

Virtual Mentor
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Ethics in Cosmetic and Reconstructive Plastic Surgery

From the Editor

- The Contested Status of Cosmetic and
Reconstructive Plastic Surgery** 359
Scott B. Grant

Educating for Professionalism

Clinical Cases

- The “Mommy Makeover” Package** 363
Eric T. Carniol and Paul J. Carniol
- Outer Ear Construction: Is Advocacy Part of Treatment?** 367
June K. Wu
- An Argument for Patient Autonomy in Elective Surgery** 373
Michael Van Vliet and Joseph Rosen

The Code Says

- AMA Code of Medical Ethics’ Opinion on Physician Advertising** 376

Journal Discussion

- Ethical Issues in Face Transplantation** 378
Christian J. Vercler

Clinical Pearl

- Diagnosing and Treating Microtia** 383
Mitchell A. Stotland

Law, Policy, and Society

Health Law

- Silicone Breast Implant Litigation** 389
Kristin E. Schleiter

Policy Forum

- An Argument Against the Feasibility of Taxing
Cosmetic Surgery** 395
Lauren Sydney Flicker and Rachel Zuraw

Medicine and Society

- Are Cosmetic Surgeons Complicit in Promoting Suspect
Norms of Beauty?** 401
Jordan Amadio
- Comic Strip: Mirror, Mirror** 406
Khris Oak

History, Art, and Narrative

History of Medicine

- Advertising Cosmetic Surgery** 407
Deborah A. Sullivan

Images of Healing and Learning

- The Genetic Basis of Body Shape: Lessons from
Mirror Twins and High-Definition Digital Photography** 412
David Teplica

Op-Ed and Correspondence

Op-Ed

- Character and the Plastic Surgeon** 418
Robert T. Grant and Michael Sosin

Resources

- Suggested Readings and Resources** 422

- About the Contributors** 431

Upcoming Issues of *Virtual Mentor*

- June: Time and Resource Constraints in the Emergency Department
July: Pediatric Palliative Care
August: Sexual Orientation, Gender Identification, and Patient Care
September: Natural Disasters, Quarantine, and Public Health Emergencies

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FROM THE EDITOR

The Contested Status of Cosmetic and Reconstructive Plastic Surgery

Although plastic and reconstructive surgery can be traced back almost 3,000 years to Sushruta and his rhinoplastic surgeries in India, it is really only within the last 100 years that the field has become a formal specialty distinct from general surgery. There have been many developments in this time, from breast implants and Botox to plastic surgeon Joe Murray's pioneering kidney transplants, hand and face transplants, Carl R. Hartrampf Jr.'s TRAM flap for breast reconstruction, and Rad Tanzer's microtia reconstruction operations. Despite its size (there are fewer than 7,000 active plastic and reconstructive surgeons in the U.S.), the field has gained widespread attention through reality television shows like *Dr. 90210*, *Extreme Makeover*, *I Want a Famous Face*, and *The Swan* and dramas like *Nip/Tuck*.

This new prominence, coupled with the media focus on cosmetic and aesthetic surgery, has raised many interesting ethical questions, including surgeons' complicity with perpetuating harmful or unattainable standards of appearance, a patient's right to decide what happens to his or her own body, distribution of resources (allocation of health care funding and doctors' time), and distributive justice—the potential for increased social stratification as the wealthy compound their advantages with enhanced appearance. The most highly visible of these conflicts is the debate over which procedures are therapy and which are mere “enhancement.” This dispute is colored by psychosocial concerns, such as whether the ramifications of appearance (which can affect a person's self-confidence, social functioning, dating habits, social mobility, and academic and career success) constitute a legitimate medical condition. Answering that question requires differentiating between the delivery of needed therapy, on the one hand, and the commercialization of medicine or the medicalization of consumer dissatisfaction, on the other. This month's issue of *Virtual Mentor* takes on all these questions and more.

The enhancement-versus-treatment debate appears in many of this month's contributions. June K. Wu, MD, a pediatric plastic and craniofacial surgeon at Columbia, argues that helping a patient with a congenital deformity secure coverage for the aesthetic portion of reconstructive surgery is a part of the treatment and therefore within the scope of the physician's responsibilities. The clinical pearl on evaluating and treating microtia was written by Mitchell A. Stotland, MD, MS, a pediatric plastic surgeon and director of the craniofacial anomalies program at Dartmouth (Rad Tanzer's home institution).

Most contributors emphasize the importance of putting the patient's best interests first. The case 1 commentary is by Paul J. Carniol, MD, associate professor at the University of Medicine and Dentistry of New Jersey and coeditor of *Aesthetic Rejuvenation: Challenges and Solutions, A World Perspective*, and Eric T. Carniol, an MD/MBA candidate at Boston University. They emphasize the importance of helping patients form realistic expectations and understand their own motivations for seeking surgery. Carniol and Carniol discuss the importance of timing body contouring procedures appropriately, taking into account the patient's priorities other than aesthetics and self-esteem.

Joseph Rosen, MD, professor of plastic surgery at Dartmouth, and Dartmouth-Hitchcock resident Michael Van Vliet, MD, respond to a question about the ethics of filling an elderly woman's request for breast implants. They make a case for putting patient autonomy (and, of course, physician nonmaleficence) above moral or aesthetic judgments about the suitability of a particular procedure for a particular patient.

Christian J. Vercler, MD, plastic surgery resident at the Harvard Combined Residency in Plastic Surgery, addresses the cutting-edge issue of facial transplantation. He explains how outcomes have highlighted the importance of selecting patients who are able to cope with the physical and psychological effects of the surgery and describes the components of an ideal informed consent process for facial transplantation.

In addition to serving the well-being of their patients, do plastic surgeons have a particular duty to society? Jordan Amadio, MD/MBA candidate at Harvard and former Harvard Law School Petrie-Flom Bioethics Center fellow, examines that question. Amadio looks at the tension between plastic surgeons' positive effect on their patients (the alleviation of self-image-related suffering) and the potential for their work to perpetuate harmful notions of normal appearance, causing suffering to nonpatients who do not meet those standards. He questions what ethical responsibilities plastic surgeons have to society and whether they are obligated to advocate for the acceptance of diverse, natural appearances in both prospective patients and society as a whole.

The visibility of the field of plastic surgery has led to arguments about where the doctor's fiduciary responsibility to patients conflicts with financial self-interest, advertising practices, and a consumer services model. A number of articles in this issue of *VM* explore cosmetic surgery as a commercial enterprise. Carniol and Carniol examine the practice of advertising package deals on cosmetic procedures and how these advertisements may be misleading. Deborah A. Sullivan, PhD, a sociology professor at Arizona State University and author of *Cosmetic Surgery: The Cutting Edge of Commercial Medicine in America*, gives some background on the history of marketing cosmetic surgery in the history of medicine section. She cautions physicians to beware the potential ethical challenges posed by

commercializing aesthetic services, given the vulnerability of patients and the importance of maintaining the medical profession's trusted reputation.

David Teplica, MD, MFA, plastic surgeon and clinical associate at the University of Chicago, illustrates how the union of art, science and technology serves and strengthens the practice of plastic surgery. In *Images of Healing and Learning*, Teplica makes two arguments. First, using findings from monozygotic twins, he provides evidence that body size, but not shape, can be changed with environmental (diet and exercise) modification. Second, he shows how new photographic technology can be used to achieve standardized and more precise documentation of the results of plastic surgery.

Two other sections tackle issues related to plastic surgery in the legal arena. The health law section, by Kristin E. Schleiter, JD, LLM, senior research associate for the Council on Ethical and Judicial Affairs for the American Medical Association, describes the lucrative lawsuits brought against silicone breast implant manufacturers when such implants were a relatively new innovation; it took years to demonstrate the devices' safety, during which time many lawsuits were prosecuted. And in the policy forum section, Lauren Sydney Flicker and Rachel Zuraw, both JD/MBE postdoctoral fellows at the University of Pennsylvania Center for Bioethics, explain that, though some U.S. lawmakers have advocated that cosmetic surgery, unlike other medical procedures, be subject to a "sin tax," plastic surgery cannot practicably be classified as taxable.

Undoubtedly, in plastic surgery, as in all medical and surgical fields, one can find examples of both ethical and reprehensible practice. The ethical character of a specialty is determined by its practitioners. Robert Grant, MD, chief of the joint division of plastic surgery of New York-Presbyterian Hospital of Columbia University and Weill Cornell Medical Centers, and UMDNJ medical student Michael Sosin contribute an op-ed on the essential characteristics and traits of plastic and reconstructive surgeons and the importance of good mentors and role models in surgical training and professional development.

The public perception of plastic surgery may be lipo and boob jobs, but plastic and reconstructive surgery has the potential to do tremendous good, including fixing cleft lips and palates, performing nerve repairs in the upper extremity, and restoring a sense of womanhood through breast reconstruction after mastectomies. Organizations like Interplast and Operation Smile epitomize the humanitarian ideals of the field. Given the psychosocial ramifications of appearance and the effect of attractiveness on well-being and quality of life, it is important that plastic surgeons practice their craft and practice it ethically. This means selecting patients appropriately, providing a robust informed consent process, and managing expectations. It is possible for plastic surgery to be an ethical medical specialty that is beneficent, nonmaleficent, and just, so long as the patient's best interests are the primary consideration.

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CLINICAL CASE 1

The “Mommy Makeover” Package

Eric T. Carniol and Paul J. Carniol, MD

Julie was feeling both happy and sad. She had just tucked her 7-week-old baby girl into her crib, and was overjoyed about being the mother of two adorable, healthy children. However, she caught a glimpse of herself in the mirror as she was changing into her pajamas and was disappointed by what she saw.

Since being discharged from the hospital, Julie had been doing aerobic workouts every day, trying to regain her figure. At 34, she was hoping not merely to return to her prepregnancy weight, but to recapture the body of her 20s, when she had won third place in a statewide beauty pageant.

She was down to 146 pounds, certainly within normal limits for a 5-foot, 8-inch woman (body mass index 22.2), but was not the 123 pounds that she weighed walking down the runway. Julie had struggled to lose weight after giving birth to her first child 6 years before, but it was even more difficult after her second child. She had lost 8 pounds over the last 6 weeks, but seemed to be hitting a plateau.

Inspired by an advertisement she had seen for a “mommy makeover” package, Julie set up an appointment with Dr. Greenwall, a plastic surgeon who had fixed her broken nose after she was hit in the face by a volleyball a few years earlier. Julie told Dr. Greenwall how difficult weight loss had been postpartum, how the extra weight around her belly made her self-conscious, and that she wanted to remain attractive in her husband’s eyes to keep her marriage stable. She requested a tummy tuck (abdominoplasty) and liposuction in hopes of losing some postpregnancy weight and maintaining her marriage, and asked if Dr. Greenwall would give her a discount for having both procedures together, as she had seen in the ad.

Commentary

In this case a 34-year-old woman, 7 weeks postpartum, is unhappy with her appearance and is interested in plastic surgery. Specifically, after reading an advertisement for “mommy makeovers” she has a consultation with a plastic surgeon requesting an abdominoplasty and liposuction. This case raises several questions. Can a woman with a normal body mass index who has given birth so recently be an appropriate candidate for an abdominoplasty and liposuction? How can Dr. Greenwall manage that woman’s expectations, especially those regarding “maintaining her marriage?” Is it ethically appropriate to create or advertise cosmetic surgery packages?

Is Julie an Appropriate Candidate?

As with any patient's consultation, the surgeon should start by listening to Julie's concerns, reviewing her medical history, and examining her. (For any elective cosmetic procedure, it is important that the patient is in good medical condition.) After discussing the findings with Julie, Dr. Greenwall should turn to her concerns and should explain expectations for the normal course of recovery from her recent pregnancy. Often the surgeon starts this conversation by saying, "Your body had 9 months to get out of shape and usually it will require as many months to get back in shape." This is particularly true for women who have been through more than one pregnancy. It often takes longer for a woman's body to recover after subsequent pregnancies than after her first. Seven weeks is inadequate time for this recovery. Julie will need 6 months or more. During that recovery period, after she obtains approval from her obstetrician, she can start an exercise routine and a healthy diet. Any balanced, calorie-restricted diet that the patient will comply with is acceptable.

There is another reason not to rush into surgery at this point. If Julie allows herself time to recover, and still wants to consider abdominoplasty surgery, she must decide whether she wants to have any more children. In addition to nullifying the benefit of prior abdominoplasty surgery, pregnancy and delivery may be problematic after this procedure. Other body contouring surgery should also be delayed until after Julie has decided not to become pregnant again. At this point, Julie may not yet be in a position to decide.

More generally, can a woman who has a normal BMI be an appropriate candidate for body contouring procedures? Body contouring procedures should not be a substitute for exercise and weight management. Still, many women, especially after two pregnancies, have body changes that persist even several months after pregnancy, despite exercise and diet regimens. It is not uncommon for abdominal laxity, excess skin, and unwanted fat deposits to persist. If they do, and the patient wants surgical correction, abdominoplasty or liposuction are appropriate considerations. Patients may also want a breast reduction or breast lift, or may be unhappy with their fat distribution, despite having a relatively normal BMI and exercising regularly. For example, excess fat in the lateral waist/flanks region and upper leg are common. These regions can often be reduced with liposuction procedures.

Julie's Expectations

The issue of "maintaining her marriage" is more complex. Plastic surgery is not going to help Julie stay married. A marriage is a complex relationship, and the surgeon should ask why Julie is so worried about hers. She should be advised to seek professional counseling, not surgery, to address concerns about her relationship. The surgeon can elicit Julie's concerns with open-ended questions like "Why are you concerned about maintaining your marriage?" Given that Julie won third place in a statewide beauty pageant, it might also be appropriate to ask a question about the importance of appearance: "I know that you have previously competed in beauty pageants and that your appearance is very important to you. Could you tell me more

about that?” Furthermore, physicians have a responsibility to screen their patients for intimate partner violence.

The patient in this case is 7 weeks past delivery. As such, she is going through a demanding life transition. This should also be considered during the course of the consultation. Julie may be experiencing postpartum depression. Current literature states that 13 percent of women suffer from postpartum depression, which tends to emerge within 6 months of delivery [1]. Marital problems during pregnancy can increase risk for postpartum depression [1]. Patients should be asked about suicidal and infanticidal ideation, and further psychiatric evaluation should be sought if appropriate.

Elective Surgery Packages

The final issues to be addressed concern the “mommy makeover” package that brought Julie into Dr. Greenwall’s office. Firstly, is it unethical to create package deals, whether they are advertised publicly or merely offered during visits, that offer patients an incentive to have procedures they are not already seeking? Though combining procedures may, under particular circumstances, optimize a patient’s results, the appropriateness of a given combination can only be determined by evaluating the individual patient. Advertising a “package” can imply that it is appropriate for anyone who reads the ad and may encourage patients to have a combination of procedures that they do not need. Furthermore, implying to patients that they “need” the package can affect self-image. As discussed, women who have recently given birth may already be struggling with self-image concerns. The thought that their situation necessitates a “package” that they previously had not considered may increase distress.

There are multiple standards for ethical advertising [2, 3, 4]. Advertising a “mommy makeover” does not in itself violate any of them, but the details of an advertisement can violate ethical standards for advertising not only by implying, as discussed above, that any reader is an eligible candidate, but also by making unfounded claims. Unless true, the ad should not imply that the surgeon has any special talents or techniques. To uphold patients’ trust in the medical community, the advertisements should disclose enough information to avoid being misleading. Rather, as discussed, each patient should be evaluated as an individual and offered appropriate treatment options.

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Paul J. Carniol, MD, is a clinical associate professor at the University of Medicine and Dentistry of New Jersey (UMDNJ). He is currently president of the New Jersey chapter of the American College of Surgeons. He has edited or coedited four books, the most recent of which is *Aesthetic Rejuvenation: Challenges and Solutions, A World Perspective*, published in 2010 by Informa Healthcare.

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CLINICAL CASE 2

Outer Ear Construction: Is Advocacy Part of Treatment?

June K. Wu, MD

Jonathan was born with unilateral right-sided grade III microtia; his external ear was absent, with a peanut-sized structure in its place and the external ear canal and ear drum also missing. Testing showed that his right inner ear was intact and his hearing was normal on the left side. A CT scan revealed that his right ear canal did exist. Jonathan's parents were counseled to wait until he turned 8 years old to pursue reconstructive surgery, so his ear would be closer to adult size.

Shortly after his 8th birthday, Jonathan's parents made an appointment with Dr. Cavanaugh, who had completed both otolaryngology residency and a plastic and reconstructive surgery fellowship. After discussing the risks and benefits of the procedure, Dr. Cavanaugh performed a rib cartilage graft reconstruction procedure on Jonathan. Dr. Cavanaugh had completed the first two stages of her three-stage reconstruction when Jonathan's insurance company denied preoperative clearance for the third stage, deeming it an elective enhancement procedure not sufficiently related to ear function.

Dr. Cavanaugh helped Jonathan's parents appeal the insurance company's decision, but they were rejected twice. Understandably, they were frustrated, and began investigating alternatives. They were informed that other insurance companies also considered the third surgery an elective procedure ineligible for coverage. They decided to seek media publicity to either help raise funds for the final operation or to convince the insurance company to "do the right thing" for the sake of public relations. Jonathan's parents found a television station that would air their story if they could persuade the doctor to appear on camera or at least comment on the insurance company's decision.

Commentary

In taking the Hippocratic Oath, every graduating medical student pledges to "apply, for the benefit of the sick, all measures [that] are required, avoiding those twin traps of overtreatment and therapeutic nihilism" [1]. Simply put, by exercising our knowledge of physiology and anatomy and our skills in therapeutic maneuvers, we administer to those who are sick so that they may be made whole again. Furthermore, we have also sworn to "respect the privacy of [our] patients, for their problems are not disclosed to [us] that the world may know" [1].

However, patients can certainly choose to disseminate private medical information if they wish. Disclosing one's condition to the world is like signing a waiver of

confidentiality; the information becomes public. Therefore, if this patient asks his or her physician to assist in the disclosure by providing medical and technical information, professional opinions, and advocacy, the doctor will not be violating the patient's confidentiality if he or she agrees to help. But what is the goal of such public display of health information, and does the physician have an ethical responsibility to participate? The family in the case scenario is "going public" with medical information in an attempt to pressure the third-party payor to cover the costs of their son's operation. Strictly speaking, the family's attempt to secure reimbursement is not part of their son's treatment. It can be argued that, because this kind of public disclosure is not part of the treatment, the physician should take no part in it.

That, however, is a simplistic view of the situation. In the current medical system, much delivery of care depends on third-party payors, whether they are private insurers, HMOs, or the government. Often these third-party payors have stringent and arcane rules regarding which procedures are covered, and these rules may not be based on medical facts [2, 3]. Nonetheless, their "pre-approval" is required to guarantee payment for the surgeon's service and for the hospital and operating room fees. Many hospitals do not allow or cannot afford to schedule cases without guarantee of financial reimbursement, and most Americans are not able to pay for such surgical procedures out-of-pocket.

Studies on uninsured adolescents and young adults have shown that health insurance coverage is a significant determinant of access to health services [4]; those without health care coverage are more likely to have an unmet medical or prescription medication need. [5]. More specifically, children with special health care needs are more likely to have access to medical, dental, and mental health care if they are insured [6]. Taking into account the current imperfect system of medical care delivery, obtaining payment for treatment becomes essential to obtaining the treatment itself.

A publicity campaign to pressure the third party has been shown to be an effective option to secure payment, and thus treatment [7]. A doctor faced with a possibly beneficial procedure versus no treatment for a patient who wants to be treated for a medical need should therefore pursue this option for his or her patient, if the patient requests it. However, such a course of action is not without caveats.

Going public requires that the patient waive his or her confidentiality and right to privacy. It becomes more complicated when the patient is a minor. In this case, the decision to give up confidentiality was made by the parents and not the patient. Even if the child were to voluntarily state the desire to pursue this public appeal, how do we judge his understanding of the situation? A physician who is approached by a patient—or parents—about such publicity campaigns should not blindly agree, but should sit down with the responsible party and discuss these issues carefully, just as he or she would obtain informed consent for any treatment with a thorough discussion of potential risks and benefits. When a child is involved, it may be

prudent to ask for a psychiatrist's or social services' evaluations as well. Even if the physician participates in this publicity campaign, he or she should be careful not to divulge any more medical information than is absolutely necessary.

Second, since the parents' perceived need to take their plea to the media is a byproduct of our medical system and not a medical treatment in the strict sense, the physician should never actively recommend it. While we no longer practice the paternalistic medicine of generations past, it has been shown that patients put their trust in physicians' recommendations, and they are more apt to weigh the benefits of their physicians' recommended treatments highly [8, 9]. Therefore, a physician's recommendation to resort to a publicity campaign may influence a patient to unwittingly waive more confidentiality than he or she is prepared to give up.

Finally, prior to pursuing this desperate measure, the physician should have exhausted the usual channels: writing and appealing to the insurance companies directly, including contacting its medical directors.

Case Specifics: Microtia and Ear Construction

Microtia is a congenital condition in which the external auricle is not formed. There are different levels of severity, classically grouped into grades I, II, and III (for more on microtia staging and treatment, see the [clinical pearl](#) section in this issue of *Virtual Mentor*). In grade III microtia, all elements of the external auricle are missing, and in its place is a protrusion of soft tissue with or without underlying cartilage [10, 11]. The middle and inner ear elements may or may not be malformed or absent [11, 12].

An auricle can be formed from the patient's own skin and cartilage [13], or from commercially available products [14]. Since the patient was not born with an ear, this procedure—called ear *reconstruction* in the plastic surgery literature—is better termed, as Dr. John Mulliken put it to me, ear *construction*. Construction takes at least 2-4 separate operations [15]. Dr. Cavanaugh should have explained this when applying for authorization for the procedure from the insurance company. If the insurance company has approved the first two stages, it is not unreasonable to presume that they implicitly approved the complete ear construction process. Nevertheless, it would be prudent for the surgeon to verify approval for complete construction before performing the first operation.

While not essential to life like the heart or kidneys, the auricle serves several important functions. It plays a role in the localization of sound [16, 17]. Most glasses rely on the presence of ears to hold them in place, and the psychological ramifications—especially in young children and adolescents who appear different from their peers—are significant [18, 19]. Studies have shown that obvious physical deformities affect socialization and integration in society [20]. Moreover, there is strong evidence that society equates a normal facial appearance with increased intelligence, attractiveness, and other positive social attributes [21]. The quality of life of a patient with obvious, uncorrected craniofacial deformities is apt to be

negatively affected. Many health insurance plans cover so-called lifestyle medications for older men with erectile dysfunction who are usually not seeking to have children [22, 23]. Lack of sexual function in this population does not impair procreation, is not life-threatening, and is purely a quality-of-life issue. It is not stigmatizing in the casual social situation, as a child's lack of external ear is likely to be—yet it is covered by insurance.

Furthermore, the common perception that ear construction is “enhancement” surgery is errant. A breast augmentation is enhancement of existing breasts, and rhinoplasty can be an enhancement of the nose. But a patient with microtia was born *without* an ear. Constructing such an ear is therefore not enhancement surgery. It is more analogous to a cleft lip repair than a face-lift.

In summary, the perception that correction of congenital conditions that affect facial appearance provides enhancement for the patient is incorrect. Furthermore, an auricle serves both physical and psychological functions. In an imperfect medical system, the economics dictate access to care, and, if the patient knowingly and willingly chooses to give up medical confidentiality to obtain financing for treatment, the physician has both an ethical and professional obligation to help.

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[Diagnosing and Treating Microtia](#), May 2010

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Virtual Mentor

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CLINICAL CASE 3

An Argument for Patient Autonomy in Elective Surgery

Michael Van Vliet, MD, and Joseph Rosen, MD

Florence is a zestful 73-year-old. In addition to spending a lot of time keeping up with her six grandchildren, she exercises most days. She recently won first place in the masters' division of an Olympic distance triathlon, and is preparing for a 50-mile bike ride for charity. Since her husband passed away last summer, she has thrown herself into exercise, and it shows.

Despite having a very athletic body, particularly for her age, Florence is dissatisfied. Every time she looks in the mirror, instead of seeing toned muscles, she sees sagging breasts, facial wrinkles, drooping eyelids, and crows' feet. She made an appointment with Dr. Doherty, a plastic and reconstructive surgeon.

Dr. Doherty was surprised at how fit this 73-year-old woman was. After talking about her triathlon success, Dr. Doherty asked, "What can I do for you?" Florence proceeded to explain that, despite all the exercising she does, she feels like "a wrinkled, saggy old prune." She wants to feel as good on the outside as she does on the inside. She said that, after giving it a lot of thought, she wants a facial makeover—specifically, a rhytidectomy (face-lift) and blepharoplasty (surgery to remove sagging tissue or wrinkles around the eyelids)—and a breast lift. She is even contemplating having very modest breast implants put in. If she is going to have the breast lift surgery anyway, why not go from an A to a B cup?

Commentary

The ethical debate about the use of surgery to better the way one looks requires both critical reflection and interpretation of one's values. The decision to operate can bring about suffering or damage to a patient, but it also has the potential to improve quality of life.

What each of us defines as happiness is subjective and personal. For some, physical appearance is a paramount contributor to happiness. Of course, not all that makes one happy in life is necessarily good. If the good that comes about from a choice outweighs any downsides, however, and the choice does not intentionally jeopardize the well-being of one's self or others, then it is morally acceptable to strive for it.

Florence is a person for whom fitness and appearance are important. An energetic widow reinvigorated after her husband's death, Florence achieves happiness through exercise, the feeling of youth, and good health. She deserves credit for her quest to retain the energy and health of her youth. A person's physical well-being is

intimately correlated with his or her mental well-being. Dr. Doherty has an opportunity to add to the good in Florence's life. She explains that lifting her breasts and eliminating her facial wrinkling will make her feel even more youthful than she already does and will contribute to her overall well-being.

Aging is a natural, normal, and, some believe, beautiful process. Some see facial wrinkles as markings of experience, knowledge, and wisdom. A subset of these people also think that countering this natural process is unethical. Anti-aging interventions will certainly not contribute to the self-esteem or happiness of people with that belief. To others, however, aging is a source of distress. It makes them feel ugly and lethargic. To these people, anti-aging interventions contribute to self-satisfaction and overall mental well-being. Anti-aging interventions make them feel younger and more vivacious. If those in this group decide on surgical reversal of the aging process, having been adequately informed of the range of expected outcomes and the risks of the procedures, then it is ethical to operate on them.

Just as one's reaction to the aging process is subjective and personal, every person ages at a different rate and to a different degree. Of course, there are similar trends that a plastic surgeon sees, namely ptosis, or sagging of skin. Patients commonly note drooping of the eyelids and the middle portion of the face. Jowls, laxity of the neck, and sagging of the breasts are also common, as are crow's feet and wrinkles. Nevertheless, each and every person experiences these changes to a different degree and at a different rate.

Ultimately, when individuals identify conditions that contribute to their happiness and do not violate the rights of others or the morals of society in general, their right to seek those conditions is ethical. On the surgeon's side, to be able to aid in that pursuit is to help the patient, but it requires a serious discussion of risks and benefits. As with any operation, the anticipated benefit must outweigh the risk posed by the operation in order to make proceeding ethical. Plastic surgery today is very safe, but it is not without risk. In this and every situation, Dr. Doherty must examine the whole patient and assess and inform her of her risk. Age should always be a factor, albeit a small one, in choosing one's patients; comorbidities are more important. Of course, it is essential to explain to the patient the inherent risks of any operation, namely bleeding, infections, scarring, wound breakdown, and cardiovascular complications related to the anesthetic.

Once the patient accepts these low but real risks, it is critical that the surgeon be frank about what the patient can expect from the operation. The surgery can proceed if, and only if, the patient comprehends and accepts what the surgeon can deliver. Despite Florence's age, if she is otherwise healthy and the surgery itself poses little risk to physical health, then the benefits to her are likely to outweigh the surgical risk.

The other consideration worthy of discussion in this case is the economic consequence of the surgeon's actions. One may argue that plastic surgery is

financially wasteful and that these health care dollars could be better spent. Yet the money for the operation is coming not from an insurance company but from Florence's own bank account. There is no financial strain on society or on the government health care budget when one chooses to have cosmetic surgery, unless complications from surgery occur.

In summary, the question of whether or not it is ethical to perform plastic surgery in a given case depends on the particulars of that case. Age, alone, is not a sufficient reason to reject the request of a patient who is healthy, competent, and informed of the risks and benefits and who has autonomously decided that the surgery will contribute to his or her overall happiness.

Further Reading

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THE CODE SAYS

AMA Code of Medical Ethics' Opinion on Physician Advertising

Opinion 5.02 – Advertising and Publicity

There are no restrictions on advertising by physicians except those that can be specifically justified to protect the public from deceptive practices. A physician may publicize him or herself as a physician through any commercial publicity or other form of public communication (including any newspaper, magazine, telephone directory, radio, television, direct mail, or other advertising) provided that the communication shall not be misleading because of the omission of necessary material information, shall not contain any false or misleading statement, or shall not otherwise operate to deceive.

Because the public can sometimes be deceived by the use of medical terms or illustrations that are difficult to understand, physicians should design the form of communication to communicate the information contained therein to the public in a readily comprehensible manner. Aggressive, high-pressure advertising and publicity should be avoided if they create unjustified medical expectations or are accompanied by deceptive claims. The key issue, however, is whether advertising or publicity, regardless of format or content, is true and not materially misleading.

The communication may include (1) the educational background of the physician, (2) the basis on which fees are determined (including charges for specific services), (3) available credit or other methods of payment, and (4) any other nondeceptive information.

Nothing in this opinion is intended to discourage or to limit advertising and representations which are not false or deceptive within the meaning of Section 5 of the Federal Trade Commission Act. At the same time, however, physicians are advised that certain types of communications have a significant potential for deception and should therefore receive special attention. For example, testimonials of patients as to the physician's skill or the quality of the physician's professional services tend to be deceptive when they do not reflect the results that patients with conditions comparable to the testimoniant's condition generally receive.

Objective claims regarding experience, competence, and the quality of physicians and the services they provide may be made only if they are factually supportable. Similarly, generalized statements of satisfaction with a physician's services may be made if they are representative of the experiences of that physician's patients.

Because physicians have an ethical obligation to share medical advances, it is unlikely that a physician will have a truly exclusive or unique skill or remedy. Claims that imply such a skill or remedy therefore can be deceptive. Statements that a physician has an exclusive or unique skill or remedy in a particular geographic area, if true, however, are permissible. Similarly, a statement that a physician has cured or successfully treated a large number of cases involving a particular serious ailment is deceptive if it implies a certainty of result and creates unjustified and misleading expectations in prospective patients.

Consistent with federal regulatory standards which apply to commercial advertising, a physician who is considering the placement of an advertisement or publicity release, whether in print, radio, or television, should determine in advance that the communication or message is explicitly and implicitly truthful and not misleading. These standards require the advertiser to have a reasonable basis for claims before they are used in advertising. The reasonable basis must be established by those facts known to the advertiser, and those which a reasonable, prudent advertiser should have discovered. Inclusion of the physician's name in advertising may help to assure that these guidelines are being met.

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JOURNAL DISCUSSION

Ethical Issues in Face Transplantation

Christian J. Vercler, MD

Barker JH, Brown CS, Cunningham M, et al. Ethical considerations in human facial tissue allotransplantation. *Ann Plast Surg.* 2008;60(1):103-109.

The miraculous transplantation of a leg by the third-century saints Cosmas and Damian [1] became a medical reality in 1998 with the first successful hand transplant in France. In 2005, the same French team performed the first successful face transplant. Since then, 10 facial allotransplantations have been performed in France, China, the United States, and Spain. Two recipients are now dead as a result, one from tissue rejection and one from infection. Critics question whether the benefit is worth the risk. Plastic surgeons weigh Sir Harold Gillies' reconstructive principle of replacing like with like against the Hippocratic dictum *primum non nocere*, or "first do no harm." The risks of lifelong immunosuppression, including infection, malignancy, and end-organ toxicity, seem *prima facie* prohibitive in the context of a nonlifesaving intervention. But severe facial disfigurement to the degree that confers eligibility consideration is not a trivial thing. These are not merely "cosmetic defects," but conditions that render the patient unable to properly eat, breathe, or speak. Furthermore, the face is essential for communication and relating to others, which is the foundation for how we understand ourselves as human [2]. Restoring the face with composite tissue allotransplantation can provide results that are unattainable with current reconstructive techniques.

The operation is still considered experimental and is only performed under research protocols. Hence, the main ethical issue at stake is the use of humans as subjects in clinical research. Does a therapeutic equipoise exist; that is, are experts truly divided on whether intervening is better than not intervening when the risks and benefits of both courses are considered? If the answer to that question is "yes, clinical equipoise exists," then a host of ethical concerns come to the fore. In this paper, John Barker and others from the University of Louisville summarize key ethical concerns addressed in a series of articles from the 2004 summer issue of the *American Journal of Bioethics* [3, 4]. Their goal was to distill for plastic surgeons the questions that ethicists considered most salient. These papers were all written before the first facial allotransplantation had been performed and the general sentiment was one of caution. The University of Louisville pioneered hand transplantation in the United States, and Barker uses the Louisville team's ethical guidelines and experience to address these concerns.

Seven of the most commonly cited concerns were: (1) rejection and drug toxicity rates, (2) implications for donor population, (3) patient selection and compliance, (4) existence of other reconstructive options, (5) functional recovery, (6) psychological implications for the patient, and (7) informed consent.

The first six concerns regard the fundamental risk-benefit analysis, which, in the Louisville team's thinking, favors the proposed benefits. (At this point we have some data to support or refute these concerns [5].) The issue of informed consent must be attended to continually in the realms of surgery and human experimentation.

Addressing These Concerns

Rejection rates and drug toxicity. It was the relative success of composite tissue allotransplantation for the hand that made consideration of facial tissue allotransplantation a viable option [6]. The immunosuppression regimens are basically the same. Currently, four of the 10 facial transplants performed have published data on the outcomes. All report one or more episodes of acute rejection that resolved with changes in the immunosuppression regimen. The current thought is that if the episodes of acute rejection are recognized and treated early, they are manageable, and no living recipients have developed chronic rejection, although there are no long-term data [7].

Face transplant currently has a 20 percent mortality rate. One patient in China died after stopping his medications and refusing further medical intervention. The 30-year-old burn patient who received a total face transplant and bilateral hand transplant in France died of a myocardial infarction during an operation for an overwhelming infection of the transplanted facial tissue.

Implications for society of facial tissue donation. Organ donation in the United States relies on the generosity of a pool of donors that is far smaller than the list of potential recipients. The question is whether or not the practice of facial tissue transplantation will decrease the overall availability of organs. This depends on the public's perception of the appropriateness of the use of donated organs, which is closely tied to patient selection. For example, when Mickey Mantle (who developed liver failure from alcoholism) received a liver after being listed for a very short period of time, there was a public outcry regarding the criteria for the allocation of livers [8]. Although liver donations did not decrease after the Mickey Mantle case, the concern is that highly visible failures in facial transplantation may decrease the overall donor pool, affecting all those waiting on transplant lists. Currently there is no indication that face transplants have had an influence on organ donation overall.

Patient selection, exit strategies, and psychological implications. The patient is the main variable in all considerations of the ethical appropriateness of facial transplantation. Concerns regarding rejection and drug toxicity must be understood in relation to the individual with the devastating facial defect. Choosing a patient who is relatively young and healthy, who is psychologically stable, and who has multiple reconstructive options left if the transplant fails (i.e., a "lifeboat" or "exit

strategy”) minimizes the possible risks, leaving possible benefits in the clear majority. An example is Pascal Coler, the 29-year-old French man who was horribly disfigured with a massive plexiform neurofibroma. He is young, healthy, and if his graft is rejected he still has many reconstructive options. The Chinese patient, who was unable to cope with continuing the necessary medications and who lived in a village more than two days’ travel from his surgeon, was not so fortunate.

Multiple algorithms and safeguards have been proposed to try to ensure proper patient selection for face transplantation. Obviously the defects addressed should involve areas that cannot be adequately reconstructed with traditional techniques (e.g., eyelids, nose, mouth, and maxilla). Patients must be screened for psychological or psychiatric issues that might impede their complying with medication or coping with a changed appearance and the rigorous follow-up and constant monitoring required. However, the character of the surgeons and the institutions involved in these operations cannot be downplayed. An algorithm for selecting a potential transplant candidate is only as good as those applying it. Francis Moore stressed this in 1988 when he wrote that innovations in transplantation should not be performed for purposes of institutional prestige or professional recognition [9].

Informed consent. Informed consent has become the foundation for the interaction between the surgeon and his or her patient and a legal and ethical requirement for invasive interventions. Beauchamp and Childress describe seven key elements of informed consent: (1) competence to understand and decide, (2) voluntariness in choice, (3) physician’s or researcher’s disclosure of material information, (4) recommendation of a plan, (5) understanding, (6) patient decision in favor of a plan, and (7) authorization of a chosen plan [10]. It is not difficult to see the challenges to satisfying these elements in the case of facial tissue allotransplantation. Anthony Renshaw and others recently published a thoughtful analysis of informed consent in face transplantation and conclude that the ambiguities surrounding outcomes in this procedure did not preclude proper informed consent [11].

Discussion

Facial transplantation allows reconstructive surgeons to follow one of their first principles: replace like with like. When successful, replacing like with like results in a superior aesthetic and functional outcome for the patient. Achieving this outcome is important for restoration of the severely disfigured individual, inasmuch as the face constitutes an essential part of what makes us human. Facial tissue allotransplantation has the potential to restore a functional face with significantly fewer operations than traditional reconstructive techniques and makes it possible to reconstruct parts of the face that cannot be restored by traditional means.

Much of the discussion of the risks associated with facial transplantation is utilitarian. It includes, for example, the arguments that functional recovery may not be as good as hoped, or that the donation of facial tissue may cause significant distress within the donor’s family, or that having a face that is not his or her own may be an insurmountable psychological hurdle for the patient. These are all

outcome-based concerns, not normative proscriptions against performing a transplant. They define what is to be weighed on the “risks” side of the equation. Hence proper patient selection becomes key.

The team at Johns Hopkins and the University of Maryland recently reviewed the published outcomes data on the first four facial allotransplantations [5]. They reiterate the importance of patient selection and suggest that good candidates include burn patients; patients with midface, perioral, and periorbital defects; children born with severe facial anomalies; and patients with aggressive benign tumors. They also suggest that, because harvest times are relatively long, only brain-dead donors, whose organs are still being perfused by their cardiopulmonary systems, should be used. (Theoretically, harvesting facial tissues after cardiac death would lead to long periods of ischemia that would jeopardize the viability of the transplant.) To minimize possible infectious complications, the viral serology of both donor and recipient should be checked.

It has been 12 years since the first successful composite tissue allotransplantation. Hand transplantation—the paradigm of composite tissue allotransplantation—remains an infrequently performed operation and is still extremely expensive. It is currently only being performed in a few elite research centers around the world. A recent article calculated a cost-benefit analysis in terms of quality-adjusted life years and determined that hand transplantation was essentially a cost-prohibitive option [12]. Unless there are significant advances in immunosuppressive regimens, it is likely that facial transplantation, like hand, will remain the bailiwick of a few specialized research institutions for some time. Continued work on the basic science of tolerance in composite tissue allografts, refinement of surgical techniques, and complete transparency in reporting the successes and failures of all transplants are all necessary components of advancing this field. Going forward, proper patient selection will be the essential element in determining success and hence the ethical permissibility of the endeavor.

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Related in VM

[The Ethics of Face Transplantation](#), September 2005

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CLINICAL PEARL

Diagnosing and Treating Microtia

Mitchell A. Stotland, MD, MS

Classification

Severe hypoplasia of the external ear (microtia) is commonly encountered in any pediatric plastic surgical practice. A useful clinical classification of these anomalies was proposed by Tanzer [1]:

- A. Anotia (complete absence of ear)
- B. Microtia
 - 1. constricted (cup or lop) ear
 - 2. cryptotia (in which the top of the auricle is hidden under the scalp)
 - 3. hypoplasia of the entire superior third of the auricle
- C. Hypoplasia of the middle third of the auricle
- D. Hypoplasia of the superior third of the auricle
- E. Prominent ears
 - 1. complete hypoplasia of the auricle (external ear) with atresia of the external auditory canal
 - 2. complete hypoplasia of the auricle without atresia of the external auditory canal



Lobular microtia.

Epidemiology

Based on analyses of large birth registries of congenital malformations [2-4], the incidence of microtia has been estimated at between 1 in 4,000 to 1 in 12,000 births. Microtia affects about 1.5 times more male children than female, and those with the condition are nearly three times more likely to be of Hispanic descent, and almost twice as likely to be of Asian descent, than to be black or white.

Signs and Symptoms

Microtia is noted on visual inspection at birth as an obvious hypoplastic external ear deformity. A variable extent of middle ear pathology, with associated conductive hearing loss, is expected.

Pertinent History, including Developmental History

Key clinical information should be obtained at the initial visit (typically when the child is an infant): pregnancy and labor complications, maternal drug use or toxin exposure, and family history of craniofacial or other anomalies. A developmental assessment should be made, specifically inquiring about the child's behavior, school performance, social interaction with peers, and self-esteem, to inform expectations of patient cooperation and compliance during the reconstructive process.

Physical Exam

When evaluating a school-age child, clinical findings specific to microtia should be documented.

1. Describe the anatomic extent of the auricular defect in detail. It is useful when communicating findings and in planning reconstruction to outline the components of the auricle that are present or absent (e.g., lobule, tragus, constricted concha, severe helical constriction, etc.). The greater the extent of auricular hypoplasia, the greater the amount of cartilage needed and the more complex the framework fabrication will be.
2. Rule out the presence of additional auricular anlagen (embryologic defects) such as pre-auricular tags, pits, sinus tracts, or other chondrocutaneous remnants that may lie anywhere along the embryologic line from the oral commissure to the temporal region. These additional anomalous structures will require surgical removal.
3. Determine whether there is temporal bone hypoplasia and whether there is soft-tissue hypoplasia on the microtic side. Surgical placement of an aesthetically pleasing ear will not achieve the goals of the patient or surgeon if it is hidden from view because it is placed on a portion of the skull that is depressed inward; thus, temporal hypoplasia may require adjustment of the location of framework implantation (i.e., more anterior or posterior), or fabrication of a thicker construct with an underlying cartilage "wedge," in order to improve projection when viewed from the front.
4. In the child with microtia, maturity may bring a progressive dental/skeletal canting, with asymmetric maxillary growth and dental eruption occurring in response to the mandibular hypoplasia on the side where the microtia is present. A simple clinical test used to demonstrate this is to have the patient

bite down on a wooden tongue depressor that is placed horizontally into the mouth, as far posteriorly as is comfortable. Relative to the sagittal plane of the patient's face, the tongue blade will tend to slant upwards towards the involved side. An orthodontist should participate in the routine evaluation of the patient with microtia.

5. The hypoplastic hemimandible reveals itself in a noticeable ipsilateral "chin point" in repose, with further lateral deviation of the jaw towards the microtic side evident when the patient opens his or her mouth. It is helpful to perform the mandibular lengthening procedure used to surgically correct the hypoplastic mandible prior to embarking on the ear reconstruction so that proper placement of the ear framework can be achieved.
6. The presence of hairline abnormalities may influence the placement of the ear framework and the possible need for management of hair-bearing skin overlying the reconstructed ear (e.g., by means of electrolysis or laser treatments).

Looking for and documenting possible associated craniofacial syndromes, to ensure that they are addressed and to distinguish between pre-existing and iatrogenic conditions, is also part of any proper examination of a child with microtia. Evaluate seventh cranial nerve function, looking for asymmetry of facial motor activity which is not uncommon in patients with microtia. Look for the presence of macrostomia (the congenital form of which is often referred to as a Tessier #7 facial cleft), which is associated not uncommonly with severe external ear deformities. Rule out any unusual neck mass or sinus that may represent a branchial cleft cyst. Inspect the ocular region for features that may be associated with Treacher-Collins syndrome, Nager syndrome, or Goldenhar syndrome (epibulbar dermoid cysts on the conjunctival surface of the lower lids, microphthalmia, or colobomas of the lid, iris, or retina; partial absence of the medial lower eyelid lashes, paucity of lower lid skin; and down-sloping of the palpebral fissures).

Evaluation by a geneticist may be indicated to identify any associated malformations (e.g., renal anomalies, defects within the oculoauricular vertebral spectrum, mandibulofacial dysostosis syndromes, etc.).

Treatment Options

Inner ear. Bone-conductive hearing aids are indicated for severe bilateral hearing loss (i.e., for bilateral microtia or when there is abnormal hearing in the contralateral ear) within weeks of birth. These devices are somewhat awkward and stigmatizing for an older child to wear, and so the implementation of a bone-anchored hearing apparatus is an appealing option for many patients when they get older.

Surgical exploration of the middle ear, involving drilling of the temporal bone to create a neo-canal, and fabrication of a tympanic membrane using graft material, is an approach offered by some otologists with particular expertise in this area. Consideration of this challenging procedure is more common in cases of bilateral microtia, but not exclusively so [5]. In cases of autogenous ear repair, the middle ear

exploration should occur *after* the reconstruction in order to preserve the blood vessels of the overlying skin pocket and allow for strategic placement of the otologist's incision.

Outer ear. Reconstruction of the external framework may utilize either autogenous tissue or an alloplastic implant. In alloplastic reconstruction, the outer ear is constructed using an artificial material (Medpor, a porous polyethylene, is popular; silicone, though largely of historical note, is still used in some places). The construct is wrapped under an inferior flap of temporoparietal fascia and covered with a skin graft. There are well-established pros and cons of the two techniques (autogenous versus alloplastic) [6-8]. The benefits of alloplastic reconstruction include reduced donor site morbidity and the ability to perform reconstruction at a younger age (the patient can be as young as 4-5 years of age, whereas autogenous reconstruction is usually not performed until the patient is 6 to allow for harvest of sufficient size rib cartilage). The disadvantages of alloplasty are increased framework exposure, concern over long-term permanence of the implant, and the necessary use of the temporoparietal fascial flap which sacrifices a valuable salvage procedure in the event of an infection. The majority of reconstructive ear surgeons today employ autogenous material.

The modern technique of autogenous total ear reconstruction was developed by Tanzer and popularized and modified by Brent, Nagata, and others [9-12]. Reconstruction involves a staged approach, which varies depending on the surgeon. The Nagata modification, for example, performs reconstruction in two stages. At the second stage, the concha and tragus are reconstructed. Another common sequence, utilizing the Brent technique, is as follows. (Stages may be combined in the case of bilateral microtia.)

1. Stage one entails the fabrication and insertion of a costochondral auricular framework. The cartilage substrate for the framework is harvested via an oblique incision measuring roughly 6-8 centimeters positioned overlying the sixth and seventh costal cartilages. This region of costal cartilage synchondrosis is used to form the "base-block." The first free-floating costal cartilage rib (eighth) is used for the helical rim. Prior to closing the donor site, the chest should be checked for a collapsed lung. Injury to the parietal pleura is not an uncommon occurrence during costal cartilage harvest, but management is usually straightforward.

The base-block is trimmed and tailored using a template to guide shape and sizing. The free rib cartilage is thinned and made flexible enough to wrap around the periphery of the base-block, fashioning a natural helical contour. The two components of the framework are spliced together. It is important to exaggerate the contours of the framework since the overlying skin flap is thicker than that of a normal ear and will tend to obscure the sculpted detail. The back wall of the concha, antitragus, scapha, and triangular fossa may be carved with sharp gouges, fine curettes, and a scalpel.

Finally, a pocket is created into which the framework will be placed. The incision for access may be placed anterior or superior to the microtic remnant. Any vestigial cartilage (i.e., the remnant) is removed at this time. The dissection is carried out beyond the immediate outline of the framework to facilitate draping of the skin over the cartilage and into its sculpted grooves and nooks. An adequate seal is imperative to maintain apposition of the skin to the framework. The ear is dressed with a soft Vaseline dressing to maintain contour.

2. Stage two occurs at least 2 months later and involves repositioning of the lobule, which, in microtia, is typically malpositioned and oriented vertically. The lobule is surgically elevated, except for a small vascular pedicle, and rotated around into a more normal transverse position, overlying the caudal portion of the implanted cartilage framework. A postauricular sulcus is concurrently created and the hairline advanced into it. An incision is placed several millimeters outside and all along the framework from the helical root to the lobule. Soft tissue is left on the posterior surface of the framework to allow for skin graft take.
3. At stage three, soft tissue is removed from the planned concha and lined with a skin graft harvested from the posterior lobule or posterior surface of the opposite ear. The tragus is reconstructed by combining a skin flap with a composite chondrocutaneous graft harvested from the opposite ear.

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HEALTH LAW

Silicone Breast Implant Litigation

Kristin E. Schleiter, JD, LLM

Litigation over silicone breast implants started with a bang and ended with a whimper. Lawsuits alleging such harm as cancer and autoimmune disease raked in millions of dollars throughout the 1990s, putting silicone breast implant manufacturers out of business or in danger of bankruptcy. With the assistance of “silicone doctors” who used minimal scientific evidence to support their claims, plaintiffs had stunning success. The wave of silicone breast implant lawsuits was largely a result of public opinion and aggressive pursuit of lawsuits by plaintiffs’ attorneys—not medical evidence.

Timeline

In the 1960s, when breast implants were first sold, the government did not regulate their manufacture or marketing. The FDA obtained the authority to regulate breast implants in 1976; even then, implants remained unregulated while the FDA addressed a backlog of medical devices that needed evaluation [1]. In 1988, the FDA classified silicone-gel breast implants as class III medical devices, giving the FDA the authority to demand safety information from implant manufacturers [2]. Absent such a demand, however, silicone breast implants could still be marketed. In the same year, the FDA’s Plastic Surgery Advisory Committee found insufficient evidence of a health risk to warrant banning silicone breast implants [2].

By this time, however, the first major silicone breast implant lawsuit had come and gone. In 1984, Maria Stern won \$211,000 in compensatory damages and \$1.5 million in punitive damages from silicone breast implant manufacturer Dow Corning after claiming that her breast implants caused autoimmune disease. At trial, Stern introduced as evidence Dow Corning internal documents suggesting that the company was aware of high rupture rates and gel bleed with silicone breast implants [3, 4].

The Stern lawsuit went largely unnoticed until 1990 when, on the eve of congressional hearings on the safety of breast implants, a program on the dangers of silicone implants aired on *Face to Face with Connie Chung* [2, 4]. Interestingly, the only three scientific experts who testified at the subsequent congressional hearings were also paid expert witnesses for plaintiffs in breast implant litigation [2]. Pressured by congressional hearings and media reports, the FDA’s General and Plastic Surgery Devices Panel met to discuss the safety of silicone breast implants [2]. Medical organizations, including the American Medical Association, urged the panel to oppose a ban on implants. The panel agreed that silicone breast implant

manufacturers had submitted safety data insufficient to resolve the issue and recommended that the implants remain available pending further safety studies [1, 2].

The year 1991 brought a number of substantial jury verdicts for plaintiffs in silicone litigation. In July, Brenda Toole won a \$5.4 million settlement based on the claim that breast implants increased her risk of developing cancer and autoimmune disease, though the punitive damages were reversed because the defendants had not exhibited wanton disregard for safety [5]. In December, Mariann Hopkins, whose connective-tissue disease was linked to her ruptured silicone breast implants [3], received the largest award to date—\$7.3 million. In December of 1991, media frenzy over silicone breast implant litigation hit a fever pitch with the Pamela Johnson lawsuit. Johnson claimed that a ruptured silicone breast implant manufactured by MEC had caused her to get sick [2]. Johnson, who was a smoker [4], had no recognized autoimmune disease; rather, she testified that she suffered from a variety of nonspecific complaints—chronic fatigue, muscle pain, joint pain, headaches, and dizziness—that even her lawyers admitted could characterize a bad bout of flu [3]. Johnson had gotten breast implants for cosmetic reasons, a fact that could have decreased jury sympathy for her situation, and there was evidence that Johnson’s doctor performed the implantation procedure improperly [2].

Johnson’s lawyer, John O’Connor, relied on PR and sympathy to win the case. O’Connor hired a public relations firm that gave interviews to Phil Donahue and *60 Minutes*, and the trial was broadcast in its entirety on Court TV. At trial, O’Connor set up a rebuttable presumption, asking the jury to hold MEC liable unless the company could prove that they knew their implants were safe at the time they marketed them. O’Connor used to his advantage an outline of a speech MEC’s president gave to his employees, during which he said the “goals of MEC” were not to help patients, but to help lead MEC employees down the “path to the good life” [2]. O’Connor’s tactics worked; the jury awarded Johnson \$25 million, including \$20 million in punitive damages, after finding that Johnson’s ruptured implants were linked to her symptoms [2, 3]. O’Connor’s law firm quickly capitalized on the win, filing hundreds of lawsuits by the end of 1992.

The effects of litigation spread quickly throughout the industry. Perhaps as a result of pressure from the FDA, in February Dow Corning released confidential internal memoranda that acknowledged that the company had known for decades that silicone gel would seep out of the implants. Dow Corning was quick to add, however, that it did not believe that such leakage caused health problems [2]. Around the same time, the FDA took action, placing a ban on the use of silicone breast implants outside of FDA-approved research studies. In effect, the only women allowed to receive implants were those undergoing breast reconstruction for mastectomies or deformities and those who wanted to replace a gel implant that was put in for augmentation prior to the restrictions [1, 2, 3]. By the end of 1992, manufacturers Dow Corning, Bristol-Myers Squibb, and Bioplasty had all left the silicone breast implant business [3].

1992 was also the year in which studies began to emerge that failed to show a link between silicone gel breast implants and certain medical conditions. In April, *Plastic and Reconstructive Surgery* published a study that found no increase in the incidence of breast cancer in women who had received breast implants [6]. The *New England Journal of Medicine* soon followed with a study that concluded that breast implants did not substantially increase a woman's risk for breast cancer [7]. Perhaps as a result of these studies, lawsuits from 1993 onward focused less on claims that silicone gel breast implants caused cancer and more on claims that the implants caused diseases of the immune system [2].

Despite these studies, 12,359 individual lawsuits had been filed against Dow Corning by the end of 1993, and the class action lawsuit showed no indication of stopping [3]. Movement in 1993 and 1994 brought class actions regarding silicone gel breast implants close to settlement. In September of 1993, defendants Dow Corning, Bristol-Myers Squibb, Baxter International, and Minnesota Mining & Manufacturing (3M) tentatively agreed to a consolidated \$4.75 billion settlement. This settlement later collapsed, however, because of a high volume of class action plaintiffs. In March of 1994, after Dow Corning filed for Chapter 11 bankruptcy, the remaining manufacturers agreed on a settlement that more than 90 percent of the class action plaintiffs accepted [2]. At \$3.4 billion, it was the largest class action settlement to date [2]. Preliminary approval was obtained in March 1994, clearing the way for women to start applying for claims in the settlement [3].

In June of 1994, the *New England Journal of Medicine* published a study by Mayo Clinic epidemiologists that found no increased risk of connective tissue disease in women with silicone gel breast implants [8]. In 1995, the *Journal* followed with yet another study—this one larger and more refined—that found no association between implants and connective tissue disorders. As a result of the studies, the American College of Rheumatology issued a statement in 1995 asserting that the evidence was “compelling” that “silicone implants expose patients to no demonstrable risk for connective-tissue or rheumatic disease,” and that “anecdotal evidence should no longer be used to support this relationship in the courts or by the FDA” [2, 3]. In 1997, the American Academy of Neurology reviewed existing silicone gel breast implant studies and concluded that there was no link between the implants and neurological disorders [9]. In the same year, the *Journal of the National Cancer Institute* published a review of studies and concluded that breast implants did not cause breast cancer [10].

The courts took notice of the shift in the medical literature. In 1996, after receiving input from a panel of impartial scientists, a federal judge from Oregon ruled that plaintiffs' evidence linking silicone implants to disease was scientifically invalid. Soon after, an Alabama judge overseeing all federal implant cases appointed his own panel of scientific experts. After 2 years and \$800,000, the panel concluded that scientific evidence failed to show that breast implants caused disease [3].

The tide was turning. The *New York Times* reported that breast implant manufacturers had won 80 percent of the cases against them [3]. In 1999, the Institute of Medicine published a 400-page report that concluded that, although silicone gel breast implants were potentially responsible for such local complications as hardening or scarring of breast tissue, implants did not cause autoimmune disease [1, 3, 11]. The report stressed, however, that breast implants carried with them recurring surgical risks because they would eventually rupture and have to be surgically removed or replaced [1]. Finally, the FDA lifted the ban on silicone gel-filled breast implants in 2006 after an in-depth evaluation [12].

An Ethics Warning for Physicians

Lawsuits alleging harm from silicone gel breast implants were successful largely because of the support of a group of “silicone doctors” who approved women for inclusion in the class of plaintiffs. These doctors claimed to trace a broad range of symptoms (chronic fatigue, insomnia, depression, headaches, and muscle or joint pain) to silicone poisoning [2]. Doctors received referrals in bulk from plaintiffs’ attorneys, who were known to fly them around the country to see patients and offer their law offices as exam rooms [13]. In some cases, plaintiffs’ lawyers paid the doctors’ medical bills (a practice barred by some states); in other cases, doctors agreed to defer payment of their patients’ bills until after the lawsuit was settled (a practice bioethicist Art Caplan called “somewhere between slimy, skuzzy and sleazy”) [13].

One doctor who treated more than 4,700 women with implants, most between 1993 and 1995, reported that lawyers had referred over 90 percent of his patients. He had found that 93 percent of the women had been harmed by silicone gel breast implants. This doctor’s privileges had been suspended by at least one hospital after it concluded that he had failed to visit implant patients as frequently as hospital guidelines required and had not adequately documented their treatment [13].

Medical experts also questioned whether the “powerful drugs and painful, expensive tests administered by some of these doctors” were appropriate [13]. Because no consensus existed for how to treat the symptoms described, some doctors prescribed treatments such as “intravenous gamma globulin, ordinarily used in rare clotting disorders; plasmapheresis, sometimes used in rare immune disorders; and the cancer drug Cytoxan” [13]. At the time, such treatments cost as much as \$40,000 and carried the risk of serious side effects [13].

The silicone breast implant litigation of the nineties is notable for way in which judges and juries overlooked an astonishing lack of scientific evidence, while plaintiffs and their attorneys raked in millions. The hysteria and hype that the lawsuits generated caused some medical device companies to go bankrupt or leave the implant market altogether. More recently, doctors’ roles in asbestos litigation have prompted the U.S. Chamber of Commerce to call for an investigation into their conduct (and that of lawyers) in the “explosion of meritless and abusive asbestos claims” [14]. While physicians have an affirmative duty to “assist in the

administration of justice,” those who are involved in litigation must testify honestly, without the influence of financial compensation [15], and with the interests of patients in mind.

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POLICY FORUM

An Argument Against the Feasibility of Taxing Cosmetic Surgery

Lauren Sydney Flicker, JD, MBE, and Rachel Zuraw, JD, MBE

Introduction

As cosmetic procedures become more widely used, disagreement about their status as medical procedures intensifies. When Senator Harry Reid proposed a 5 percent tax on cosmetic procedures in a draft of the federal health care reform bill, there was an immediate outcry, largely from medical associations such as the American Medical Association and the American Academy of Cosmetic Surgery; opposition was based on arguments ranging from the possible discriminatory effect on women to the potential for taxes to be levied against other procedures not considered strictly “medically necessary” in the future [1]. The Senate tax was quickly pulled and replaced by a proposed 10 percent tax on tanning bed use.

Even though this particular proposal was withdrawn, a tax on cosmetic procedures remains a real issue to be considered. New Jersey successfully passed a tax, colloquially known as the “vanity tax” or “bo-tax,” in 2004, and nine other states have considered or are considering similar laws [2].

A tax on cosmetic surgery procedures is problematic for two reasons. The tax is commonly justified by framing it as a variant of a sin tax, but that comparison is not apt. The related problem is that, absent the sin tax classification, there is no other cogent justification for the tax. After explaining why the recent proposals for cosmetic surgery taxes are atypical and cannot accurately be grouped with sin taxes, we examine the ethical barriers to formation and execution of any tax on selected cosmetic procedures.

Justification

No explicit justifications have been advanced for either the federal or the New Jersey cosmetic surgery taxes aside from their fundraising purposes. The proposed federal tax was tacked on to the expensive health care reform bill to offset its costs. The New Jersey tax had no specified earmark, but was expected to raise \$26 million in annual revenue—though it has achieved only an estimated quarter of that [3, 4]. Essentially, taxing cosmetic procedures is a convenient way to offset budget shortfalls.

Given the lack of stated reasons for singling out cosmetic surgery for an added tax burden, it is best to examine the proposals in light of traditional tax justifications and practices. Two main underlying principles of taxation are horizontal and vertical equity. The imposition of a cosmetic procedure tax does not satisfy either principle

and, furthermore, has discriminatory potential. Horizontal equity demands that “people in similar circumstances should be taxed in similar ways” [5] and vertical equity holds that taxpayers ought to be burdened according to their ability to pay.

Horizontal equity. Proponents of the taxes on cosmetic surgery appear to believe that they will affect only entirely voluntary aesthetic procedures, and that affected patients should be compared to shoppers rather than viewed as consumers of ordinary health care (which is tax-deductible). This is, however, an incorrect assumption. The New Jersey statute’s description of a taxable procedure applies to a number of procedures that, while not medically necessary, are no less important than procedures that are not taxed. Compare, for example, a breast reduction—a cosmetic procedure, though one that can resolve a number of physical problems—with a rhinoplasty performed under the justification of repairing a deviated septum, a medical problem that would not be taxed under the statute. Both patients request the surgery to achieve more normal appearance and function more comfortably in society, but only one is taxed. These are similar circumstances, but one has a disproportionate burden.

Opponents of cosmetic surgery taxes have also argued that the tax is discriminatory due to its disproportionate impact on women, who are responsible for an estimated 86 percent of cosmetic procedures [6]. It is argued that, because women are under greater professional and social pressure to appear youthful and attractive, they effectively cannot avoid this expense.

Vertical equity. Many opponents of cosmetic procedure taxes have argued that the tax does not satisfy the principle of vertical equity because the majority of cosmetic surgery patients are socioeconomically disadvantaged. In a 2005 survey of people planning to have cosmetic surgery within the next 2 years conducted by the American Society of Plastic Surgeons, 40 percent of respondents reported an annual household income between \$30,000 and \$60,000, whereas only 10 percent reported an annual household income of greater than \$90,000 [6]. This argument, however, is insufficient to destroy the feasibility of a cosmetic procedure tax in and of itself because vertical equity is frequently set aside in favor of policy justifications for taxation. However, taken in combination with the apparently arbitrary nature of the tax and the lack of other support, it is one more persuasive argument.

As mentioned above, however, even taxes that seem to discriminate arbitrarily against a particular group can still be valid. A sin tax, for example, is a tax imposed on socially undesirable goods or activities, ostensibly to decrease their attraction and use and to offset their social costs. While obviously discriminating against a particular group—consumers of the taxed product—sin taxes have been popular in the United States for both their supposed (though generally unproven) deterrent effect and the valuable income they provide [7, 8].

While taxes on cosmetic procedures have not yet been specifically tied to social opprobrium of the consumers, it seems likely that governments have made cosmetic procedures a target because “vanity” is stigmatized as a negative value. Cosmetic procedures are often (albeit inaccurately) portrayed as a pursuit of the vain wealthy. Because they are stigmatized in this fashion, lawmakers doubtless see cosmetic procedures as an easy source of taxes that the population of consumers can afford and that the population of nonconsumers will sanction. This was especially evident when a Washington state senator proposed a similar vanity tax that was explicitly earmarked to fund children’s health care costs. The proposed tax failed, however, due to a lack of support [9].

To understand why, we should consider the common thread running through justifications of sin taxes: negative externalities. Smoking is a known cause of cancer and heart disease and produces secondhand smoke, which studies have shown to be harmful to bystanders who cannot avoid it. Liquor consumption is associated with expensive liver damage, motor vehicle accidents, drunken behavior, and crime. Fattening food, a target of proposed new taxes, contributes to obesity and associated diseases, which thereby significantly increase society’s health care costs. Cosmetic procedures have not been shown to have any overtly analogous effects on society. Some may think that cosmetic surgery has a detrimental impact on society, but until the proponents of these taxes are able to provide evidence to that effect, that argument cannot enter the discussion. Vanity may be one of the “seven deadly sins,” but it cannot be considered a taxable sin.

Enforcement

While a tax on cosmetic procedures is not reasonable under traditional tax models, that does not make it illegal, or necessarily an unethical way to raise money. But even if the government is within its constitutional right to implement such a tax, a vanity tax cannot be ethically or practicably enforced.

Both the New Jersey tax and the proposed federal tax provide an exemption for “reconstructive surgery or dentistry” used to “meaningfully promote the proper function of the body or prevent or treat illness or disease” [10]. Specifically, this includes procedures “performed on abnormal structures caused by or related to congenital defects, developmental abnormalities, trauma, infection, tumors, or disease, including procedures to improve function or give a more normal appearance” [10].

Despite this seemingly thorough definition of what is and what is not taxed under the act, it is still unclear whether many medical procedures would be classified as “meaningfully promoting the proper function of the body” and “reconstructive” or merely “directed at improving the [patient’s] appearance.” While it is clear, for instance, that breast reconstruction after a mastectomy for breast cancer would be tax-exempt, it is unclear whether reconstruction after a prophylactic mastectomy would be. Nor does the tax specify how severe a post-trauma or post-disease defect must be to trigger the exemption.

Most alarmingly, the statute makes no provisions for psychological conditions. Many scoff at the idea that rhinoplasty is “necessary” for an adolescent girl with low self-esteem, but it is difficult to argue that cosmetic procedures are not necessary to significantly improve the quality of life of an adult who suffers from gender identity disorder. This disorder causes “clinically significant distress or impairment in social, occupational, or other important areas of functioning” [11]. This condition would therefore seem to be firmly exempted from the vanity taxes, but some physicians or tax courts might see this differently

The confusing status of many procedures leaves the tax so vague as to be generally unenforceable. The difficulty of determining what is considered reconstructive leads to a second problem of enforcement: given that the act itself inadequately defines which medical procedures the tax covers, who should be designated to make this determination? Physicians are equipped to determine whether a procedure is medically necessary, but the vanity tax proposals do not merely cover procedures that respond to physical needs. Evaluating whether cosmetic surgery would enable a patient with a psychological condition to live a more functional life is the job of a psychiatrist or psychologist, not a plastic surgeon. The National Health System (NHS) of the United Kingdom has developed its protocol in light of that fact, requiring patients to get a referral from a psychologist before any aesthetic procedures are covered by national health insurance [12].

Furthermore, if individual physicians are given discretion to characterize a procedure as necessary, opinions may vary. This creates a risk that patients might “physician shop.” Patients who do not have the time or ability to go from one surgeon to the next comparing evaluations would be disadvantaged and forced to bear the greater burden of the tax. If a tax is to be imposed on cosmetic procedures, it should at a minimum be imposed equally on those who seek them.

Conclusion

Vanity taxes, as they have been conceived of to date, are impractical and undesirable. They do not fit within traditional justifications for taxation, and they cannot be practicably enforced. Unless strong public policy justifications are found, which seems unlikely, or a better system of administration is created to safeguard the interests of physicians and patients, the inherent discriminatory potential and administrative complications of these taxes should discourage lawmakers from considering them in the future.

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MEDICINE AND SOCIETY

Are Cosmetic Surgeons Complicit in Promoting Suspect Norms of Beauty?

Jordan Amadio

Some find debate on the moral acceptability of cosmetic surgery tedious, either because of that question's tendency toward trite discourse or because of its perceived futility. Even so, one can hardly ignore the urgent ethical concerns looming in the periphery of that debate. When the discourse focuses on the connection between cosmetic surgery and the societal norms that support it, it raises important questions about the physicians' role as moral gatekeepers and their relationship to society at large that are proving increasingly relevant for the newest generation of physicians.

One of the major ethical questions in cosmetic surgery is whether specialists bear any responsibility for promoting injurious standards of beauty. Maggie Little has called this "complicity with harmful conceptions of normality" [1]. In his article on enhancement, Erik Parens explains that the potential problem is that certain types of enhancements, such as cosmetic plastic surgery, might reinforce common conceptions of normality that are detrimental to society.

The notion of complicity is unusual within the field of medical ethics because it shifts the locus of bioethical inquiry from the doctor's duty to the patient to the doctor's duty to society as a whole, and from the effects of an inappropriate or botched treatment to those of a well-executed procedure.

Parens contrasts the ideas of Susan Bordo, who frames the patient as a victim of regrettable sociocultural and commercial forces that have made her seek surgery out of self-loathing, with the approach of Kathy Davis, who notes the important role of cosmetic surgery in relieving a patient's suffering, regardless of what caused it [2]. The synthesis of these two views, for Parens, is Maggie Little's suggestion that the cosmetic surgeon struggles with two sometimes opposing moral forces: first, to alleviate the suffering of the patient, irrespective of cause; second, to address potentially harmful, or "suspect," norms that may have induced that suffering.

In Little's definitive paper, suspect norms are those "whose content is steeped in injustice" [3]. For example, cosmetic surgery designed to make blacks appear white perpetuates a suspect norm because the social value accorded to whiteness, far from being arbitrary preference, is rooted in a historical system of ugly injustice. Little makes a similar argument for norms that perpetuate a "Barbie doll" image as the feminine ideal, since they reinforce a value system that has subjugated and objectified women's bodies.

Complicity is the accusation that haunts the cosmetic surgeon even when debates over the acceptability of the surgery itself are bracketed. Little defines the term: “one is *complicitous* when one endorses, promotes, or unduly benefits from norms and practices that are morally suspect” (emphasis mine) [4]. Complicity arises when a physician’s actions are felt to contribute to or support an objectionable social practice, even without directly causing harm to the individual patient. (Another well-known instance of the complicity argument in medical ethics has been that of physician complicity in torture.) Little asserts that, even if the surgeon is purely interested in relieving suffering, he or she can be complicit in causing that suffering by perpetuating suspect norms if he or she agrees to operate; intention to harm is not a prerequisite for moral condemnation. The status generally accorded to the medical profession adds weight to any hint of implicit endorsement. Indeed, the mere fact that surgeries are performed in a health care setting can be seen as a blurring of aesthetic desires with therapeutic indications. Thus, it appears that cosmetic surgeons are hard pressed to escape complicity if they serve their suffering patients’ wishes. This conundrum demands a solution that allows surgeons to mitigate their troublesome relationship to suspect norms.

Little’s solution draws on the externalities of the patient-doctor relationship to derive a moral duty for the cosmetic surgeon. Chief among these externalities is how *others in society* will be affected by the decision to operate. She asks cosmetic surgeons to “locate the surgery in a broader context of naming and rejecting the evil norms” [5]. Partly, this involves practical steps such as bolstering the informed consent process to ensure that patients have an equitable view of all the options, including the no-surgery option, (which, incidentally, is something that professional medical standards already require, though in practice implementation may fall short of the ideal). But she goes much further.

Little’s ideal surgeon is one who “does not suggest or promote the suspect surgeries, who helps her patients explore other options, who speaks out against the pressures women face, but who occasionally uses her surgical skills in cases where there seems no other path out of true suffering” [6]. Little’s solution requires that surgeons campaign against the suspect norms that encourage some forms of cosmetic surgery.

Even if a norm of beauty is culturally determined, however, it does not necessarily follow that the norm is suspect. Therefore, Little’s argument does not apply to all cases of cosmetic surgery; some may be motivated by mere preference or by standards of beauty that are not particularly oppressive to others. The man who asks for an otoplasty to fix his awkwardly protruding ears may be reacting to social pressures, but not pressures that discriminate against a historically stigmatized group. In cosmetic nose surgery, where ethnic traits are often differentiated, it is harder to disentangle aesthetics from suspect norms.

The implications of these questions reach far beyond cosmetic surgery. Two are particularly salient for the generation of physicians now launching their careers: the

role of a physician as moral gatekeeper and the nature of a physician's responsibility to society.

Physician as Moral Gatekeeper

Little suggests that a cosmetic surgeon's duty to a particular patient's welfare is part of a general duty to evaluate the ethics underlying the procedure under consideration. We are familiar with physicians acting as moral gatekeepers by being conscientious objectors to abortion, assisted reproduction for single mothers and homosexuals, or other practices with which their personal views do not concord. But there are reasons to imagine that, in practice, physicians may not care to engage in the type of unrealistic moral activism that Little proposes. Ultimately, the role of a moral gatekeeper is one that some physicians may be neither eager nor equipped to take on. To ask surgeons to maintain equipoise in treatment options for prospective cosmetic surgery patients is quite appropriate; indeed, such conduct is mandated by the professional standards of every medical society. But to seriously suggest that cosmetic surgeons publicly campaign against their own profession is effectively to encourage cognitive dissonance. It is possible to conceive of a middle ground where cosmetic surgeons could promote diversity and acceptance of a range of "normal appearance" [7] without turning away individual patients. But it seems unreasonable to insist that we ought to require such activism of practitioners who provide enhancement-oriented or cosmetic services.

Responsibilities of the Doctor-Society Relationship

The moral gatekeeper problem is a special case of the broader question regarding the scope of the doctor's duty. Must physicians attend to the concerns of society as a whole as well as the needs of their patients?

Little's proposal assumes that the surgeon has two duties to her patients: to alleviate individual suffering, and to engage suspect societal norms regarding appearance. A common justification for performing cosmetic procedures—even in extreme cases, such as sex reassignment or voluntary amputation—is that the relief of individual suffering is the predominant aim of the physician. Little argues, however, that countervailing moral obligations to society may in some cases outweigh individual needs addressed in the privacy of the clinic. In such cases, the doctor-patient relationship, so often viewed as sacrosanct, is subordinated to that between doctor and society.

This argument is not unlike others emerging in the health policy arena, wherein the behavior of physicians has come under increasing scrutiny. Little's view of complicity categorizes a medical procedure as immoral if it alleviates an individual's suffering at what Little deems a disproportionate cost to society. It is similar to the objection to using taxpayer dollars to pay for expensive chemotherapy with little life-extending capacity, and other variations on this theme. Today, confronting a tragedy of the commons due to the exploding costs of health care, we increasingly find pressure for physicians to serve as agents of social welfare by attenuating their behavior in clinical encounters to serve group, rather than individual, aims.

This pressure has coincided with the education of a new generation of physicians, whose mission is migrating toward awareness of global health, health policy, and the concerns of medical care at the population level. Anecdotally, the rising prevalence of MD/MBA, MD/MPH, and MD/MPP joint degree programs attests to the growing commitment to economic, social, and political matters among doctors in training, whereas previous generations of physicians were trained to regard the moral obligation to individual patients as medicine's *summum bonum*.

Conclusion

Physicians retain a special role in society that carries unique moral responsibilities. Owing to his or her professional obligation, a cosmetic surgeon is unlike nonphysicians who provide mere consumer services. This explains, in part, why so much attention has been paid to the moral concerns surrounding the provision of cosmetic surgery.

Patients who seek these surgeries are themselves in a special position. In their paper on complicity in the arena of neuroenhancement, Ravelingien et al. propose a savvy counterpoint to Little's location of responsibility; they point out that a faithful consideration of Kantian autonomy as a bioethical principle requires that patients share the burden of complicity with their doctors [8]. If anything, they argue, respect for persons and self-determination require us to reinforce joint patient-doctor responsibility for both decisions and consequences.

Complicity with suspect norms of appearance, as Maggie Little describes it, is among the most sophisticated objections raised to cosmetic surgery. It neither vilifies existing practices nor compels us to blame surgeons for practicing their art. Instead, Little proposes a solution that allows cosmetic surgeons to mitigate their complicity by fighting the suspect norms that drive some patients to their clinics. However unrealistic or incomplete, Little's proposal should spur medical professionals to consider the larger implications of the complicity problem. Ought physicians to serve as moral gatekeepers? What is the extent of physicians' responsibility to society at large versus that to individual patients? As the complicity question broadens to other forms of enhancement, and as a new generation of physicians emerges in a context where the doctor-society relationship is given more emphasis than before, these questions become ever more worthy of focus.

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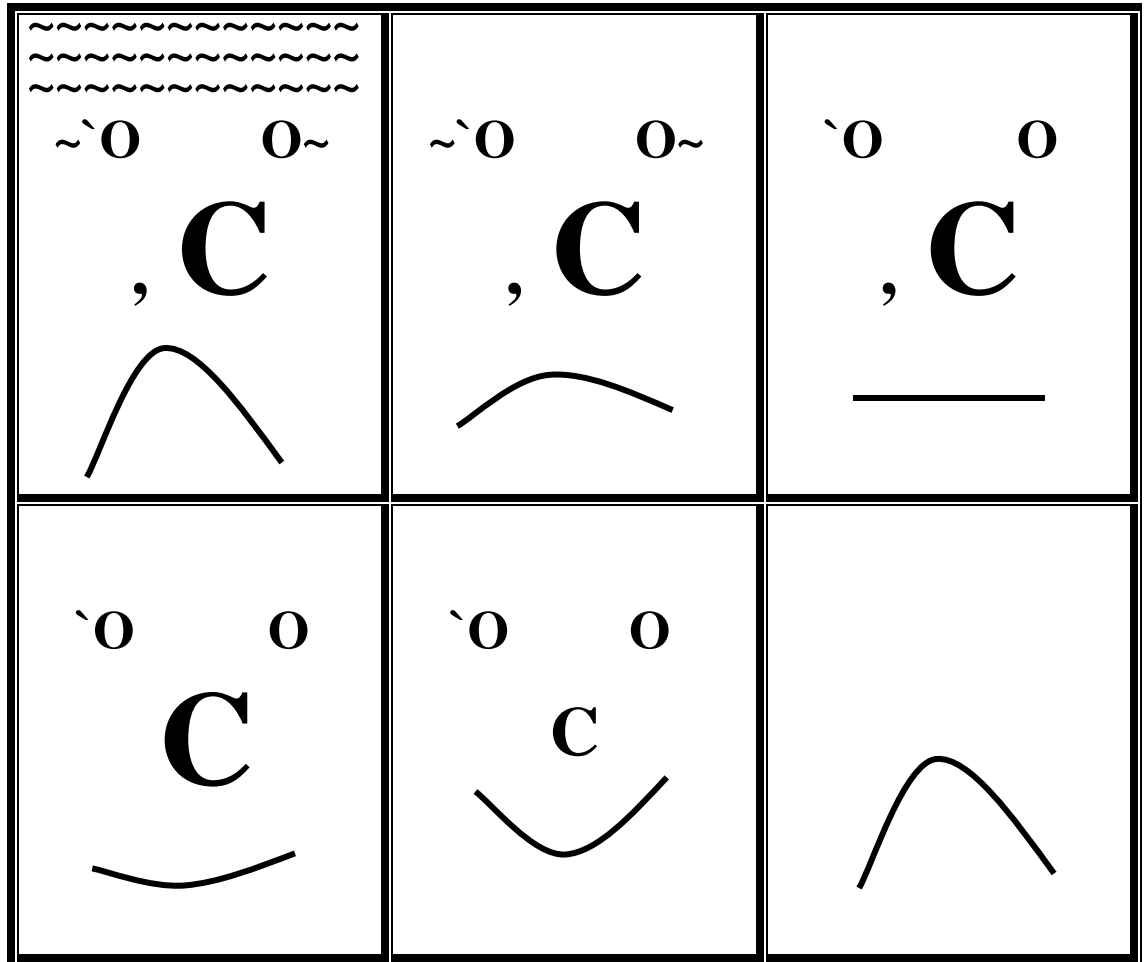
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MEDICINE AND SOCIETY

Comic Strip: Mirror, Mirror

Khris Oak



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HISTORY OF MEDICINE

Advertising Cosmetic Surgery

Deborah A. Sullivan, PhD

The Roots of Plastic Surgery

There is no doubt that sixteenth-century surgeon Gaspare Tagliacozzi would be astonished by the medical innovations that have made facial transplantation possible, and rightfully proud of his early contributions. I doubt, however, that he would be interested in the recent debate about whether the benefit of these experimental surgeries for severe deformities outweighs the psychological impact of an altered face and the increased morbidity and mortality from immunosuppression therapy. He was not deterred from trying to reconstruct deformed noses, lips, and ears by charges that he was subverting the will of God. Nor was he deterred by the lack of pain control or the risk of mortality from shock and infection. Patients' desire to undergo his elective procedures to look less deformed—at a time when surgery was a dangerous, brutal craft—speaks volumes about the social and psychological value of his reconstructive work [1].

Tagliacozzi would be equally, if not more, astonished by the use of surgery to refashion healthy noses, chins, and cheekbones, enlarge breasts, lift buttocks, remove fat, westernize Asian eyes, flatten ears, and “refresh” aging faces to approximate more closely the prevailing cultural ideals of beauty. In the absence of methods for controlling surgery patients' pain and infection, it is unlikely that Tagliacozzi could have foreseen the mass market for cosmetic surgery. He made clear in *De Curtorum Chirurgia per Insitionem* that his purpose was to “restore to wholeness the features which nature gave but chance destroyed, not that they may charm the eye but that they may be an advantage to the living soul. . . . The end for which the physician is working is that the features should fulfill their offices according to nature's decree” [2]. The modern emergence of surgery for the sole purpose of charming the eye would likely pose an ethical dilemma for Tagliacozzi, who had to be acutely aware of the inherent risks and variable outcomes of any surgical procedure.

The imperative to do no harm has been present in Western medicine since the time of the Hippocratic Oath, along with the dictum to do only what is good for patients. The former is often stated as “*first* do no harm” to emphasize that, no matter how good their intentions, physicians should not intervene when the risk of harm to a patient is greater or more certain than the chance that they will benefit. This ethical principle stopped most physicians from engaging in surgery for purely cosmetic purposes when demand surfaced after the first public demonstration of anesthesia in 1846 [3]. The few who did worked mainly on those who were stigmatized because their noses resembled those of Jews, impoverished Irish immigrants, or syphilis sufferers.

Visible scars marred the aesthetic results, and immunological reactions to implants of ivory, bone, cartilage, and paraffin underscored the enduring wisdom of *primum non nocere*, even as the risk of infection declined with the gradual adoption of antiseptic techniques [4].

Commercial Plastic Surgery in Twentieth-Century America

American medicine at the turn of the twentieth century was a free market of competing ideologies about disease diagnosis and treatment. Formal training was generally lax and not a prerequisite for practice. Regulatory licensure was largely nonexistent. While many physicians believed that advertising medical services was unethical, others had no qualms about it, including those few “beauty surgeons” who began to specialize in surgery to enhance, rather than merely correct, appearance [5]. Demand was growing.

Many events and advances in medicine contributed to the demand for surgery to change nonstigmatizing features. Innovations in print photography and motion pictures created new standards for judging appearance. The market for beauty products and services accelerated with the advance of industrialization, urbanization, and increased disposable income. The emerging consumer culture placed great value on good looks. The Victorian belief that beauty radiated from internal goodness morphed into the modern, secular idea that every woman could be beautiful if she bought the new products and services offered by the burgeoning beauty industry [6]. As fears about surgical risks declined, cosmetic surgery became one of these services.

Improved outcomes from antisepsis and better control of bleeding, along with publicity surrounding the reconstruction of soldiers’ faces maimed in World War I, won widespread admiration for surgeons’ skills. Early twentieth-century beauty surgeons capitalized on this trust. They offered to remove wrinkles, bags under the eyes, and double chins; create dimples; change lip size; enlarge breasts with paraffin, transplanted fat, and implanted ivory and glass balls; pin back ears; and modify the shape of noses. To “educate” the public about their services, they wrote books and articles and advertised in newspapers, women’s magazines, and brochures. The most entrepreneurial publicized their work on celebrity patients such as vaudeville star Fanny Brice and showgirl Peaches Browning. J. Howard Crum lectured at department stores and staged theatrical performances at New York conventions [7]. In 1932, he transformed the face of a released convict, claiming it would aid her in becoming a law-abiding citizen. Another year he had the patient select a face to suit her personality and operated as a pianist played beauty-themed music. Some results were good. Others were not. The use of paraffin to build up noses and breasts and to fill in wrinkles created a subsequent epidemic of so-called wax cancers and increased the risk of pulmonary embolisms and other health problems. One young woman’s legs had to be amputated after attempts to straighten them led to gangrene. Maimed patients’ only recourse was a lawsuit, and there were many [7]. The days of the publicity-seeking beauty surgeons were coming to a close.

Meanwhile, American medicine was in the midst of major social transformation. The American Medical Association's 50-year effort to improve the status of the profession with uniform standards for education and ethical practice had finally gained traction. The AMA used its new power to press for regulatory state licensure and impose a ban on advertising. With the help of the muckraking journalists of the era, it vigorously campaigned against competitors, including the beauty surgeons, whom it branded as unethical, irregular quacks. Doctors the AMA deemed ethical, on the other hand, believed advertising was inappropriate.

The eventual demise of the overtly commercial beauty surgeons by 1940 did not stop cosmetic surgery. While the emerging specialty of plastic surgeons deliberately distanced itself from commercial beauty surgeons, excluding cosmetic procedures from residency training and its research journal, some members quietly continued to accommodate the growing demand. By the 1960s, some frustrated young plastic surgeons, secure in the legitimacy of their specialty, organized their own formal training symposia and joined the American Society of Aesthetic Plastic Surgery when it formed in 1967. Shortly thereafter, otolaryngologists established a facial plastic surgery group. Cosmetic surgery was once again out in the open.

Cosmetic surgery was re-commercialized in 1982. Before then, physicians, like other members of learned professions, were exempt from the 1890 Sherman Antitrust Act. The AMA could enforce bans on advertising because the fiduciary services physicians offered were not considered a commercial trade. Opinion changed in the deregulatory climate of the Reagan years. Hoping to bring down health care costs, the Federal Trade Commission sued the AMA for restraint of trade over their prohibition of advertising. Over the strenuous objections of the AMA and the plastic surgery specialty associations, a split Supreme Court decision let a lower court ruling in favor of the Federal Trade Commission stand [8, 9]. Advertising in medicine returned, with its ethical dilemmas, and cosmetic surgery was once again on the cutting edge.

The purpose of advertising is to *persuade* people to do something. The most effective ads appeal to emotions—fears and desires—and associate the subject of the advertisement with highly valued attributes. It is not difficult to persuade people to do something that will give them a more youthful, sexually attractive appearance in a culture that bestows real social and economic rewards on those who possess these traits. The lure of such rewards can make us gullible and impulsive when it comes to buying the promise of beauty. In 2008, Americans spent more than \$8 billion on products chasing that promise [10]. They spent an additional \$10.5 billion on nearly 10 million cosmetic medical procedures in 2009, including 1.47 million that were surgical in nature [11].

There is nothing inherently unethical about cosmetic medical procedures. History suggests, however, that commercial medicine is riddled with ethical problems. While the ethical principle of autonomy affirms the right of competent individuals to choose elective health care, even if its only purpose is, as Tagliacozzi poetically put

it, to charm the eye, a profound ethical problem arises when the decision is influenced by persuasion from the same physician entrusted by a patient to evaluate the chance of doing good against the possibility of doing harm.

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IMAGES OF HEALING AND LEARNING

The Genetic Basis of Body Shape: Lessons from Mirror Twins and High-Definition Digital Photography

David Teplica, MD, MFA

Introduction

American culture places great emphasis on body shape. There is a widely held presumption that “diet plus exercise = looking good.” This premise gives rise to huge expenditures of time and resources in all-too-often frustrating attempts to “get in shape,” but what is not considered is that *shape* and *size* may have entirely different biological underpinnings. Many individuals successfully lose weight and significantly reduce body size, only to remain unhappy with their residual shapes.

To a certain degree *size* may be under one’s control by the intentional modulation of caloric intake and burn, but there is little data to support the idea that even the most stringent efforts can effectively and *permanently* change body configuration or fat distribution. For example, dietary manipulation can affect overall size, but though it may *temporarily* shrink both waist and hips, it will not necessarily bring about the desired waist-to-hip ratio. Because many Americans believe that body shape can be controlled by behavior, societal judgment is often levied against patients who choose to manipulate their native body contours surgically. Absent evidence that shape is inborn, many continue to struggle for decades, only to fail to reach their goals. Since surgery requested later in life is more complex, and complication rates can be higher, this misconception has ethical implications.

Anatomy and body shape are evaluated routinely by a host of imaging techniques. Medical imaging underwent major expansion in the late twentieth century with the introduction of CAT scan technology, magnetic resonance imaging, and other computer-based modalities. During those same years, however, the advent of digital cameras resulted in a shift in clinical photography to a *less scientific* “point-and-shoot” mentality, which produced an explosion of case-related patient images that were often published with no consistent standardization of technique. The outcomes of plastic surgery intervention are often evaluated by looking at these less-than-ideal “before and after” snapshots.

Such documentation fails to provide accurate and quantifiable data to support the notion that surgery has effected permanent change, or that the underlying condition could only be changed by surgery in the first place. Fortunately for our future understanding of this complex issue, standardized imaging technologies and software now exist to address long-unanswered questions about the inheritance of body shape and the quantification of surgical results. A new and unique monozygotic mirror-

twin model incorporating standardized photographic techniques provides a tool for investigating questions of anatomic development and adult human form.

Anatomic Observations Using a Mirror-Twin Model

Facial skin features historically were thought to stem from a combination of genetic and environmental influences. In the past, to help determine the genetic origin of a facial skin feature, correspondence of surface findings was erroneously sought by comparing the *same sides* of two twins [1]. More recently, I have used highly standardized photographic techniques and skin surface analysis to address questions of inheritance of anatomic features [2]. With technical insight from Kalev Peekna, I developed a formal digital method to easily account for the phenomenon of mirroring in twins which, though previously ill-defined by science, has been long acknowledged among twins themselves. Anatomic mirroring is the term used to describe the phenomenon that a lesion or anatomic structure on one side of a monozygotic (MZ) twin is found in a similar location on the opposite side of the co-twin (e.g., a mole on twin A's right cheek can be paired to a mole on twin B's left cheek). Our technique was therefore developed to definitively and reproducibly diagnose mirroring and allow for its differentiation from simple same-side concordance in order to show the genetic contribution to facial shape [3].

Figure 1(below) shows typical concordance of skin features in a pair of MZ twins who exhibit no anatomic mirroring. Correspondence in the skin surface findings in another set of twins can only be appreciated if *opposite* sides of the face are carefully examined (figure 2, next page).



Figure 1. Detailed analysis of the same sides of the faces of two concordant, non-mirrored MZ twins reveals striking similarities. These similarities include the same number and configuration of wrinkle creases on both the forehead and brow, nearly identical crow's feet wrinkle lines with similar branching patterns at the corners of the eyes, similar helical root creases, pre-tragal creases, identical oblique earlobe creases, and a series of skin lesions that appear to have migrated at different rates during early embryonic development, with each feature being more anterior in twin B. None of the findings present on the right sides of the twin faces are present on the left.

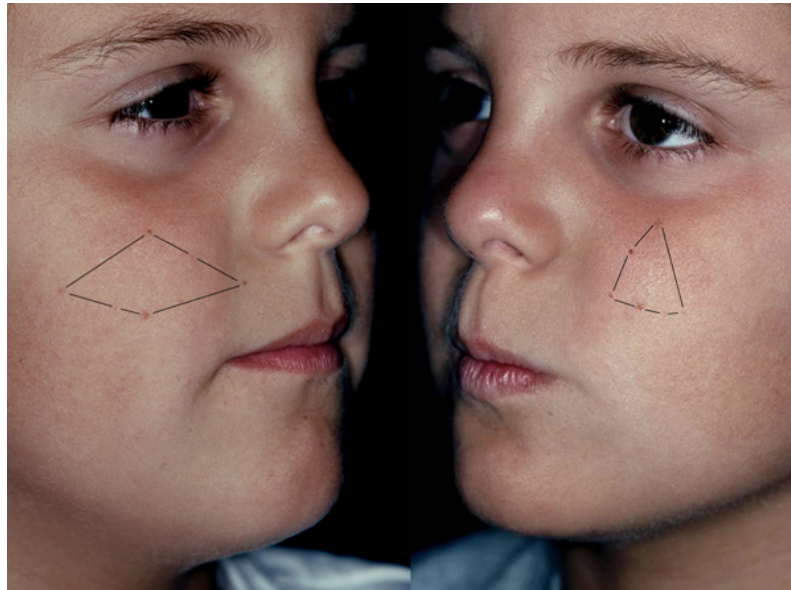


Figure 2. Both twin A (left) and twin B (right) exhibit a polygon of nevi only on *opposite* cheeks. It is likely that different rates of embryologic tissue transit account for the slight differences in the shapes of the polygonal arrangement in each twin, although both clusters remain within the boundaries of the anatomic region innervated by the second branch of the trigeminal nerve.

New digital addition and subtraction techniques used to analyze highly standardized images of twins can be employed to study facial shape for the presence of anatomic mirroring [3]. As in radiological techniques used for digital subtraction angiography, images of twin faces are overlapped and then digitally subtracted from each other to determine whether anatomic shape was concordant (present on the same side in both twins) or mirrored (present on the right side in one and left side in the other), as are the twins in figures 3 and 4 (next page). Analysis of 27 pairs of monozygotic twins showed that 64 percent of male pairs and 23 percent of female pairs exhibited the mirror phenomenon, and that there was no relationship between the mirror phenomenon and the timing of the first split of the egg in either gender [4]. When the *appropriate side* of the face was analyzed (i.e., either the same or opposite) in these same twins, nearly 100 percent of skin features were found to be present in both twins [5]. In light of these observations, all future studies of anatomic inheritance should control or consider the mirror phenomenon.

In addition, and perhaps more importantly, the above findings bring the role of environmental influence into question. It is illogical to think that random environmental influence could consistently affect only one side of one twin and only one side (for example, just the mirror-opposite side) of another twin in exactly the same way over their entire lifetimes—whether they were raised in the same *or* different environments. As a result, environmental influence can be eliminated as a variable if mirroring is analyzed and controlled in the twin study population.

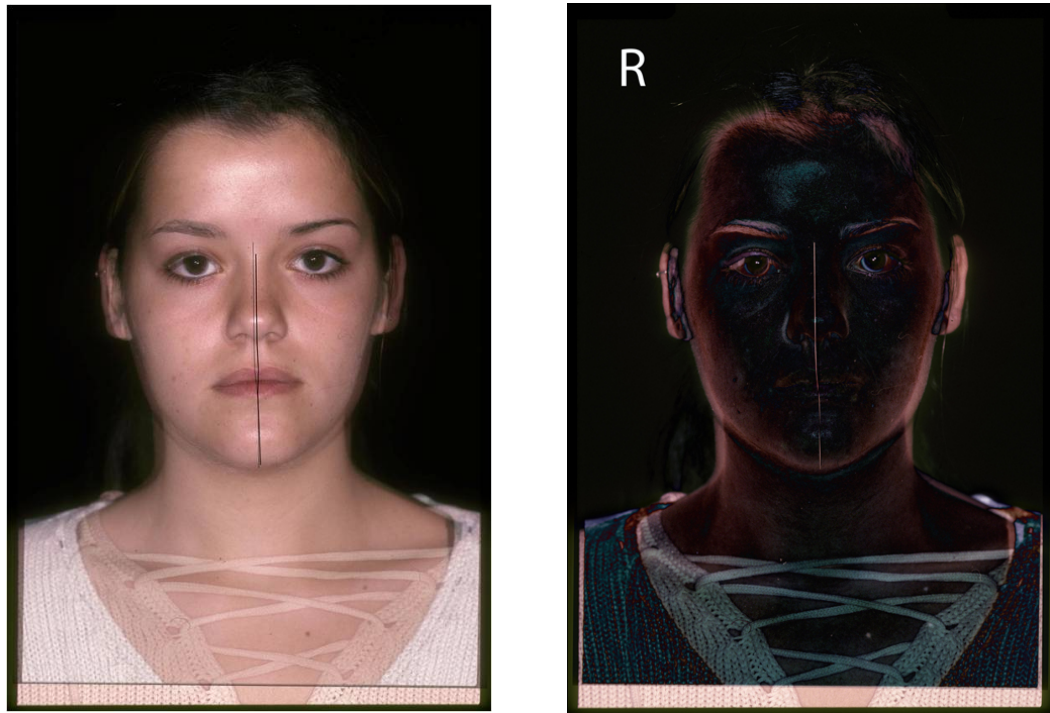


Figure 3 (left). Representative pair of female mirror twins. Twin A and twin B have been digitally overlapped.

Figure 4 (right). When digitally subtracted from each other, the images from figure 3 show symmetrical “ghosting” consistent with anatomic mirroring of the pair’s skin findings. (Digital subtraction of the images of *concordant* twins results in an asymmetrical “ghost,” indicating that the inherent asymmetries of the face are concordant and not mirrored.)

Standardized imaging and digital analysis have preliminarily confirmed the presence or absence of mirroring of body form in MZ twin torsos. Figure 5 illustrates the extreme alignment of anatomy when two concordant male MZ twin torsos are digitally added to each other, but the alignment is lost when the photograph of Twin B is horizontally flipped. Digital subtraction has successfully identified concordance or mirroring in all pairs studied to date. It follows that the body *shapes* of the twin pairs must be inherently similar (concordant) or similar-but-mirrored, regardless of differences in *size* [5].

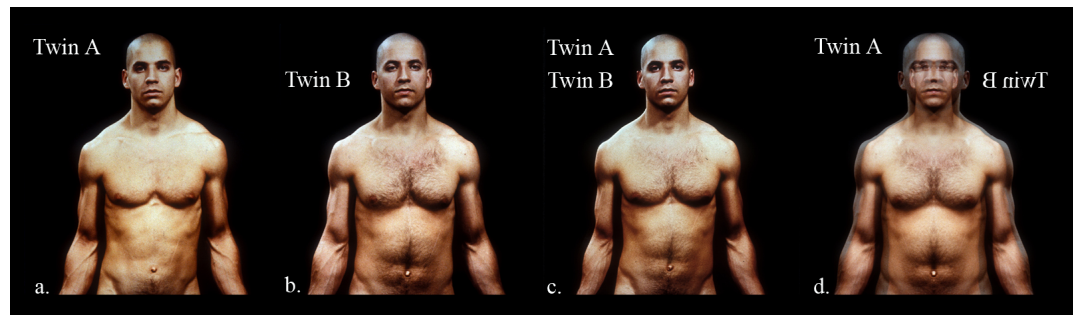


Figure 5. Left to right: The native state of twin A; the native state of twin B; the digital addition of twin A imposed on twin B, showing near-complete anatomic alignment of the torsos; and, finally, the digital addition of the native state of twin A added to the horizontally flipped image of twin B, showing a dramatic decrease in alignment consistent with a non-mirrored native state.

Measuring Postsurgery Results

The same standardized imaging techniques can also be used to accurately quantify postsurgery results, because photographic variance has been nearly eliminated. In figure 6, the postoperative result has been digitally subtracted from the preoperative baseline anatomic state, providing evidence of shape change which can actually be measured. The same methods could be used to track disease progression (e.g. Cushing disease or HIV-related lipodystrophy), the effects of therapeutic interventions, or changes in body configuration due to aging.

Figure 6. Standardized digital subtraction analysis (preoperative minus postoperative views) of the surgically imposed shape changes following full-body circumferential reportioning. This surgery was preceded by weight loss of more than 100 pounds, which had reduced the patient's size, but had not achieved the patient's desired shape.



Discussion

The above findings, developed using a MZ twin approach that controls for the “mirror twin” phenomenon, supports the concept that body surface features and body shape are genetically predetermined. Diet and exercise appear to be able to temporarily alter *size*, but it seems that only surgery, disease, or trauma can permanently alter *shape*.

This observation has direct implications for twins and non-twins alike who have concerns about skin or body features. Patients who request body contour surgery (the elective alteration of baseline anatomic form) are often counseled to make lifestyle changes to alter their weight (with the presumption that it will change their shape) before surgery is performed. In light of the findings presented above, patients should instead be counseled to adopt healthy diets and exercise routines that can be maintained throughout adulthood, regardless of the effect on weight preoperatively. Surgery should proceed once metabolic steady state is reached and body weight has stabilized, after several months, so the patient can enjoy an improved body configuration without struggling to maintain an unrealistic daily routine. Data on the genetic inheritance of undesired body shapes could help inform future ethical decisions regarding elective surgery.

The broader implication of these photographic and anatomic findings is that the very structure of the “nature vs. nurture” debate as it pertains to body shape must be reconsidered. It is clear that there may be limits to the effect of environment on anatomic shape.

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OP-ED

Character and the Plastic Surgeon

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There are a variety of models of plastic surgery training: the traditional, integrative, combined, and alternative models. A superior training program can be developed in each. Training must focus on all areas and types of surgery, including breast, craniofacial, cosmetic, flaps and pedicles, microsurgery, reconstructive surgery, and upper extremity surgery. The linchpins of a thorough education include a solid foundation of the “prerequisite” general surgery experience, a graduated assumption of responsibility, incorporation of a didactic curriculum into training, use of simulation training, and proper oversight when performing procedures. A well-developed background in general surgery or completion of a full residency in one of the other surgical disciplines instills the basic principles necessary for specialist plastic surgeons. The surgeon-in-training emerges from his or her general surgery training with a level of comfort, independence, and confidence in the operating room and is ready to progress in the specialty.

Throughout residency training, faculty and colleagues play an integral role. Case-based learning, a didactic curriculum, and review of scientific literature via a journal club are essential to imparting knowledge in an ever-changing field. In addition to formal lectures, faculty can demonstrate commitment to professionalism, sensitivity, and ethics, as well as practicing evidence-based medicine when interacting with residents. Training at large multi-center facilities, smaller private centers, and in both the inpatient and outpatient settings helps residents develop an understanding of different patient populations and the different challenges that accompany working in such diverse facilities.

Training in the plastic surgery subspecialties provides the opportunity to acquire the clinical knowledge and the surgery experience specific to each and can help in choosing a professional future. In addition to learning from faculty and colleagues, simulations using mice, cadavers, or novel tools (e.g., microsurgical instruments) allow plastic surgeons-in-training to hone their skills in procedures for which they lack experience. Keeping a log or portfolio of experiences throughout training establishes a forum for self-reflection and elucidates areas of inexperience or weakness (e.g., trauma surgery or cosmetic procedures).

Although the plastic and reconstructive surgical field is constantly changing, a surgeon qualified and experienced in breast, craniofacial, cosmetic, flaps and pedicles, microsurgery, reconstructive surgery, and upper extremity surgery can be appropriately described as a plastic surgeon. Model plastic surgeons, in accordance

with the program requirements developed by the Residency Review Committee in Plastic Surgery of the United States Accreditation Council for Graduate Medical Education (ACGME) master the specific specialty competencies in plastic surgery during their postgraduate training. Trainees must also achieve competency in the six core attributes common to all postgraduate training programs: (1) patient care, (2) medical knowledge, (3) professionalism, (4) systems-based practice, (5) practice-based learning and improvement, and (6) interpersonal and communication skills.

Characteristics of Excellence in Plastic Surgeons and Some Role Models

In combination with a comprehensive training program, certain characteristics are valuable in the making of excellent plastic and reconstructive surgeons. Most valuable of these are: integrity, compassion, commitment to excellence, humility, creativity, ingenuity, scientific curiosity, dedication, and humor. Although these intrinsic traits are developed in adolescence and young adulthood, their continued exercise is as imperative to the plastic and reconstructive surgeon as is the technical training. Rich Holt originally described these qualities as fundamental in ideal educators and role models in facial surgery [1], and they are equally critical in exemplary residents and fellows in plastic and reconstructive surgery. With guidance and appropriate mentoring, these attributes, combined with the knowledge and skills of a comprehensive training program, constitute the ideal paradigm for postgraduate training as a plastic and reconstructive surgeon.

The foundation of any healer must begin with integrity. Integrity, though developed early in life, is routinely tested and is influenced by friends, colleagues, and patients throughout our careers. Dr. Lloyd A. Hoffman, the former plastic surgeon in chief at New York-Presbyterian Hospital, continues to impress me as a true model of integrity for physicians across all fields of medicine. Dr. Hoffman consistently makes patients his top priority no matter the circumstances, refusing gratuities and financial inducements that might conflict with patients' interests.

Compassion and empathy, important in every patient-physician encounter, take on a unique character when it comes to plastic and reconstructive surgery, particularly with trauma patients and those with congenital abnormalities. Sensitivity, support, and understanding of patients' emotional states associated with their problems are integral to patient care. Although they are hard to teach formally, compassion and empathy are decidedly influenced during training, and, hence, must not be overlooked by residency program administrators and instructors. We can learn from plastic surgeons who have founded service organizations, like Dr. Bill Magee of Operation Smile. By caring for children who cannot gain access to or afford treatment, these surgeons demonstrate compassion on a daily basis. Their teams provide support and a sense of ease for patients and their families. Training in an environment that encourages patient-centered medicine will foster compassion and empathy.

Humility and commitment to excellence are essential in plastic and reconstructive surgeons. Recognizing that perfection is impossible both in life and in medicine, we

nevertheless *seek* to achieve excellence in each individual case we undertake. At the same time, surgeons must understand the limits of their capabilities, hence humility goes hand-in-hand with the commitment to excellence; plastic and reconstructive surgeons must be realistic in their expectations. A lack of humility might lead the surgeon to apply his or her skills in a less-than-safe or inappropriate manner. The proper balance of humility and commitment to excellence creates pride in one's craft. An example of a plastic surgeon who elevated the quality of plastic and reconstructive surgery while maintaining humility is Dr. Carl R. Hartrampf, Jr., the pioneer of TRAM flap surgery. TRAM flap uses the patient's own excess abdominal tissue to reconstruct her breast following mastectomy. The TRAM flap transformed breast reconstruction, yet Dr. Hartrampf remains a model of humility for all who have the honor of learning from him.

The degree of creativity, ingenuity, and scientific curiosity that characterize the best plastic and reconstructive surgeons distinguish the subspecialty from others. The ability to approach a problem from a different perspective and to apply emerging science to medicine and surgery benefit patients as well as future physicians throughout all subspecialties. These traits make the plastic and reconstructive surgeon not only a better physician, but an inventor and researcher. The true plastic and reconstructive surgeon, irrespective of age, is constantly searching for a new or better approach to solving problems in life. Residency programs in plastic and reconstructive surgery look for creativity, ingenuity, and scientific application of knowledge in residents and fellows. Embodying these traits allows one's education to last a lifetime. Dr. Michael Longaker, director of the surgical regeneration program at Stanford University, is an outstanding example; his innovation and creativity, combined with his own brand of ingenuity, have led to new concepts that revise traditional approaches to plastic and reconstructive challenges.

The inclusion of humor among the plastic surgeon's attributes may sound strange at first. But humor can make an interaction more welcoming and less stressful and can establish a healthier working environment. "Although surgery is a serious business, there are times when it is very appropriate to use humor to put the patient at ease and provide an enjoyable experience for the trainee and the assistants in the office and operatory" [1]. As the stress of medical practice increases and patient expectations do likewise, a good sense of humor can often introduce the necessary "reality check" and help us get grounded. Aside from excellence in technical training, nothing is more satisfying than training with happy individuals.

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Suggested Readings and Resources

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