

Tissue Rejection Challenged

The Russian scientist who has transplanted dogs' heads and hearts—Dr. Vladimir P. Demikhov, photo right—has rejected the incompatibility barrier theory, considered by many American scientists to be the principal cause of human organ transplant failure.

In the United States, surgery has progressed to the point where nerves and blood vessels can be joined amazingly well, but when an unrelated donor's kidney or other organ is transplanted, rejection of the foreign tissue nearly always takes place sooner or later. Progress is being made with drugs, and other techniques, but rejection of foreign tissue still seems to be a problem.

But Dr. Demikhov says greater skill among surgeons would increase the number of patients who could benefit from organ transplants.

In a report in the *LITERARY GAZETTE*, published by the Union of Soviet writers, Dr. Demikhov, who is head of the Organ Transplantation Laboratory of the Sklifasofsky First-Aid Clinic, says, "skin transplantation is still the citadel of biological incompatibility," but that skin has no bearing on the argument.

"We are discussing transplantations with a restored blood circulation," he explains. "When a dog's head was transplanted to another dog, the donor's skin implanted very well and was never rejected as long as the recipient lived, that is, during many days and weeks—a maximum of 29 days."

The cause of death, he says, is the termination of the blood circulation because of thrombosis where the vessels are sutured, or because post-operation closures clamped a venous suture and obstructed the outflow of blood through the vein.

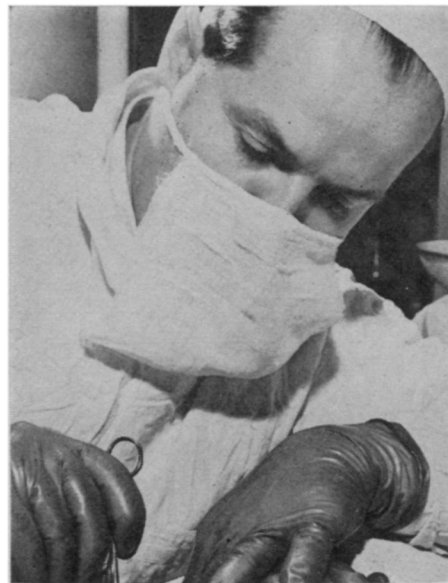
"In general, in no transplantation of whole organs (and my colleagues and myself have performed very many such experiments) have we observed either the rejection or the dissolution of tissue.

If either occurred, that happened many days after the death of a transplanted organ. Without waiting for this process, we analyzed the cause of the organ's death and removed it immediately after it had ceased to function."

Dr. Demikhov believes the irrationality of biological incompatibility is proved in at least two ways.

1. "According to international statistics, as of March 15, 1965, 719 kidney transplantations to human patients had been performed, including 36 transplantations between identical twins. In the last 36 cases, 27 operations were successful and 9 unsuccessful. It is hopeless to try to account for this ratio immunologically; the pattern is different if the results are compared chronologically.

2. "Cadaver transplants: In 1963 out of 45 transplantations of kidneys from dead people to living patients, the op-



Novosti

A Comment

Dr. Demikhov's report is eloquent but is open to question. The facts do not bear out his conclusions. He is a superb technician himself and tends to believe that technique is everything. But biologically there is more to transplantation of human organs than this.

"No one has said that the biological barrier is insurmountable. It is simply difficult. With regard to the improvement in statistics, there is no question about the fact that improvement in technique has contributed to this result.

"The argument about technique in vascularized organs, of course, is completely destroyed by the fact that without immunosuppressive therapy the survival of a dog-transplanted kidney today in our laboratory, as well as that of many others, is the same as it was 10 years ago; whereas animals which are given immunosuppressive therapy, such as drugs, etc., survive for long periods of time. Both sets of animals are operated by the same technique, which has been done thousands of times in our laboratory and frequently by the same surgeon. Therefore, technique as a variable in this does not exist."

Dr. John P. Merrill, Director, Cardiorenal Section
Peter Bent Brigham Hospital, Boston, Mass.

(Dr. Merrill was on the team that performed the first successful kidney transplant between nonidentical twins.)

eration was successful in only one case. By March 1965, 43 cases were successful in 27 repeated transplantations (when an originally transplanted kidney died). Would it not be more correct to interpret these statistics not as proof of biological incompatibility but rather as a process of improvement of surgery and post-operational treatment?"

The Russian scientist points out that more than 100 years ago, Rudolf Virchow wrote that "if fertilization is possible between two organisms, they cannot be alien." What is fertilization if not the transplantation of muscular cells into a female organism?

Until recently, says Dr. Demikhov,

those who held that the biological barrier is unsurmountable argued that albumens do not penetrate through the placenta. Now it has been proved that this is wrong.

Dr. Demikhov emphasizes that he does not "propose to challenge each scientist's right to express his point of view and reinforce it by relevant facts. However, these facts must be rigorously authentic. Any distortion of them and adjust-

ment to a priori conclusions are not permissible, especially when the argument concerns a life-and-death matter."

It should be borne in mind, says Dr. Demikhov, that patients chosen for transplantations have only a few hours to live and only the transplantation of a new organ may save or prolong their life.

"Thus, such an operation can hardly be called risky," he adds. "However, not imaginary but real barriers prevent their most extensive application. I think that the number of patients who could benefit from transplantation would be larger in our country if surgeons had greater possibilities for performing them."