



Face transplants

Transplantes de face

Face transplants emerged as a new treatment option for complex three-dimensional facial deformities over 10 years ago¹. The surgery performed in 2005 by Devauchelle and Dubernard's team in France successfully reconstructed the severely disfigured face of a patient after she was accidentally attacked by her pet dog.

However, transplantation of a composite vascularized facial tissue block from a deceased donor (skin, mucosa, muscles, and bones) is not risk-free. The use of immunosuppressive medication to prevent rejection of the transplanted tissue is necessary, similar to transplantation of vital organs (heart, liver, lungs, kidneys, and pancreas). Continuous use of these drugs is known to cause certain undesirable effects. Transplant patients have increased incidence of diabetes, hypertension, infections, and malignant neoplasms when compared with the normal population.

The first patient who underwent a face transplant died in April 2016, 11 years after the transplant. This indicates several ethical issues related to this procedure. Although the cause of death was not revealed by the medical team that provided her with medical care, it is speculated to be linked to effects related to the use of immunosuppressant drugs. Through innovative surgery, the severely disfigured face of a 39-year-old woman was reconstructed in a manner that would have been unconceivable with conventional plastic surgery techniques. It enabled her return to her social and professional activities. However, the immunosuppression necessary for maintaining the viability of the transplanted facial tissue could be related to the *causa mortis* of the patient. This raises questions about the indications of these procedures, possibly restricting their use to the initial phase in patients already receiving immunosuppression for other reasons.

History has revealed that organ transplantation programs in humans pass through different stages until they can be established as a clinical routine with well-established criteria for indication and follow-up. The first heart transplant was performed in 1968 by Christian Barnard, in South Africa. Zerbini performed the same procedure in São Paulo in the following year. However, the unfavorable initial results, especially related to the difficulty in diagnosis and control of rejection, prevented the immediate inclusion of heart transplantation as a routine procedure in clinical practice. Only since the 1980s, with the advent of the immunosuppressant drug cyclosporine, was it possible to better control tissue rejection in heart transplants. Today, this is the procedure of choice for patients with severe heart failure.

Currently, a little over 30 patients worldwide have undergone a face transplant. Some of these individuals are close to reaching a decade of life after transplantation. A careful analysis of the causes of morbidity and mortality of these patients in the future will allow for better understanding of the natural evolution of this specific type of composite tissue transplantation. A better understanding of various factors such as immune compatibility between the recipient and the donor, the relationship between the immunosuppressive drugs used in these patients and the development of malignant neoplasms and other chronic diseases, and assessment of quality of life after facial transplantation will be central for the establishment of more-precise criteria for the indication of the procedure.

The great challenge in this type of procedure is the combined knowledge of concepts of microsurgery, esthetics, and craniofacial transplantation surgery². Brazil has a solid public program of organ transplantation and has professionals and services of excellence in plastic surgery. Studies with experimental models of facial transplantation^{3,4} and discussion of the knowledge and posture, given the possible attitude to organ donation and facial transplantation, have already been performed⁵. Ethical considerations and priorities should be discussed with the regulating bodies of organ transplantation. If an option is available for the future establishment of programs of composite vascularized tissue transplantation in our country, the legislation should be adapted to permit facial donation and transplantation.

While these criteria are being established, it is the responsibility of the scientific community that takes care of these patients to remain committed to the research of new drugs to control rejection, specific surgical techniques for the procedure, and technological innovations to support the procedure. We believe that as with vital organ transplantation, transplantation of segments or the entire face from a deceased donor could represent a viable option for facial restoration in individuals with complex deformities in the near future.

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