

Powerful Cure or Potential Disaster? Facing the Consequences of Face Transplantation

By Justin Rossi

Dr. Jean-Michel Dubernard's scalpel appears to be a key to controversy. Last November, the French surgeon (and former researcher at Harvard Medical School) shocked the world by performing the first partial face transplantation on a facially disfigured 38-year old woman in Lyon, France (1). The idea of face transplantation, a multi-tissue transfer from the face of a brain-dead donor to a disfigured recipient, had been under experimental investigation by surgical teams around the world for several years (2,3). At the time Dubernard stitched the experimental procedure into reality, however, the ethical debate regarding face transplantation was anything but settled. Dubernard's decision to perform the operation, even against the suggestion of leading medical institutions, has only made the debate more heated (4). As we approach this new frontier in reconstructive surgery, the medical community must consider and take responsibility for all consequences of face transplantation; it must prevent unnecessary risks to individuals as well as the indiscriminate use of donor procedures to feed human vanity.

Opponents of face transplantation argue that the prerequisite of a favorable balance between benefits and risk – a requirement of all experimental procedures – has not been established (5). They claim that it serves mainly an aesthetic purpose and provides little functional advantage; face transplantation is not a life-saving procedure, so the post-procedural treatment and the possibility of graft rejection puts patients at an unnecessary risk of death (5). Proponents argue that the increase in the quality of life for disfigured patients is so great that undergoing the procedure is certainly worth its risks. Outside the medical community, the media have toyed with the concept that face transplantation might provide one with the opportunity to “get a new face,” suggesting an application of this procedure in the cosmetic surgery industry (6).

Face transplantation strikes at the heart of a broader ethical debate in the medical community. As physicians' abilities grow incrementally,

at what point does the power to provide a medical miracle leave us too open to the negative consequences of misuse? Is anyone governing or managing these advancements? The medical community has largely ignored the possibility that current face transplantation techniques may evolve into cosmetic applications in which face transplants are used to pursue a perfect face for the non-disfigured. Instead, the community has focused primarily on the cost-benefit analysis for individual patients and psychological questions of personal identity. Facial transplantation is a developing field with potential benefits, but to institute it as a means of creating the perfect face is both unethical and potentially impossible.

There seems to be a great deal of misunderstanding regarding the actual science behind face transplantation and to what degree an individual's “face” is actually transplanted. Such misunderstanding could lead to unnecessary limitations on reconstruction for the disfigured or disastrous results for those trying to manipulate it to achieve some aesthetic ideal. Face transplantation is made possible by a microsurgical tissue graft technique called Composite Tissue Allotransplantation (CTA), a process whereby all necessary tissues for the reconstruction of a certain area (including skin, muscle, nerve, and vascular components) are taken from a donor who has been medically declared brain-dead and transferred onto the recipient (7). CTA was originally pioneered as a means of hand transplantation by Dubernard, the same physician who most recently applied the technique to the human face. A significant complication of facial CTA is rejection of the graft by the recipient's immune system. This rejection is due to the tissue types that are transplanted, which exhibit strong antigenicity, or susceptibility to immunological rejection. For this reason, lifelong dependency on immuno-suppressive drugs is a requisite of facial allograft patients. These drugs themselves may have serious side-effects, includ-



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ing an increased likelihood of infection, diabetes, and skin cancer (7).

Those attempting to seek or prescribe face transplantation as a means of aesthetic enhancement beyond the scope of treatment for the disfigured should be aware of the unfavorable lifelong consequences of face transplantation as it stands today. Mandatory immunosuppressive therapy with radical side-effects is only the tip of the iceberg. In addition

to this lifelong drug dependency, two other aspects of facial CTA undermine the attempts of

potential “perfect face” seekers. The difference in bone structure between donor and recipient make it impossible to effectively transfer the complete image of a human face; there is no telling exactly how the combination of recipient bone structure and donor tissue will mold together to form the “new face.” Furthermore, since such a great deal of tissue is transplanted, substantial scarring is an inescapable result of the procedure (7).

Given the history of cosmetic surgery, it is not surprising that individuals would attempt to harness medical miracle to suit the purpose of human vanity. When modern rhinoplasty was developed and applied as a cosmetic procedure in the 19th century, its main recipients were patients suffering from saddle-nose, a condition often resulting from syphilis where the bridge of the nose practically disintegrates (8). But today, the more than 200,000 rhinoplasties annually performed in the United States are a far cry from treatments for the disease-ridden or facially disfigured (9). Rather, the vast majority of these procedures are performed on “aesthetically concerned” individuals willing to pay a hefty price to enhance their appearance. By virtue of its cosmetic nature, face transplantation lends itself to repeat the history of rhinoplasty and other cosmetic procedures that have met a similar fate. However, because it transfers living tissue from a donor to a recipient, face transplantation is distinct from conventional aesthetic procedures. Transplant ethics and respect for the donor must be a priority.

The goal of face transplantation is to make a substantially positive impact in the quality of life

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of the patient by helping to reconstruct a face, and, consequently, a life. Thus, the hope of research and experimentation is a widespread application of the procedure. There are over 20 thousand major burn victims in the U.S. annually, many of whom are unable to find adequate treatment for facial burns (10). This widespread application, however, is dependent on a good supply of donors. If the medical community does not commit itself to

the integrity of the donors by doing its best to steer physicians and patients away from experimenting for purely cosmetic purposes,

a supply of donors will be hard to find. This commitment should take the form of public education, legal protections of facial CTA donors, and broader experimental oversight.

Due to the limitations and risks of current techniques, facial CTA may not yield cosmetic experimentation in the near future. However, given the trends of medical advancement, there is no telling when these limitations may be overcome. As a result, we need to think in advance. While the face transplant controversy is far from over, the medical community's proper handling of attempts at non-reconstructive facial CTA will help this technique realize its potential healing power. **H**

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