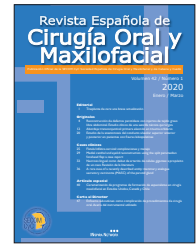




## Revista Española de Cirugía Oral y Maxilofacial

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### Editorial

## Face transplant: a brief update

Since the completion of the first facial transplantation (FT) in France by Devauchelle et al. in 2005<sup>1</sup> more than a quarantine of cases have been reported so far which, as a whole, have revealed an encouraging immunological, psychological, functional and aesthetic results that have demonstrated the viability of this demanding and exceptional procedure<sup>2,3</sup>. We have recently commemorated the tenth anniversary of the first face transplant in Andalusia, the second in our country and the eleventh in the world that took place in January 2010 and in which I had the privilege of participating with a large group of oral and maxillofacial surgeons and plastic surgeons at the Virgen del Rocío University Hospital of Seville<sup>4</sup>. With the memory of that milestone, this editorial aims to make a brief update based on the results published by the pioneer teams in FTs, as well as present some considerations on the main results achieved and upcoming pending challenges that poses this new and fascinating field in constantly evolving.

The scientific community involved in head and neck reconstructive surgery has maintained, since its commencement, an enormous interest in the genesis, development and evolution of this technique. To date, no other reconstructive surgery technique had demonstrated the capacity to correct and repair such varied and complex defects, and anatomical and functional deformities of the face. However, despite its proven achievement, FT has caused, at the same time, an extensive scientific debate. In essence, the technical procedure of a FT is similar to that of any other complex reconstructive microsurgical procedure within reach of many hospitals, to which a deep knowledge in planning and maxillofacial bone fixation, facial cosmetic, parotid and skull base surgery must be added, including dissection of facial nerves<sup>3</sup>. The composition of most allografts has involved the lower two thirds of the face, especially the perioral and periocular central area, in some cases containing the forehead, eyelids and scalp, as well as the maxilla, mandible and teeth<sup>5</sup>. The crux here lies on the exact scheduling and surgical execution taking into account that it is necessary to ensure the adequate perfusion and vascular supply of the allograft, the knowledge of the angiosomes and the vascularization of the facial tissues.

Most indications for FT have focused on patients who were victims of some type of severe trauma or serious sequelae that produced extensive tissue damage in the central-facial area and in whom other conventional reconstruction procedures previously failed<sup>6</sup>. The objective is based on restoring the functions for speaking, swallowing and moving the mimic muscles, as well as offering aesthetic improvements that allow these patients to lead a normal social life. Although the unique characteristics of each of patient undergoing a FT prevent a structured analysis, the overall results have been convincing<sup>7</sup>.

The main points of controversy arise from immunosuppressive therapy and pharmacological toxicity that can lead to metabolic disorders, opportunistic infections and higher incidence of malignant tumors, the likely chronic rejection and the associated financial costs<sup>8,9</sup>. Of the 44 cases of FT currently identified, at least 6 patients have died as a result of chronic immune rejection, multi-organ systemic insufficiency, infection, cancer or suicide<sup>10-12</sup>.

A key topic widely debated has been the commitment these patients to undergo to a lifelong immunosuppressive treatment, with the consequent increased risk of developing complications<sup>13</sup>, considering this “is not a life-saving surgery”, unlike of solid organ transplant that usually has an urgent indication to “really save an individual’s life”. From such an ethical point of view, the risks of exposing recipients to immunosuppressive therapy could be greater than the benefits itself. However, all transplant teams have reported that restoration of functional skills and reconstruction of the face “have changed the lives of patients”, and that there has been a considerable improvement in their quality of life<sup>14</sup>.

FT candidates are found among those patients who have extensive tissue damage to the face and in those who have previously failed the usual reconstruction procedures<sup>6</sup>. Unfortunately, the many patients with advanced head and neck cancer undergoing an extensive ablative procedure to treat their oncological disease are poor candidates for FT, since they will surely have a high risk of recurrence or developing another cancer as a result of immunosuppression. An ethical problem, not yet resolved, would arise if the total loss of the allograft occurred as a result of a surgical complication or an irreversible rejection<sup>2</sup>. Faced with such an adverse scenario, there would be very few reconstructive options for that patient since, hypothetically, the exit situation would be much worse than the initial one<sup>15</sup>.

A thorough psychological evaluation of the recipient is essential before being included in a FT program<sup>16,17</sup>. A clear contraindication is psychological disorders that impair the ability of the recipient to cope the immunosuppressive protocol or to distinguish a realistic expectation of what surgery can offer. Informed consent prior to FT requires a clear understanding of the risks of surgery, the psychological aspects of receiving "the face of another individual", immunosuppressive therapy and the possible chronic rejection of the allograft. Patients with a long psychiatric history or who have suffered a self-inflicted injury add other considerations of special complexity that are the subject of a debate that has not yet been resolved.

When looking back with the perspective of this decade that has elapsed since the performing of our FT, we must confirm with deep satisfaction the enormous progress achieved worldwide in this new field. But at the same time, it should be recognized that many problems and challenges still remain, and decisive aspects persist unresolved to be able to specify the true role that FT will play in the future of head and neck reconstructive surgery. Despite the skepticism and distrust that this procedure initially aroused, through the years it has been opening up as an effective reconstructive option that has positioned itself at the top of the ladder of reconstructive techniques<sup>18</sup>. In general, short- and medium-term achievements have been favorable, with promising functional and aesthetic results, and an obvious positive impact on the quality of life and psychological aspects of recipients<sup>19</sup>. The constant advances in computer-assisted surgical planning, optimization of allograft harvesting and microsurgical techniques, together with the correct and thorough selection of candidates, have allowed this procedure to progressively have a wider clinical application<sup>20-24</sup>, evolving from the first partial transplants of some facial structures to the current more complete FTs that include several aesthetic units of the face. Today, the firm conviction has been installed in the scientific community that, to some extent, surgical innovations in the field of FT have outperformed the advances in immunological, medical and ethical aspects raised by this procedure. However, there is no consensus on when, how and why to make the decision to perform a FT instead of an autologous reconstruction, nor on the inclusion/exclusion criteria of candidates. For this reason, such a complex decision must be assessed in each specific clinical case<sup>25</sup>.

Although FT has established itself as a new alternative within the armamentarium of reconstructive procedures, it must still be considered as an experimental and extraordinary procedure from which much remains to be learned<sup>5</sup>. Despite the comparative analysis of available data on clinical cases of FT have shown globally encouraging functional and aesthetic results, there are still considerable aspects of research and clinical application pending to be defined to envision the true scope and exact dimension of this procedure<sup>10</sup>. The next challenge will be to achieve new strategies for safer and more effective immunosuppressive treatments, or potential advances in the field of immunology that can even avoid the need to follow lifelong immunosuppressive regimes, thus eliminating one of the main medical and ethical risks associated with FT.

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