

After rare procedure, woman can hear her heart beat in another

March 30 2016, by Sara Wykes



Heart-lung recipient Tammy Griffin listens to her old heart beating inside the chest of Linda Karr. The two women received their new organs in a rare “domino” procedure. Credit: Norbert von der Groeben

Stanford Medicine surgeons performed an unusual transplantation in which one woman received a heart-lung transplant, while her existing heart was given to another patient.

The first thing Linda Karr asked her doctor after her [heart](#) transplant surgery at Stanford Hospital was, "How is my heart donor doing?"

That question is as exceptionally rare as the surgery that made it possible. On Feb. 1, as part of a "domino" procedure, Karr received the

heart of Tammy Griffin, who received a new heart and lungs from a deceased donor.

A little more than six weeks later, on March 17, the two women met for the first time. Griffin listened to her old heart beat in Karr's chest as their families and Stanford Medicine doctors looked on. "I feel as though a world of possibilities opens up now for my future—kind of a second chance in life," Karr told Griffin.

"Me, too. I feel the same way," Griffin said.

Karr, 53, promised Griffin, 51, that she'd take good care of her new heart, adding, "Even though we were strangers before today, you'll always be part of me."

Donor organs in short supply

Organs available for transplant are in short supply. Heart-lung combinations are even more rare because a set of heart and lungs is usually split up so that the organs can benefit two people instead of just one. Domino transplantation of a heart-lung and heart does, however, benefit two people. A highly unusual procedure, it has only been performed at Stanford eight times before, last in 1994.



Joseph Woo oversaw and coordinated the surgical teams that conducted the domino procedure. Credit: Norbert von der Groeben

For Griffin, who has cystic fibrosis, receiving new lungs was critical. Her lung capacity had diminished so much that she was on oxygen full time, unable to do much at all. She had so little energy that she couldn't get through a shower without sitting down to rest.

Her heart, however, was still functioning well. "Her heart was an innocent bystander pushed out of its normal position in the middle of the lungs as her right lung shrank and the left one expanded," said Joseph Woo, MD, a cardiothoracic surgeon at Stanford Health Care who oversaw and coordinated the surgical teams that conducted the domino procedure. That displacement made a heart-lung transplant the only viable option for Griffin, said Woo, who is also professor and chair of cardiothoracic surgery at Stanford School of Medicine.

Getting the calls

Griffin lives in Happy Valley, a town near Portland, Oregon. She was on the phone with her sister the afternoon of Jan. 29 when another call

came in. It was a doctor from Stanford, who told her there was a heart-lung donor for her. Griffin and her husband, Jim, started to panic a bit, trying to pack and find a flight. "I thought I was going to lose my chance," she said. Then she received another call to say she didn't have to rush quite so fast. The organs would be waiting for her. The Griffins arrived at Stanford around midnight that day.

Karr, who lives in Berkeley, was diagnosed almost 20 years ago with right ventricular dysplasia, a genetic disease that causes a dangerously abnormal heart rhythm. Over time, it became difficult for her to walk down a hall at work without having to stop and rest, and impossible to walk her dog. Even so, she wasn't very high on the transplant waiting list.

"My doctor told me I'd have to be hospitalized to move up—and if my deterioration was rapid, I might not get a heart in time," she said. Then, on Jan. 30, she turned on her phone after coming out of a movie theater—something she didn't always remember to do, she said—and it rang. It was a Stanford doctor: A possible [heart donor](#) had been found, he said, and someone would call back in four hours. She checked into Stanford Hospital the following day.

During the Feb. 1 domino procedure, one surgical team removed the heart and lungs from the deceased donor, a second team implanted them in Griffin, and a third team implanted her heart in Karr. (Woo led the second team.)

Other Stanford Medicine physicians, including Michael Fowler, MD, director of the Heart Failure Program, and Gundeep Dhillon, MD, medical director of the Heart-Lung and Lung Transplantation Program, provided pre-transplant care to Griffin and Karr and are providing post-transplant care to them, as well.

"The extraordinary work of Dr. Woo and his team demonstrates the very

best of an academic medical center—where our research informs the development of revolutionary treatments like the domino procedure, which we then use to save the lives of our patients," said Lloyd Minor, MD, the Carl and Elizabeth Naumann Dean at Stanford Medicine.

'I am optimistic'

Karr is making good progress toward recovery. She's started participating in a cardiac rehabilitation class, and she's hoping to be able to again to run a 10K, ride a mountain bike or even just jog. "I would be thrilled just to ride my bike up an incline without having to get off and push it," she said. "When I think about my future, I am optimistic."

Griffin is progressing in her recovery, too. "Now I can walk and talk at the same time," she said. For the first time in more than two years, she said, she was able to walk with her husband on a beach.

Their son Austin Griffin, who was just 10 when his mother's condition began to deteriorate, is a college student now, determined to be a doctor—a lung specialist so he can help people like her, his mother said.

Knowing that she was able to help someone else gives Tammy Griffin great joy. "I didn't want my heart thrown away," she said, "and I thought, I'll be able to meet the person who has my heart! How many people can say that?"

"We hope this story will raise awareness how scarce organs are," said Woo, who holds the and the Norman E. Shumway Professor in Cardiovascular Surgery. "People are waiting and dying on those transplant lists. We would like to see that change."

What surgeon Jack Boyd, MD, said he will especially remember from the domino procedure was one particular moment. Boyd, a clinical

assistant professor of cardiothoracic surgery who has been at Stanford for 18 months, led the team that transplanted Griffin's heart to Karr. Once the heart was sutured into place, blood flow through the aorta was restored. "Sometimes hearts don't start up on their own, but in Karr's case, Griffin's heart started right up—and in a pretty normal rhythm," he said. "It was truly awesome."

Provided by Stanford University Medical Center

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