



# Urine for a Surprise: The World's First Bladder Transplant



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## Abstract

The surgical team, led by Dr. Nima Nassiri (UCLA) and Dr. Inderbir Gill (USC), successfully performed the world's first bladder transplant at Ronald Reagan UCLA Medical Center. The surgeons worked jointly for several years to develop the surgical technique, conducting multiple trials on animals, performing procedures on deceased donors with cardiac function maintained on ventilator support, and completing several trial bladder recoveries during procurement procedures. The circulating nurse and scrub nurse collaborated to ensure all required equipment, instruments, and supplies were prepared and available for the surgical field. The anesthesiologist administered general anesthesia, monitored and maintained the patient's vital signs, and placed the necessary lines to ensure patient safety throughout the procedure.

## Introduction

Current treatment for bladder cancer or bladder dysfunction often involve augmenting the urinary reservoir by using a portion of the patient's stomach to create a new bladder or by creating a stoma to allow urine to exit the body. These procedures can compromise the patients' health by disrupting the digestive tract and increasing the risk of bacterial infections and internal bleeding. In this case, the patient had lost most of his bladder during a tumor removal procedure, leaving his remaining bladder portion too small to function effectively. His kidneys were subsequently removed due to renal cancer, and he required dialysis for seven years.

## Methodology

Months prior to the surgery, multiple discussions were held between the nursing and surgical teams to address key logistical and procedural considerations. Both teams collaborated to create a specialized instrument tray and developed a preference card outlining the required sutures, supplies, instruments and equipment. Several trial runs were conducted with the surgeons and nursing team to review the sequence of events and determine the optimal layout of the operating room. In preparation for the procedure, a dedicated team was created consisting of nurses and surgical technologists with expertise in kidney transplants, cystectomies, and other complex urology procedures.

## Methodology Continued

BLADDER TRANSPLANT

A. NURSING STAFF WILL BE NOTIFIED 24 HOURS PRIOR TO TRANSPLANTATION. MAY HAVE 72 HOUR ADVANCE

B. PT WILL BE ADMITTED TO TRU

C. CONSENTS

- SURGICAL CONSENT
- BLOOD CONSENT – 2 UNITS PBICS AVAILABLE IN FRIDGE
  - HAVE CELL SAVER AVAILABLE FOR PTS WHO DENY PRODUCTS WITH CARDIAC DROP IN PROBE (REFR12112 CORE B)
- INFORMED CONSENT
- ANESTHESIA CONSENT

D. LABS: NEED K+ LEVEL

E. PHARMACY:

- ANTI-REJECTION – WILL NEED TO RELEASE – DR ERIC LUM WILL BE NEPHROLOGIST
- RENAL TRANSPLANT UROZ2
- 5,000 UNITS SQ HEPARIN
- HEP NACL
- MANNITOL 25% 50ML X2
  - 1<sup>ST</sup> DOSE GIVEN BEFORE KIDNEY TRANSPLANT
  - 2<sup>ND</sup> DOSE GIVEN BEFORE BLADDER TRANSPLANT
- ALBUMIN
- LASIX

F. SPECIAL LINES: A-LINE, PER ANESTHESIA

G. ORGAN VERIFICATION

- SAME PROCESS AS CRT / KIDNEY TRANSPLANT
  - POLICY – ORGAN TRANSPLANT ORS143

H. EQUIPMENT / OR SET UP – PREFERABLY OR12

I. FOLEY:

- PLACED ON STERILE FIELD AFTER DRAPING – 16 FR 2 WAY LATEX
- SP 22FR LATEX 2 WAY; 18 FR LATEX 2 WAY AVAILABLE; 3-O CHROMIC SH

J. POSITION:

- SUPINE – ARMS EXTENDED ON ARMBOARDS, PILLOW UNDER KNEES, SAFETY STRAP AT THIGH
- BAIR HUGGER X3 – UNDERBODY, UPPERBODY, AND LOWER BODY
- ESU PADS – BOVIE AND ARGON
- FEMALE POSITION – FROG LEGGED WITH PILLOW UNDER EACH ANKLE AND STRAP / TAPE ACROSS ANKLE AREA

K. EQUIPMENT

- ARGON
- AQUAMANTYS
- LIGASURE

L. PREP:

- SHAVE – NIPPLE LINE TO GENITALIA
- MALE – PREP GENITALIA AREA FIRST, THEN NIPPLE LINE TO SUPRAPUBIC AREA; AFTER PREP, ADD STERILE TOWEL UNDER PENIS LIKE PROSTATE
- FEMALE – PREP GENITALIA AREA FIRST, THEN NIPPLE LINE TO SUPRAPUBIC AREA

M. DRAIN – 19 FR ROUND BLAKE

N. IMPLANT

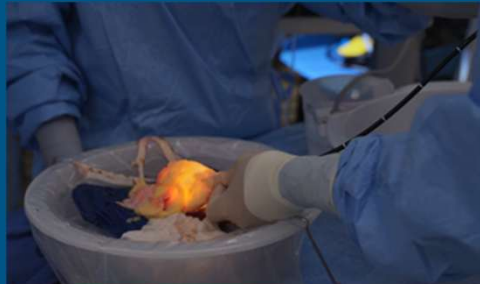
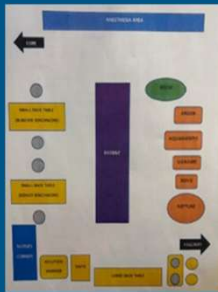
- URETERAL DOUBLE J STENT – 4.7 FR X 12 CM (2) – RIGHT (RED); LEFT (BLUE)

O. PACU → ICU; PREFER 8 EAST

SEQUENCE OF PROCEDURES

- CYSTECTOMY
- KIDNEY TRANSPLANT – HAVE 4.0 AORTIC PUNCH AVAILABLE
  - VEIN 5-0 PROLENE C-1
  - ARTERY 6-0 PROLENE C-1
  - URETER 5-0 PDS RB-1
- BLADDER TRANSPLANT → IF UNABLE TO DO BLADDER PORTION, WILL SWITCH TO ILEAL CONDUIT
  - VEIN 5-0 PROLENE C-1
  - ARTERY 6-0 PROLENE EVERPOINT X4
  - NERVE 8-0 OR 9-0 NYLON / PROLENE
  - VESICLE URETHRAL ANASTOMOSIS 3-0 VLOC CV-23 X2
  - URETER 5-0 PDS RB-1
- SP TUBE PLACEMENT – HAVE 3-0 CHROMIC SH AVAILABLE

MAY USE REGULAR SIZE BACK TABLE FOR KIDNEY AND BLADDER OR TWO SMALL BACK TABLES – ONE FOR EACH KIDNEY / BLADDER



## Results

The procedure was successfully performed on May 4th, 2025. The surgeons procured the kidney and bladder the evening prior, and the nursing team arrived early the following morning to prepare the operating room. The transplant surgery lasted approximately eight hours, after which the patient was transferred to the surgical intensive care unit. Following a nine-day hospitalization, the patient was discharged home. Immediately after the procedure, the transplanted kidney began producing urine, and the patient's overall renal function improved to the point that dialysis was no longer required. During the patient's follow-up visit, the urinary catheter was removed, and he was able to feel bladder fullness and void successfully.

## Conclusion

The success of this revolutionary procedure provides new and hopeful options for patients who experience both kidneys and bladder dysfunction. Performing the world's first bladder transplant has significantly elevated the profile of our department, positioning us at the forefront of surgical innovation. For perioperative nursing, this landmark achievement has broadened our scope of practice, highlighting the need for advanced clinical coordination, specialized training, and enhanced interdisciplinary collaboration.



## Recommendations

- Having the needed instrumentation, equipment, and any additional items available.
- Ensure the staffing team is prepared.
- Discuss the sequence of events with surgeons.
- Have multiple trial runs.
- Staff available for call as bladder transplants are not planned for specific days but are based on donor availability.



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