MEDICAL CASE STUDY:
TRANSPLANT URETER STRICTURE REPAIR

Initial Contact

Shortly after joining the University of Arkansas for Medical Sciences (UAMS) Department of Urology in October 2021, endourologist **Julie Riley, M.D.,** was approached by a colleague about evaluating a 55-year-old female patient with ureter stricture disease.

The woman had undergone a kidney transplant from a living donor 11 years earlier, at another hospital, due to glomerulonephritis. Over time, the new kidney began to lose some of its function, and doctors discovered there was a buildup of scar tissue creating a blockage throughout the length of the donor ureter, preventing it from draining. This caused swelling, put pressure on the kidney and led to numerous infections.

For more than a year, the woman sought relief through procedures involving stents and nephroureterostomy tubes, but continued to experience decreased ureter function as well as discomfort from the recurring infections. She was also frustrated that the recurring issues cramped her active lifestyle and felt she wasn't doing justice to the living kidney donor's sacrifice.

Riley's unique combination of specialized skills as both a urologist and a transplant surgeon isn't available elsewhere in Arkansas or in many locations across the United States. She knew she could do something to help the patient, who she said "was getting by, but was miserable."

So, "I tried one last effort to try to do some different techniques to open up this ureter using all my telescopes and things, and it just didn't work," Riley said. "It scarred down again, and it just wasn't draining, so I offered her an opportunity to have a re-implant procedure."

Assessment

Reimplant procedures, in which the ureter is repositioned in the bladder wall so the bladder muscle will keep urine from traveling back into the kidney, are complex and fairly uncommon. However, Riley had expertise in the urological challenges posed by the reconstruction techniques and the added benefit of being able to consult with UAMS' kidney transplant team.

She said she weighed four options: attaching the renal pelvis directly to the bladder, which would be functional but not ideal, as the patient would be able to feel bladder activity in her kidneys; using a piece of the bladder to construct a flap to raise the bladder up to the kidney, which wouldn't reach very well and could leak; attaching the renal pelvis directly to the patient's native ureter, which remained in her body in very good condition and, as native tissue, was unlikely to scar over; or reconstructing everything, which would probably require the patient to live with tubes and could still cause her to lose the kidney due to infection.

Riley decided on the third option: attaching the renal pelvis directly to the native ureter, which would allow the urine to go from the kidney into the renal pelvis, then into the ureter down to the bladder.

"Then it actually functions like a real kidney because it's doing what it always should be doing, which is draining urine into a ureter that goes into a very natural connection into the bladder," Riley said.

Procedures

In January, Riley began the surgery by creating a small incision in the same place doctors used in the 2010 kidney transplant.

Working meticulously over about six hours, she moved the patient's transplant ureter to her native ureter and then attached the renal pelvis directly to the native ureter with sutures.

Riley stitched the organs together while deftly maneuvering around the surrounding blood vessels. She finished by inserting a stent from the bladder to the kidney to allow the inflammation around the stitching to heal.

Follow-up

The patient remained in the hospital for four or five days, then spent about six weeks recovering at home.

"She was fatigued, and it took some time to heal, but she did feel a lot better because she wasn't getting infections, and her kidney was really draining much better," Riley said.

The patient returned to the clinic about three weeks after being discharged so Riley could remove the stent. During this visit, Riley recalled, "she was already significantly better. The color in her face was back, and she was moving around a lot more."

"Then when I saw her at the six- to eight-week mark, she was like a brand new person." Riley said. "She was moving around and just happy, and had a lot of hope back. She was just incredibly grateful that Dr.

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Education

Doctor of Medicine with Distinction in Community Services, St. Louis University School of Medicine

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Doctor of Medicine, University of Texas Southwestern Medical Center, Dallas

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General surgery, UAMS

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Multiple abdominal transplant surgery, University of California, San Francisco

Burdine and I were willing to take on a very complicated case and really just work through it. The stakes were high, and she was aware of that."

Six months later, Riley said the patient still had a "nice, open channel" allowing her urine to drain without the need for any tubes or the worry of related infections.

Discussion

Lyle Burdine, M.D., Ph.D., UAMS' lead transplant surgeon, said the patient's medical condition is one that "is very difficult to fix through traditional medicine. Having Dr. Riley here, as an expert in urology as well as a transplant surgeon, has allowed us to provide additional care to fix issues like this."

This case is an example of how UAMS' emphasis on multidisciplinary care provides a unique benefit for patients whose conditions involve more than one specialty.

"We are the only place in the state that can provide this type of care," Burdine said.

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