

NEWS from the Office of Information  
The University of Texas (Southwestern)  
Medical School at Dallas  
5323 Harry Hines Blvd.  
Dallas, Texas 75235  
Telephone 631-3220, Ext. 404 or 460

Contact Bob Fenley or John Weeks

DALLAS--A dog's living kidney completed a cross-country air journey and was successfully reimplanted Saturday, 66 hours after its removal, in a graphic demonstration of preservation techniques which doctors say will soon expand the scope of human kidney transplantation.

Surgeons at The University of Texas (Southwestern) Medical School at Dallas replaced the organ in a one-hour operation Saturday morning. The kidney had been removed Wednesday afternoon and flown to Washington, D.C., to show the capabilities of a new portable machine designed to keep transplantable organs alive 72 hours or more.

An hour after the surgery Saturday morning, the female mongrel patient, known only as "Dog No. 8," was awake and happily wagging her tail. She lived comfortably on her remaining kidney during the two and one-half day procedure.

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first add kidney

The kidney, weighing 59 grams, had been kept in a viable state by a 200-pound portable device developed by Dr. Wolcott Stewart of Fort Worth in collaboration with urologists at the Dallas medical school. The self-contained battery-powered machine sustains the organ by pumping nutrients through it and filtering out impurities, much in the same way the body normally performs these functions.

Dr. Stewart said the device functioned smoothly during the 2,324-mile trip, during which it was shown--with the living kidney inside--to scientists attending a Washington conference of the American Society of Artificial Internal Organs.

Dr. Paul Peters, associate professor of urology at UTSMS who performed the operations, said the new equipment can quickly improve medical capabilities in human kidney transplants.

"This machine has shown it is now possible to deliver a functional, viable organ anywhere in the country," he said.

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second add kidney

The urologist said the kidney transplant team at Southwestern may begin using the new apparatus in routine kidney transplants as early as July of this year. Dr. Peters and the medical school's transplant unit have performed 27 kidney transplants at Parkland Memorial Hospital since 1964.

The device will add important flexibility in time and distance to transplant procedures, he said and will permit use of standard operating room techniques.

"The donated organ can be held for hours after its arrival, allowing time for a surgical team to be assembled and making possible a complete evaluation of the organ before it is used," he said.

Heretofore, Dr. Peters said, time has been of the essence, with the prospective recipient required to be ready to receive the organ almost at once--sometimes without sufficient time to observe function of the kidney scheduled for implant.

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third add kidney

Previously it had been possible to air-ship kidneys only by immersing them in cooled salt solutions, he pointed out, with the time they could be maintained and the distance they could be transported sharply limited.

"Kidney transplants will become more of an elective procedure," he said.

Dr. Peters envisions a nationwide, computerized "organ bank" which eventually will enable precisely tissue-matched kidneys, and other organs, to be shipped in the portable pulsating devices across the country to patients needing replacement of diseased organs.

Ideally, he added, all Americans may one day participate in a nationwide program of tissue-typing, with this information stored in computers permitting matching with others of similar tissue-type "within milliseconds, should the medical need arise.

The greater number of participants in a pool of data on tissue-match, he pointed out, the greater likelihood of the best possible pairing in a transplant.

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fourth add kidney

The experimental procedure completed Saturday was the sixth such operation performed by Dr. Peters and his medical school associates. Animal kidneys have been kept alive in the portable device in the laboratory as long as 78 hours during these tests.

After its 66-hour trip via American Airlines, the kidney resumed functioning upon reimplantation. Dr. Peters said blood circulation and peristalsis--the rhythmic muscle contractions whereby organs expel their contents--were observed in the restored kidney after it was surgically re-joined to the dog's body.

The device, known as the Stewart Organ Perfusion Apparatus, acts as a substitute host for the removed organ, duplicating the support functions of its absent owner.

The compact unit incorporates a tiny electronic "brain" mechanism which regulates a pulsating "heart" which pumps filtered plasma containing oxygen through the organ. A cooling system containing dry ice reduces the organ's temperature to 41 degrees Fahrenheit, permitting it to "hibernate" in a viable state outside the body.

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fifth add kidney

Waste products are removed by a miniature filtering mechanism similar in principle to that of dialysis machines now in use by persons suffering kidney loss or disease.

Dr. Stewart, a physiologist, said his apparatus was developed over an 18-month period. He heads a firm which plans to produce the device, which he hopes will become the basis for a national organ bank program facilitating broad-scale transfer of transplantable organs.

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