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First-of-its-kind procedure combines scalp, skull, kidney and pancreas transplant

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Simultaneous transplantation of a "composite" skull and scalp flap plus a kidney and pancreas—all from the same donor—provided excellent outcomes for a patient with a non-healing scalp defect and declining organ kidney and pancreas function, according to a report in the June issue of *Plastic and Reconstructive Surgery®*.

The experience may open the way to further procedures combining "vascularized composite allotransplantation" (VCA) with organ transplants, in patients who have already accepted the need for lifelong immunosuppressive therapy. "Hopefully, this case and others like it will help to widen the narrow indications for this fascinating new field of reconstructive surgery," write Dr. Jesse Creed Selber of The University of Texas M.D. Anderson Cancer Center and colleagues.

Combined Transplants Are New Option for Organ Recipients Who Already Need Immunosuppression

Vascularized composite allotransplantation refers to transplant procedures combining different types of tissues, such as skin, muscle, blood vessels, nerves, and bone. Face transplantation is the best-known type of VCA; hand transplantation is another example.

Other types of VCA flaps offer a potentially new approach to reconstruction for patients with major skull and facial defects. But they also have a major drawback—the need for immunosuppressive drugs to

prevent the recipient's immune system from rejecting the transplant. Patients who also need or have already undergone organ transplantation have already accepted the risks of lifelong immunosuppressive therapy.

Dr. Selber and colleagues outline their experience with combined VCA and organ transplantation in a 55-year-old man. Two decades earlier, he had undergone kidney transplantation for diabetic kidney disease, but that kidney was now failing. He also had a large, unstable wound of the scalp and skull—a complication of surgery and radiation therapy for a scalp tumor. (An increased risk of cancers is one of the risks of long-term immunosuppressive treatment.)

Because the patient was already receiving immunosuppressive therapy and would need another organ transplant in any case, doctors suggested a procedure in which a VCA of scalp and skull would be performed at the same time as a kidney/pancreas transplant, with all transplants coming from the same donor. After weighing his alternatives and discussing the risks and benefits with the surgical team, the patient opted for this combined procedure.

After 18 months on the waiting list, a suitable deceased donor became available—providing not only basic immunologic compatibility but also a match in terms of skin color and quality, hair pattern, and head size. The combined VCA and double-organ transplant procedure required 20 physicians and 15 hours in the operating room.

At the end of the procedure, both transplants were receiving good blood supply and the transplanted organs were functioning normally. An episode of rejection of the scalp/skull transplant occurred after a few months, but was successfully treated. One year after the procedure, the patient was doing well, including good cosmetic appearance of the transplanted scalp.

In this case, the patient's pre-existing organ transplant and immunosuppressive therapy opened the way for VCA to reconstruct a serious scalp/skull defect. The fact that both the composite transplant and organs are from the same donor minimizes the risk of rejecting tissues stimulated by a second donor's tissue.

As the experience with VCA continues to evolve, combining composite reconstruction of complex skull and facial deformities plus organ transplantation presents a unique opportunity to solve difficult clinical problems while avoiding some of the complex ethical choices involved with VCA. Dr. Selber adds, "Our experience is a first step toward widening the narrow indications for VCA to patients with pre-existing immunosuppression."

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