Evolution of Ethical Debate on Face Transplantation

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Background: Face transplantation can provide improved quality of life to severely disfigured individuals. The unique challenges of face transplantation prompted much ethical discussion even before the first clinical case. Many deemed it unethical, because of issues ranging from the need for potentially harmful immunosuppression to the potential transfer of identity. Over time, the ethical debate surrounding face transplantation has evolved.

Methods: In August of 2012, the authors performed a review of the scientific literature on the ethics of face transplantation, focusing on the evolution of the discussion from before to after the first clinical case in 2005. The authors conducted a primary search (73 peer-reviewed publications) in PubMed using combinations of the terms “ethics” and “face transplantation” and “opinions,” and a secondary search (37 peer-reviewed publications) retrieving publications cited in some of the primary search findings. In total, the authors reviewed 110 articles.

Results: A series of 15 issues were addressed repeatedly throughout the reviewed articles. The authors observed an evolution of the general opinion regarding face transplantation: initially seen almost unanimously as an outlandish and morally objectionable procedure, it began to be accepted as a feasible and necessary treatment option for the most significant facial defects.

Conclusion: With growing clinical experience globally, new ethical questions have arisen that must be addressed to move the field of face transplantation forward in an ethically sound manner. (Plast. Reconstr. Surg. 132: 1558, 2013.)

Face transplantation brings renewed hope and life-changing results to individuals with severe facial disfigurement. Although facial disfigurement is not life threatening, it can be detrimental to an individual’s psychological, functional, and social well-being. Face transplantation may present the only opportunity for a more normal and functional life for some severely disfigured individuals. As with the first kidney transplantation performed in 1954, the first face transplantation prompted heated ethical debates and condemnation. Once the disciplines of surgery and transplant medicine evolved sufficiently to make face transplantation feasible, the fundamental question shifted from “can we do it?” to “should we?”

In November of 2005, Dubernard’s team in Amiens, France, was the first to perform face transplantation; with this case and the subsequent procedures successfully performed by other groups, technical feasibility was demonstrated.

Since then, an additional 23 cases have been reported worldwide. Before 2005, the majority of health care professionals and ethicists dismissed face transplantation as outlandish and unethical. Because some consider the face the most important aesthetic organ, concerns arose about the stigma associated with the transfer of faces across individuals and the potential effect of transferring identity and appearance. Initially, most authors believed that the risks of face transplantation greatly outweighed its perceived benefits. This hesitant position was likely based on caution in the face of the unknown and, although understandable, did not prove correct. Conceived before the first face transplantation was even performed, early publications dismissing face transplantation

From Brigham and Women’s Hospital, Harvard Medical School.
Received for publication January 2, 2013; accepted June 25, 2013.
Copyright © 2013 by the American Society of Plastic Surgeons
DOI: 10.1097/PRS.0b013e3182a97e2b

Disclosure: Drs. Bueno, Díaz-Siso, and Pomahac receive partial or full salary support from Department of Defense Biomedical Translational Initiative contract no. W911QY-09-C-0216.
as unethical were not based on compelling arguments. After the first face transplantation, speculation was gradually replaced by observations of reported outcomes, as more and more successful operations ensued.

In this article, we examine the evolution of the debate in the scientific literature on the ethics of face transplantation. We analyze the ethical arguments that preceded and followed the advent of face transplantation in clinical practice. We outline the major ethical concerns that need to be considered to ethically advance the field of face transplantation.

METHODS

In August of 2012, we performed a review of the scientific literature on the ethics of face transplantation, focusing on the evolution of the discussion from before to after the first face transplantation in November of 2005. We selected publications by conducting a primary search in PubMed, using the search terms: "ethics of face transplantation," "ethics of facial transplantation," "face transplantation ethics," and "opinions on face transplantation." Articles yielded from the primary search that did not discuss the ethics of face transplantation were excluded from the study. The primary search yielded 73 articles that discussed ethical issues in face transplantation; these articles were selected for analysis. References cited in all 73 selected articles were reviewed and cross-checked. Of these references, publications that discussed ethical issues in face transplantation and that were not already included in the first 73 selected articles were included in the study. The total number of articles selected from the review of references is 37. In all, 110 articles were identified and retrieved for analysis. Of these 110 articles, only 23 (21 percent) contained information on submission dates; of note, the average time elapsed between submission and publication date was 4 ± 0.6 months (average ± SEM).

We defined publications as "in favor" or "against" with respect to face transplantation, by looking for a specific statement within the publication's content in this regard. If a statement was not found, we defined the article as "not taking a position" with respect to face transplantation.

RESULTS

We identified 45 publications between the first published article on the topic (2002) and the first face transplantation in France (November of 2005), and 65 publications between November of 2005 and the date of the search (August of 2012) (Fig. 1). The most prolific publication years were 2004 (n = 34 publications) and 2006 (n = 25 publications). Comparatively, there were very few peer-reviewed publications (n = 7) in 2005. The number of peer-reviewed publications per year has decreased gradually from 2006 to the present day.

We observed a time-related trend in the ethical position of the selected publications (Fig. 2). The frequency of articles arguing "in favor" of face transplantation (i.e., face transplantation is ethically justified) increased from 0 percent in 2002 to 100 percent in 2008 and onward. From 2008 forward, many authors acknowledged the ethical concerns surrounding face transplantation but noted that those concerns are outweighed by the benefits. More recent articles focus on novel considerations in face transplantation, such as the ethics of transplantation in blind patients.

We found some specific topics that recurred throughout the selected publications. We refer to these as the "core 15" issues of the ethical debate in face transplantation (Table 1). This group includes any issue addressed in more than one of the 110 articles. A table highlighting which ethical issues are discussed in each of the selected articles is provided (Table 2). Of note, not all core 15 issues were discussed in every selected publication; instead, each publication selectively placed more emphasis on particular issues (Fig. 3).

The most prominent issue was "identity changes/psychological effects" of face transplantation, discussed in 70 percent (n = 77) of selected publications. Similarly predominant were "immunosuppression" in the setting of a non-life-saving therapy and "risks/benefits" issues discussed in 69.1 percent (n = 70) and 64.8 percent (n = 71). The remaining core 15 issues were: "surgery/life-improving," 50.9 percent (n = 56); "society's role," 49.1 percent (n = 54); "failure of transplant," 44.5 percent (n = 49); "quality of life," 44.5 percent (n = 49); "obstacles to facial donation," 40.9 percent (n = 45); "informed consent," 39.1 percent (n = 43); "importance of face," 34.5 percent (n = 38); "patient selection," 26.4 percent (n = 29); "ethical principles," 10.9 percent (n = 12); "future of routine usage," 10 percent (n = 11); "costs" 5.5 percent (n = 6); and "inability of disfigured persons to live normal lives," 3.7 percent (n = 5).

The number of publications addressing each of the core 15 issues demonstrated significant change from before to after the first face transplantation, based on the publication date.
(Fig. 4). Although the issues of identity and immunosuppression remained equally prominent during both time periods, the majority of the other core 15 issues were addressed less frequently in the after-first face transplantation period. In particular, “risks/benefits” of face transplantation were mentioned in 79.01 percent of articles published before the first face transplantation and only 56.1 percent of the articles published after it. “Failure of transplant” similarly declined from 55.8 percent before to 33.8 percent after the first face transplantation. “Patient selection,” “inability of disfigured persons to live normal lives,” and “costs” became increasingly popular in the after-first face transplantation transplant period (Fig. 4).
Table 1. Summary of the Core 15 Issues

<table>
<thead>
<tr>
<th>Core 15 Issues</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity</td>
<td>Does having someone else's face on one's body change one's identity?</td>
</tr>
<tr>
<td>Patient selection</td>
<td>Who is the &quot;ideal&quot; patient?</td>
</tr>
<tr>
<td>Risks/benefits</td>
<td>Do the benefits of face transplantation outweigh the risks?</td>
</tr>
<tr>
<td>Informed consent</td>
<td>Is the patient too vulnerable to make an informed decision even after hearing all the risks?</td>
</tr>
<tr>
<td>Immunosuppression</td>
<td>Is lifelong immunosuppression with its life-shortening effect justifiable in a non-life-saving intervention?</td>
</tr>
<tr>
<td>Failure of transplant</td>
<td>Transplant failure would necessitate removal and return to prior or worse state of disfigurement. The risk is unknown.</td>
</tr>
<tr>
<td>Importance of face</td>
<td>The face is a unique organ responsible for our communication and personal appearance.</td>
</tr>
<tr>
<td>Society's role</td>
<td>Will face transplants reinforce society's misguided obsession with beauty? What will be the impact of this procedure be on society? How will the patient's family and peers react? How will the media react?</td>
</tr>
<tr>
<td>Surgery/life-improving</td>
<td>Is it ethical to undertake an operation that is very extensive and technically difficult if its purpose is not saving a life but rather improving function or quality of life?</td>
</tr>
<tr>
<td>Quality of life</td>
<td>Facial disfigurement leads to individual difficulties such as depression, social isolation, and risk of suicide. Can this operation overcome these psychological hurdles?</td>
</tr>
<tr>
<td>Disfigured people</td>
<td>Does facial transplantation convey the underlying message that a good quality of life cannot be achieved if you have a disfigured face?</td>
</tr>
<tr>
<td>Donation/donor's family</td>
<td>Who will be donating faces? How will donation affect the donor families?</td>
</tr>
<tr>
<td>Future of routine usage</td>
<td>Will face transplantation become a routine elective procedure in the future?</td>
</tr>
<tr>
<td>Ethical principles</td>
<td>Does face transplantation conform to the ethical principles of respect for persons, beneficence, nonmaleficence, and justice?</td>
</tr>
<tr>
<td>Cost</td>
<td>Who is going to pay for face transplantation? How much does it cost?</td>
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**DISCUSSION**

After 24 successful operations worldwide, discussion of ethical issues surrounding face transplantation persists (Fig. 1). The tone, however, has changed from an overall hesitancy to embrace the ethical justifiability of the procedure in 2002 (i.e., "against" face transplantation) to a general acceptance of its ethical permissibility (i.e., "in favor of" face transplantation) in the time period since then (Fig. 2). This shift started soon after the first human face transplantation in 2005, and publications advocating for face transplantation gradually outnumbered those that dismissed it. In 2006, the percentage of those publications demonstrating a tone that was generally in favor of versus those against face transplantation was 52.0%

Table 2. Distribution of Core 15 Issues throughout 110 Publications

<table>
<thead>
<tr>
<th>Issue</th>
<th>% in Articles</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity</td>
<td>70</td>
<td>2, 4-6, 8-13, 16-19, 21, 23-24, 29-34, 37, 38, 41-46, 48, 49, 51-55, 58-71, 74, 75, 77, 78-82, 84-86, 90-94, 97, 101-105, 109, 111, 112</td>
</tr>
<tr>
<td>Surgery/life-improving</td>
<td>50.9</td>
<td>2, 4-7, 9, 11-14, 21, 22, 24, 26, 29, 30, 32, 34-36, 40, 41, 43-45, 49, 51-53, 55-58, 60, 61, 63, 66, 71, 72, 81-83, 87, 88, 92, 95, 98, 100, 102-104, 107, 109, 112</td>
</tr>
<tr>
<td>Society's role</td>
<td>49.1</td>
<td>6, 9-11, 14-16, 19-24, 25, 28, 31, 32, 34-39, 41, 44, 45, 48, 50, 51, 55, 56, 58-64, 71, 72, 74, 77, 78, 82, 84, 85, 89, 90, 95, 97, 99, 100, 105, 108, 111</td>
</tr>
<tr>
<td>Failure of transplant</td>
<td>44.5</td>
<td>5-7, 9-11, 13, 17, 19-21, 23, 25, 26, 28-31, 33, 38, 40, 41, 45, 48, 50, 53, 59-62, 64, 65, 67-69, 71, 73, 74, 76, 81, 82, 84, 98, 103, 105, 110-112</td>
</tr>
<tr>
<td>Quality of life</td>
<td>44.5</td>
<td>2, 4-7, 9, 11, 12, 14, 15, 18, 22, 26-29, 34, 36, 38, 41-43, 46, 49, 51, 55-57, 59, 61, 63, 71, 72, 77-80, 87-90, 92, 93, 95, 98, 99, 106, 107, 110, 111</td>
</tr>
<tr>
<td>Donation/donor's family</td>
<td>40.9</td>
<td>4, 6, 7, 9-13, 15, 17, 24, 28, 30-32, 34, 39, 43, 44, 48, 54, 55, 58, 61, 63-65, 67, 68, 70, 74, 75, 77, 80, 81, 83, 84, 86-89, 92, 95, 103, 108, 111, 112</td>
</tr>
<tr>
<td>Importance of face</td>
<td>34.5</td>
<td>4, 6, 11-13, 15, 17, 20-23, 30, 34, 36, 37-39, 43, 45, 48, 49, 54-58, 60, 64, 71, 77, 78, 83, 88, 90, 95, 96, 97, 100, 105, 112</td>
</tr>
<tr>
<td>Ethical principles</td>
<td>10.9</td>
<td>24, 23, 38, 39, 45, 49, 57, 79, 80, 90, 91, 98</td>
</tr>
<tr>
<td>Future of routine usage</td>
<td>10</td>
<td>23, 33, 35, 36, 38, 41, 47, 50, 98, 103, 112</td>
</tr>
<tr>
<td>Costs</td>
<td>5.5</td>
<td>32, 54, 61, 85, 98, 109</td>
</tr>
<tr>
<td>Disfigured people can't live regularly</td>
<td>4.5</td>
<td>23, 59, 101, 105, 109</td>
</tr>
</tbody>
</table>
percent versus 32.0 percent; this shifted to 66.7 percent versus 25.0 percent in 2007 and to 71.4 percent versus 28.6 percent in 2009. After 2010, no publications stating a position against face transplantation were identified in our sample.

We acknowledge a limitation in our study attributed to the difference between submission and publication dates of the selected articles. However, we were able to retrieve submission dates for only approximately one of five of the publications, and observed an average time elapsed between submission and publication of 4 months, with a small standard deviation. Thus, we remain confident in the ability of the publication date to orient the reader to the time context of the ethical discussion. Although we believe in the importance of each of the core 15 issues, there is a consensus in the literature that grants more significant ethical considerations to some specific ones. We focus our discussion on three issues that were most controversial in the literature: identity, patient selection, and assessing the risks and benefits of face transplantation. As engaged members of the plastic surgery, vascular composite tissue allotransplantation, and bioethics communities, the authors are qualified to speak on issues that are appropriately raised in educated discussions of the involved procedures. "Identity/psychological effects" was the issue that was most discussed throughout the 110 articles. "Patient selection" is the issue whose prominence in the literature increased the most following the first face transplantation. "Risks/benefits" was the issue that we saw as most broadly encompassing concepts that will continue to form the pillars of discussion with regard to ethics and equipoise as the field evolves dynamically, such as immunosuppression and rejection.

**Appearance/Psychological Effects**

The impact of "wearing" someone else's face remains a central issue in the ethical debate about face transplantation (Fig. 3). Concerns about identity transfer and the psychological effects of adopting someone else's face were present in approximately 67 percent of the selected publications. Many early critics proposed that taking someone else's face may be in some ways akin to assuming that individual's appearance/identity, whereas others countered that face transplantation was not the same as brain transplantation, and that a disfigured person has already endured a change in appearance without a loss of identity, thus demonstrating that identity is composed of much more than facial appearance.
Fig. 4. Effect of the first facial transplantation performed in November of 2005 on the frequency of appearance of each core 15 issue within the selected publications. Black bars represent the frequency of appearance of each core 15 issue in articles published before the occurrence of the first facial transplantation. Gray bars represent the frequency of appearance of each core 15 issue in articles published after the occurrence of the first facial transplantation. Of note are the gains in frequency of appearance of patient selection and the reduced frequencies of appearance of risks/benefits and failure of transplant after the first facial transplant, all of which show the importance of evidence-based analysis.

The 1997 science fiction film *Face/Off* may have influenced the public's opinion on face transplantation. In the film, an FBI agent receives the face of a criminal with great aesthetic result and immediate recovery. It is likely that with this as the only publically available point of reference on face transplantation at the time, many believed that real face transplant recipients would "wear" the face of the donor like a permanent, perfectly fitting and functioning mask. Understandably, such a thought may have been alarming. However, worldwide clinical experience and our own simulation studies have since shown that the degree of facial appearance transfer from donor to recipient in face transplantation is negligible. The face transplant recipient does not "wear" the donor's appearance, but rather obtains a new appearance with respect to the preinjury and postinjury states. The new appearance is identical to neither the recipient's nor the donor's, although the degree of appearance transfer from donor to recipient cannot be experimentally quantified because in many cases the donor's identity must remain confidential. Of note, experience with four face transplant operations at our institution has shown that recipients and their close network of family and friends adjust well to the new faces soon after the operation, and patients feel subjectively that they conserve their identities, suggesting that transfer of appearance is not equivalent to transfer of identity and, at its core, is not as significant an issue as has been suggested.

**Patient Selection**

The characteristics that constitute an ideal recipient of face transplantation remain open for consideration and study. Interest in the intricacies of patient selection emerged as the operation transitioned from fiction to reality and more practical questions arose: Who was the individual who received the face transplant in France, China, or the United States? Why did the surgeons select this patient in particular? Was it because of the characteristics of his or her injury alone? Or was it...
because they anticipated compliance with orders and medications? Was it because the cosmetic defect was so severe or because of the anticipated improvement of facial motor functions? Should face transplantation be performed in children, or only in adults? Would the ideal patient be the individual who is the most disfigured and unhappiest with their disfigurement?

Huxtable and Woodley described the last question as the “catch 22 of face transplantation,” stating that individuals most likely capable of dealing with face transplantation and its accompanying risks may ironically be those who least need the procedure, because they cope well with their disfigurement. These “strong” individuals were therefore less likely to take extreme measures and less likely to dismiss life-altering risks in favor of an improved appearance. Conversely, those who needed the procedure the most would likely be unable to adjust to their disfigurement and do anything to end it, including risking their lives. These individuals would be more likely to selectively filter the information received during pre-face transplantation informed consent. Herein lies the conundrum because, arguably, the second group of subjects are those whose quality of life would be most improved by face transplantation yet the ones for whom informed consent would be the most challenging.

The complexity of patient selection has increased as more practical questions have emerged in parallel with the increase in potential candidates for the operation. For example:

- Our team has performed face transplantations in two blind patients, and the Cleveland Clinic team performed one on a patient with severely impaired sight.

Of note, the Cleveland Clinic team reported that recipient blindness is an absolute contraindication for face transplantation in their center. Based on the principle of justice, our group has argued that blindness should not be an exclusion criterion for face transplantation, provided that the benefits surpass the risks for a specific patient.

- Spain attracted attention in 2010 when Cavadas et al. performed face transplantation in a human immunodeficiency virus–positive patient with a history of malignancy 11 years before the transplantation. This raised significant questions about whether face transplantation can or should be performed in patients with conditions that are contraindications to immunosuppression, such as human immunodeficiency virus and cancer.

We have reported our experience-based guidelines for patient selection for face transplantation. Our face transplant recipients must present with a severe facial defect that is nonreconstructable by conventional techniques. We treat comorbidities, disabilities, and other situations on a case-by-case basis and rely on expert multidisciplinary discussion.

Risks/Benefits

The ethical debate on the risk-to-benefit ratio of face transplantation boils down to whether there are enough data to affirm that the benefits of face transplantation outweigh its risks. A Fisher’s exact test of our data demonstrates that there has been a demonstrable shift in documented support of face transplantation from before the first face transplant to after it, with a two-sided value of \( p = 4.6 \times 10^{-3} \). Early publications reported that there was no equipoise and that the risks greatly outweighed the benefits. These statements spurred divergent perspectives, to which the surge of publications in 2004 may be attributed (Fig. 1). Reference to the movie Face/Off fueled public speculation about outcomes of face transplantation, as the film depicted the procedure without substantial risk. There was also a generalized difficulty in understanding how face transplantation could be life-improving while simultaneously subjecting recipients to lifelong immunosuppression and unknown psychological effects. Those against face transplantation believed that operations should not be performed in humans until more research was performed; however, there were substantial limitations to the types of research that could be performed, raising questions about whether additional research would prove fruitful. Before 2004, rat models had demonstrated the safety and immunologic compatibility of face transplantation. Because of advancements in microsurgery, talented surgeons throughout the world were already technically qualified to perform face transplantation in humans. Therefore, at that point in time, most of the perceived risks of face transplantation were based on speculation, whereas actual performance of the operation in humans would provide evidence-based information on true risks and benefits.
Lastly, many opposed to face transplantation argued that the procedure would turn a “healthy” disfigured person into a “more normal appearing” sick one. Some countered this argument with the definition of “health” given by the World Health Organization in 1946, where “Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.” Under this definition, facially disfigured individuals who cope with all associated psychological stressors and functional limitations could not reasonably be deemed “healthy.” Ultimately, face transplantation advocates argued that the risk-to-benefit assessment hinged on a question of quality versus quantity of life: Is it better to live 100 years in social isolation, psychological distress, and disability, or 50 years of enhanced self-worth, social participation, and improved independence? Risks and benefits are no longer discussed so heatedly (Fig. 4) in light of successful face transplantation outcomes. Teams have reported manageable complications, long-term effects of immunosuppression that are less severe than those observed in the solid organ recipient population, and consistent increases in quality of life and social participation.

CONCLUSIONS

We identified 110 peer-reviewed publications of varied length and design on the ethics of face transplantation; this total was the result of an exhaustive search, although it is impossible to rule out the potential for missed studies that should have been included in the analysis. These publications tended to address the same 15 core issues. We believe that this redundancy in discussion may have stemmed from the perception of face transplantation as a future “hot” field, and a subsequent general attempt to carve a personal niche in the pioneering records of the technology. Unfortunately, at some point after publication of the seminal sources, true enrichment of the debate gradually decreased. In our opinion, the conversation is now being enriched again by discussions of experience-based practical issues of face transplantation. With 22 living face transplant recipients and more to come in the immediate future, we believe that we have moved past questioning the ethical justification of face transplantation and into examining what we know about its outcomes, successes, and failures, and addressing the practical ethical issues that are now surfacing, some of which we describe briefly below.

Cost

In our selected peer-reviewed publications, the issue of cost was raised in only 5.6 percent of related publications. Furthermore, more comprehensive economic analysis must be conducted to help identify areas in which costs can be efficiently lowered to facilitate widespread adoption of this intervention. At the same time, further work must be pursued to determine how best to address the needs of disfigured potential face transplantation recipients without health care coverage, as the lifelong costs of immunosuppression make their treatment prohibitively expensive.

Pediatric Face Transplantation

Can we deny the benefits of face transplantation to disfigured children who cannot provide informed consent to immunosuppression?

Ethnicity

The 2010 U.S. Census revealed the following American population composition: 72.1 percent white, 12.6 percent black or African American, 16.3 percent Hispanic, and 4.8 percent Asian. The 2010 Organ Procurement and Transplantation Network’s data on all solid organ transplantations taking place that year in the United States indicated the following recipient distribution: 59.8 percent white, 20.8 percent black or African American, 13.3 percent Hispanic, and 4.6 percent Asian. Dead donors for these transplants were 66.5 percent white, 15.9 percent black or African American, 13.3 percent Hispanic, and 2.4 percent Asian.

Considered in aggregate, the U.S. Census and Organ Procurement and Transplantation Network data do not suggest racial discrimination in solid organ transplantation, although studies have suggested that intentional or unintentional ethnic discrimination in solid organ transplantation is possible and motivated by higher graft rejection rates because of racial immunologic trends and socioeconomic factors. Interestingly, of the face transplantation recipients from whom demographic data are available (n=16), 13 were Caucasian, and there is one each from the following ethnic groups: Hispanic, black or African American, and Asian. Although this discrepancy with solid organ transplant data may be serendipitous, it may also be attributable to different incidences of facial disfigurement or health care coverage across ethnicities, or a shortage of facial donors for blacks or African American, Hispanics, or Asians (<20 percent of the donor population belong to these ethnicities). Although solid organs are routinely transplanted across ethnicities,
faces have not been thus far, because of concerns about suboptimal matching of skin tones.

Allocation
Currently, the number of candidates waiting for a facial allograft donor in the United States can be counted on one hand. Thus, the issue of one donor matching multiple waiting recipients has not yet arisen, but it will when advances in immunosuppression permit widespread adoption of face transplantation. Leading centers in the field must think together on the most fair and efficient means of facial allograft allocation.

Gender Matching
All 24 face transplantations performed thus far have used gender-matched donors. We question whether it is absolutely necessary for the donor of the face to match the gender of the recipient. Further consideration must be given to the validity of performing gender-mismatched facial transplants under certain conditions under which gender matching is not critical to the restoration of form or function.

These questions belong in today's field of face transplantation and must be further investigated for the sake of evolving this field to its maximum potential in a safe, ethically sound manner. Because of the experimental nature of the procedure, some institutions may exclude certain patients, such as those with human immunodeficiency virus, whereas others may view this as discriminatory and not count this within their exclusion criteria. Given the preliminary stages of protocol development in the field, clinicians should work toward developing a consensus opinion regarding eligibility requirements for facial transplant candidacy.

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