

# Against All Odds

## An aggressive approach to surgery saves a young man from paralysis

It was the end of a fun—filled weekend for 21-year-old Mark Sanchez and seven of his longtime friends. The group from Flagstaff had roughed it for two days in March of 1998, camping and hiking in rugged terrain. As they packed up and headed out of the woods, no one would have guessed a terrifying ordeal lay ahead.

On the trek to their cars, one friend suggested they stop in at a casino on the drive back home, and everyone agreed. Mr. Sanchez climbed into the driver's side of his Toyota truck. A friend hopped into the passenger seat. They led the way onto a dirt road down the mountain. Swinging around a bend, the rear of the truck fishtailed suddenly. As one wheel hit a dip, Mr. Sanchez lost control of the vehicle which pitched to the side. The entire truck rolled, door-to-door, down the side of a hill. Mark Sanchez, who hadn't buckled his seatbelt, was thrown from the cabin. When he opened his eyes, he found himself sprawled across rocks. The truck had landed 15 feet away from him, butted up against a tree.

The first thing he noticed was pressure in his chest. "I thought I'd had the wind knocked out of me," Mr. Sanchez remembers. "I couldn't catch my breath." But then, as he tried to rise, hoping to make breathing easier, he realized he couldn't lift his legs. In fact, he had no feeling from his chest down to his feet.

"Don't move!" he heard his friends yelling. Then he started getting cold. Someone spread a sleeping bag over him as he slipped in and out of consciousness. His friends managed to flag down a passing car and used a cell phone to call for help for him—and his passenger who had been knocked in the head but otherwise was unhurt. "It seemed like forever," Mr. Sanchez recalls waiting, trying to stay calm. An ambulance arrived and paramedics descended the hill, carefully immobilizing him on a stretcher. When they managed to get Mr. Sanchez up the embankment, a helicopter whisked him to Phoenix and the experts at the Barrow Neurological Institute.

### A Horrible Prognosis

From the moment he arrived, Mr. Sanchez's case appeared grim. "It didn't look like he would ever walk again," recalls BNA neurosurgeon Curtis A. Dickman, M.D., who saw Mr. Sanchez that night at the level-one trauma center. Aside from having shattered a rib, which had punctured his lung, Mr. Sanchez had broken his back. X-rays revealed fractures and dislocations of

the tenth and eleventh thoracic vertebrae—T10 and T11—in the middle of the spine. The bones were loose, actually ripped apart, and the spinal cord was compressed. "This kind of injury—a dislocation of the bones accompanied with complete spinal cord damage—tends to have a horrible prognosis," Dr. Dickman acknowledges. "Less than five percent eventually walk." This kind of severe injury is very much like the injury sustained by actor Christopher Reeve, only it was at a lower spinal level. But Dr. Dickman, who has gained considerable recognition for a myriad of surgical techniques for the spine, is growing accustomed to seeing people defy that trend. The reason for the turnaround is that "we're treating these injuries quickly with aggressive intervention," he explains. "As few as five or six years ago, when a patient arrived at the hospital with a broken neck or back, the dictum was that surgery wasn't an urgent priority, since most of the time it wouldn't be of any help." That perspective, he adds, would become "a self-fulfilling prophecy."

Today, however, the approach to treating severe spinal cord damage is changing. "There are measures to overcome the damage," he says. One important therapy for patients arriving at the hospital is an injection of steroids, like the drug Solumedrol. The medication staves off significant chemical destruction to the spinal cord and adjacent tissue.

"The drug inhibits the oxidative process initiated by the injury," Dr. Dickman explains. Right away, one of the first treatments Mr. Sanchez received at BNI was a dose of this particular steroid to limit additional damage to the spinal cord. "While the medication relieves chemical devastation", Dr. Dickman says, "surgery that takes place within 24 hours of the injury can repair structural damage".

At many emergency centers, Mr. Sanchez's injury might have appeared to be hopeless. "When patients come in, we look for any hint of preservation of function—bowel control, sphincter tone, any sign of sensation," Dr. Dickman says. "Any sign like that might suggest the injury could be reversed." When Mr. Sanchez showed no feeling and no function, even Dr. Dickman conceded that an operation was probably not likely to help reverse the damage to the spinal cord. But what happened during the night was nothing short of a miracle. As a nurse was bathing his legs, Mr. Sanchez felt the sponge against his skin. Dr. Dickman immediately re-evaluated his patient and scheduled surgery for first thing the following morning.

## **A Wonderful Surgery**

In the operating room, Dr. Dickman employed a special surgical procedure to relieve the spinal cord compression, pulling the vertebrae back in place

and stabilizing them in place with permanent hardware. The tools for the procedure are screws that anchor in the pedicle of each vertebrae. The screws are then connected to one another by rods that provide rigid fixation and support along the spine. They are buried under the skin and muscles and rigidly hold the vertebrae together. "At the same time," Dr. Dickman notes, "we very carefully decompressed the spinal cord, making sure there were no areas of the spinal cord still compressed by bone. That's key to a patient's potential recovery."

From every sign, the surgery appeared a success, but whether it would make a difference for Mark Sanchez remained to be seen. "People can make comebacks for up to two years after such trauma," Dr. Dickman says, "but recovery tends to be more complete if it happens quickly." One week after the operation, lying in his hospital bed, Mark Sanchez slowly began to move his right thigh. The movement kicked off rehabilitation treatment at BNI with its highly trained staff of physical and occupational therapists and physiatrists. During the month he was in the hospital, many people encouraged Mr. Sanchez to be circumspect about the gradually returning movement in his other foot. "They told me I might regain feeling, but no way I'd ever be able to walk," Mr. Sanchez says. He chose not to dwell on the worst-case scenario. "I believe in God. I had a lot of people praying for me. Every day, I'd gain a little more movement," he remembers.

By the time he left the hospital, four weeks after the accident, he had taken steps with the help of a walker. He returned to Flagstaff where he continued rehabilitation therapy. When he reappeared at BNI for his three-month follow-up, Dr. Dickman himself was moved profoundly by what he saw. "Mark walked into the office using just a cane," Dr. Dickman says. "That was the writing on the wall: He was going to be okay."

Years later, Mr. Sanchez shows little sign of the events of March 1998. Because the fixation rods are high in his back and below his neck, he doesn't notice any loss of flexibility. The twenty-three-year old co-owns a flourishing house-painting company and spends most days scaling ladders and toting buckets of paint. He even jogs. "I started sprinting a little bit," he reports. "There's some weakness in my left leg, but it's getting better every day. I'm very lucky." For Dr. Dickman, Mark Sanchez is proof-positive that intervening surgically on an urgent basis can be the key to such luck. "That's the difference aggressive treatment can make," he says.