JCL Miracles: Quiet Miracle Highlights the Holiday Season

Written by Arizona Foothills Magazine
Friday, 23 December 2011 10:04 -

Medical Teamwork Between Super-Specialists Offers Pain-Free New Lease on Life.

It's easy to tell the story of medical miracles when trauma surgeons rip a patient's life from the jaws of death so the patient can live happily ever after.

But there are less dramatic medical interventions that are also miraculous.

When medical specialists team together to end 15 years of a patient's pain and suffering, that's also a legitimate medical miracle. Just ask Donna Inman.

"I went to eight different hospitals and I don't know how many doctors over the years," she said, "and the doctors at John C. Lincoln are the first ones who were able to take care of me and reduce my pain."

Inman's problems started 15 years and seven hospitals ago with something called a "bundle branch block," a problem in the heart's electrical system. The human heart is both mechanical and electrical – it is a pump that is regulated by electric impulses.

The bundle branches are components of the heart's electrical conduction system. If all three of the bundle branches fail, signals no longer reach the hearts main pumping chamber, and this results in the heart slowing severely or even stopping.

In Inman's case, the heart's conduction system eventually failed completely, a condition which can only be treated with a pacemaker. That was what Inman's first group of doctors told her she needed. Normally, a cardiologist will run a wire from the implanted pacemaker through the patient's veins into the heart. Regulated electric impulses will be sent from the pacemaker to the heart to keep it beating normally.

But Inman's case was complicated because she was a breast cancer survivor who'd had radiation therapy that had cured her cancer but also damaged her veins. "They told me the radiation had burned up my veins, which made running the wire to my heart difficult," she said. "They told me the wire got hung up, snagged on something – I spit up blood and I did a code," she said. After reviving her, "the surgeons got the wire through, but I had a huge hematoma." That's a collection of blood in the muscle tissue that frequently causes pain.

"I was back in the hospital two days later," she said, "hurting from my fingers to my shoulder," pain that was complicated by the placement of the pacemaker that pushed against her collarbone and caused a chronic ache. Therapy, services at a pain clinic and two subsequent surgeries to reposition the pacemaker on the left side of her chest never quite solved the problem. Finally, new doctors moved the pacemaker to her right side, where it stayed for almost a decade.

But it was always problematic, she said. "I was always sick and hurting. The worst part is that I used to be an active person who could play with my children and grandchildren. We used to have company every weekend; our house was the meeting place for the neighborhood. We'd have people over and barbecue. I was always cooking and I enjoyed that. But after all this started, I just couldn't do that anymore."

Finally, five years ago, she went to a world-renowned medical center, where doctors told her that her heart had become so sick that instead of a pacemaker, she needed a defibrillator, a more powerful device for regulating her heartbeat.

For unknown reasons, those doctors did not remove the pacemaker wires from her veins, but implanted the new wires for the defibrillator in her chest, under her skin. "Those always hurt, a lot," Inman said.

After five years the device battery began to wear out, as is normal, and it was replaced by other Phoenix area specialists. The wires and the defibrillator chafed at the inside of her skin Unfortunately, it eventually wore through her skin and protruded, contaminating the device and leads with bacteria from the skin.

Although Inman didn't know that the contamination required the removal of the entire system – the device and all of the leads – she had had enough. "I had lived with the pain from that last procedure for almost five years, but finally I told my husband I just couldn't keep going like that. I had to have a decent life."

She went to her community hospital Emergency Department, where the heart rhythm specialist frankly told her that he couldn't fix her problem – but he knew someone who could. He referred her to cardiac electrophysiologist Mark Seifert, MD, a heart rhythm specialist at John C. Lincoln North Mountain Hospital.

At North Mountain, Dr. Seifert has a sophisticated laser system for removing pacemaker and defibrillator lead wires that have become "glued" inside veins by scar tissue that has grown around them. There are only a handful of such devices in the Valley and not every interventional

cardiologist or electrophysiologist knows how to use one.

Dr. Seifert makes it sound simple – even though it's far from it. "The device is a sleeve that fits around the wire, inside the vein," he explained. "The leading edge of the sleeve is ringed with fiber-optics that conduct impulses from a laser that vaporizes scar tissue in its path. This clears a space around the wire so it can be extracted from the vein."

After placing a temporary pacemaker wire through the veins in Inman's leg, he surgically, he removed the device from the right side of her chest, and the painful leads under the skin of her chest. He then used the laser to help him extract the old pacemaker leads from Inman's veins.

But as soon as the lead wires were extracted, the veins collapsed. The implant of a new device would require open veins in a different location, free of bacterial contamination, after several days of antibiotics. Even the leg veins were considered, a route almost never used for pacemakers and defibrillators due to multiple problems in this location.

"I'd love to take complete credit for healing Mrs. Inman," Dr. Seifert said. "But the truth is that her problems were solved because of unique teamwork that is possible between specialists from different disciplines at John C. Lincoln Hospitals."

Dr. Seifert called MDIG-Vascular & Interventional Physicians to open Inman's blocked veins in the left chest area so he could properly install the wire leads connecting her defibrillator to her heart. MDIG's physicians who responded included Gaurav Patel, MD, who did the initial consultation, and Aaron Wittenberg, MD, who performed the delicate procedure to open Inman's veins.

Together, Dr. Wittenberg and Dr. Seifert provided complicated, sophisticated interventional care in a combined procedure that neither could provide alone. "You could say I built the highway and Dr. Seifert drove the high performance car," Dr. Wittenberg quipped.

After verifying that all of Inman's major veins between her head, neck, arms and heart were totally blocked with scar tissue, Dr. Wittenberg launched a multi-part procedure to create a space in which Dr. Seifert could work.

"I was able to run a really thin wire from the jugular vein in her neck through the subclavian and brachiocephalic veins to the superior vena cava, the main vein that leads into the heart," Dr. Wittenberg said. "That wire guided a tiny balloon into the vein that I could inflate to expand it to maybe 3 mm." That's less than a tenth of an inch.

"Even though the space wasn't very big," Dr. Wittenberg continued, "it let me insert a stiffer wire with a balloon that expanded the vein to 5 mm in diameter. That let me continue with a series of gradually increasing bigger wires and balloons until I was able to expand the vein to a diameter of 12 mm." That's a little less than half an inch, but big enough to insert a defibrillator lead.

"However," Dr. Wittenberg said, "the vein would collapse as soon as I withdrew the balloon, so I inserted a stent to hold the vein open." The stent, a mesh metal tube, was 12 mm in diameter and 80 mm long – just over three inches.

Dr. Seifert had his highway. It was the clear path he needed to run the lead wire to Inman's heart and hook up her defibrillator. With access to veins, there was no longer a need to implant the defibrillator wires under the skin on both sides of her chest, as had caused significant and chronic pain in the past, nor a need to consider leg veins.

Because Inman is slim with little fat or tissue between her skin and the chest muscles, Dr. Seifert carefully divided the muscle fibers to slip the defibrillator beneath the chest muscle, resulting in almost no discomfort or visible protrusion. The muscle provides excellent padding for the device implanted beneath, making future erosion of the device through the skin almost impossible.

Five weeks after the procedure, Inman said she was still healing, but the chronic pain was almost gone. "I'm trying to get my energy back," she said.

"This is the first Christmas I've actually gone out shopping – I went out one day and bought Barbies for my great grandchildren," she said. "It's a slow recovery, but each day really is better than the day before. Finally, I have hope."