacob's room. He was surprised that Jacob, still covered by the machine's cooling pads, was doing better. His blood was starting to clot, and his blood chemistry was improving.

On Saturday evening, Deaton had the nurses gradually start warming Jacob.

"Everything we did was going the right way, " he said.

But the gains were offset by new crises.

On Sunday, two days after the accident, Jacob's wound showed signs of infection. Deaton knew that infection could kill Jacob in his fragile condition. He needed surgery to clean it out.

At 5:30 p.m. Sunday, Jacob came off the hypothermia machine. It was too soon to tell anything about his brain function. He was not conscious yet, but Deaton had some good news.

He told Jan that Jacob's left pupil had reacted to light, indicating brain activity. The right eye, however, had not.

Four hours later, Jacob started to move his hands, a sign that his brain was working. He also could move his fingers slightly when Deaton asked him to do it.

Jan clung to every encouraging word.

Over the next two days, though, Jacob developed pneumonia, and his leg infection came back.

But despite the challenges, Jacob was getting stronger. Deaton and Uecker no longer expected Jacob to die.

But would he wake up again, and would he be the same person?

On the Fourth of July, three days after the accident, Jacob's family had something big to celebrate.

Jacob had begun regaining consciousness. He was not lucid, but he was definitely responding to commands. He could hold up two fingers and wiggle his toes.

Four days later, Deaton took Jacob off the ventilator. He could breathe on his own.

Jan and her mother, Becca Couk, were standing beside Jacob's bed.

"My mom said, 'Can you hear us? Can you see us?' " Jan said.

Jacob said he could.

Her mother went on: "Why don't you say, 'Hi, Mom.' "

Jacob croaked in a raspy voice, "Hi, Mom."

Jan still gets teary-eyed remembering the moment. "Those were better than his first words" as a baby, she said.

At that point, Jan felt in her heart that she would get her son back, the way he was before the accident.

When Deaton saw Jacob the next day and Jacob gave an appropriate response to a question, Deaton started to think that Jacob's brain might not be damaged.

But Jacob had no short-term memory, and over the next few days, he became delirious and agitated. He still did not grasp what had happened to him. He hallucinated that his stump was a baby and that the knee of his other leg was a hairless girl with no eyes.

He was put in restraints, Jan said. He swore at the nurses and begged them to help him escape.

His sister remembers him repeatedly saying, "Help me find the missing piece of the puzzle."

He was looking for his leg, Jan said.

The delirium scared Jan, "but when I talked to Dr. Deaton I felt better, " she said. "He said it's a normal side effect."

On July 13, the day he got out of intensive care, an MRI showed that Jacob's brain was normal and undamaged.

Uecker remembers the moment that he realized Jacob would recover with his mind intact. He went into Jacob's room to find him sitting up and eating breakfast in his hospital bed.

Jacob looked up and said, "Hey, dude, how's it going?"

"It gave me chills, " Uecker said.

On July 19, Jacob was released from Brackenridge to begin his rehabilitation.

On Aug. 1, exactly a month after the accident, officials at Brackenridge arranged to surprise Jacob by assembling his life-savers and his doctors in one room.

Jacob entered the room on crutches and looked around at the faces of the doctors, the firefighters, the STAR Flight crew members. Some of them had tears in their eyes.

"Oh, wow, gee, I don't know any of these people, " Jacob said. "It's amazing to see you. I love you all. . . . Thank you all so much."

He grinned at Deaton and thanked him.

Uecker finally told him, "Dr. Weir and I were about to pronounce you dead."

"That's what I hear, " Jacob said. "My mom told me the first thing you all said to her was, 'He's alive, but he's not really expected to live.' I actually stopped to think about what was going through her . . . and I can't imagine, " he said, choking up. "Thank you all for her sake.

"You all saved my life. I'm happy to be here."

Uecker and others still could hardly believe he was there at all.

"It was one of times when you get a lump in your throat and try not to start crying in public, " Uecker said. "I was also proud I was a part of it. I was happy for him and his family."

Later, he and Deaton separately pondered what made the difference. The quick treatment Jacob received at the lake? The heroic efforts in the emergency room? The hypothermia therapy?

It was, Uecker said, "a combination of a bunch of medical people doing their jobs."

"And I really did think we were witnessing a miracle."

How to help

A benefit concert featuring Wideawake will be held for Jacob Brochtrup on Wednesday at the Westlake High School Fine Arts Facility, 4100 Westbank Drive.

The concert is being co-sponsored by the Westlake Technical Theatre Department and the Westlake High School Student Council to help cover medical expenses not covered by insurance.

Tickets are \$10 and can be purchased in advance. Limited tickets may be available at the door.

A silent auction also will be held in the lobby during the concert. For tickets or auction information, call 732-9290.

A fund for Jacob also has been set up at a local bank: The Jacob Fund, c/o American Bank, 3267 Bee Cave Road #103, Austin, TX 78746.