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News

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*****UT Southwestern surgeon performs knee-joint transplant.

DALLAS--In a rare surgical operation performed late last week, part of a knee joint was transplanted from a 20-year-old donor into a 60-year-old man whose knee had been ravaged by arthritis. Billy Brown of Fort Worth, Texas received the transplant August 4 from a donor who died August 2.

The operation was performed at Parkland Memorial Hospital by Dr. Marvin H. Meyers, professor of orthopedic surgery at The University of Texas Southwestern Medical School at Dallas. He was assisted by Drs. Richard E. Jones and Robert Bucholz, both of the medical school's surgery department.

Dr. Meyers is a pioneer in the development of the new surgical technique, which involves removing damaged bone and cartilage and then "resurfacing" the end of the bone with tissue from a cadaver donor. Before he joined the Dallas medical school faculty June 1, Dr. Meyers had performed 22 such transplants in California over the past four years, of which 19 have been successful to date.

Another surgeon, Dr. Allan Gross in Toronto, was the first to use the technique in a large series of patients. Dr. Meyers says that as far as he knows, he and Dr. Gross are the only ones currently working on development of the still experimental procedure.

The operation reduces or completely alleviates pain in joints that have been destroyed by certain forms of arthritis, Dr. Meyers says, and the patient regains normal function of the joint--although there still may be a small degree of limitation of motion.

"The results have been very encouraging," Dr. Meyers reported in a recent issue of The Journal of Bone and Joint Surgery. "Fifteen have been functioning with full weight bearing and minimal complaints."

Dr. Meyers presently is doing the operation only in patients with degenerative arthritis (or "osteoarthritis") of the knee or hip joint and in patients in which the head of the femur has lost circulation and has died and collapsed. He emphasizes that sufferers of rheumatoid arthritis and other forms of inflammatory joint disease are not candidates for this type of surgery, because in those patients certain substances in the joint fluid probably would destroy the transplanted cartilage.

first add joint transplant

Joint transplants have several "theoretical" advantages over the plastic and metal devices that are now commonly used as joint replacements, Dr. Meyers says.

He explains:

"First of all, cells in the transplanted tissue remain alive and can replenish the cartilage that is used up in normal wear and tear of the joint. And there is no substitute for cartilage.

"Secondly, the transplanted tissue unites with the patient's own bone, forming a very strong bond, whereas artificial devices depend on metal pins or a cement bond that may loosen and break."

He adds that many surgeons are reluctant to use artificial joints in younger, highly active patients because they put a tremendous amount of stress on the devices. Also, little is known about the long-term effects of plastic and metal in the human body.

"Our aim is to buy time for the patient by providing him with a number of years of good function of a joint," he continues. "We haven't burned our bridges behind us when we do one of these transplants. If the graft fails when the patient is older and a better candidate for the artificial replacement, then an artificial joint can be substituted.

"So at this point we can say that this method is a reasonable intermediate alternative procedure in younger patients who are not good candidates for artificial joint replacement."

How long the grafts will last remains an unanswered question, notes Dr. Meyers. But rejection does not appear to be the problem that it is when other organs are transplanted from one individual to another. Cartilage seems to be an immunologically "privileged" tissue because the body apparently does not recognize it as foreign. The bone part of the transplanted tissue also produces very little immunologic activity.

In the future, Dr. Meyers will conduct animal experiments to study long-term survival of the grafts. He also will be looking at ways of hastening the healing process. (It now takes three to six months--depending on how quickly the recipient's bone unites with the transplanted bone--before the patient is able to put weight on the joint.) And he will be studying new methods of storing the transplant tissue. Presently the tissue must be transplanted within 72 hours after it is harvested. Dr. Meyers says that if he learns how to preserve cartilage from a number of donors of different sizes in a "bank," he will be able to give the recipient a better-fitting joint replacement.

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