CHAPTER

109

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Patient Education in Breast Augmentation

INTRODUCTION

The start of the new millennium proved to be a difficult time for breast augmentation surgeons. For those who were witness to the U.S. Food and Drug Administration (FDA) silicone gel advisory panels, it was evident that, for better or worse, the decision to undergo breast augmentation surgery has had a significant impact on the lives of hundreds of thousands of U.S. women. As devices have evolved over the last 45 years, their improved longevity and reliability have been well documented (1). However, despite these technological advances, the most recent premarket approval application (PMA) data suggest that surgical outcomes, as reflected by revision rates, still lag far behind (1,2).

Considerable effort has been placed on redefining breast augmentation as more than just a surgical procedure. Peer-reviewed publications confirm that markedly improved long-term outcomes can be achieved when there is effective communication between the physician and the patient. The first step in accomplishing improved outcomes in breast augmentation is *comprehensive* patient education (3). Decisions made by both the surgeon and the patient during the consultation phase of the breast augmentation process may have more of an impact on the quality of the outcome and its longevity than the device selected or the augmentation procedure itself. It is during this educational process that surgeons have the best opportunity to introduce informed-consent documents that will hold patients accountable for their decisions. An effective educational process must link understanding with accountability, and what really matters is whether the patients understand, accept, and take responsibility for their decisions (4).

This chapter focuses on analyzing the current informed-consent issues and how they relate to patient education in breast augmentation. It reviews essential content suggested in the initial consultation, presented in a format that patients will understand while simultaneously integrating informed-consent documents into the patient's educational experience. Useful educational tools that can be used both in and out of the office are recommended, as well as suggested steps to be taken preoperatively to clearly document the patient's accountability for decisions made. Finally, this chapter reviews methods that will help manage patient expectations with regard to the financial responsibilities of potential complications or staged procedures, as well as suggested long-term follow-up as both the patient and the devices age.

PATIENT EDUCATION AND INFORMED CONSENT

In the medical setting, the term "informed consent" arose in the United States in 1957. This terminology shifted the physician–patient relationship away from the medical paternalism that had encompassed medicine and surgery for centuries toward that of a duty to respect patient autonomy. The U.S. court case of *Cobb vs. Grant* (1972) noted that the doctrine of informed consent is "anchored" in four postulates. First, patients are generally ignorant of medicine. Second, patients have a right to control their body and decide about their medical treatment. Third, consent to treatment must be informed to be effective. Fourth, patients depend on their physicians for truthful information and must trust them (5). Informed consent in breast augmentation, therefore, should have two main aims. The foremost goal should be to respect and promote the patients' autonomy; the second should be to be truthful and protect them from harm. If we assume the provision that accurate, detailed information has been provided in an understandable format, patients should be assured of both of these aims. Only if the patient obtains a comprehensive understanding of the possible benefits, harms, and alternatives to the procedure can she give adequate informed consent. In addition, with respect to breast augmentation, we must also convey the fact that there remain unknown risks associated with the procedure.

Successful communication plays the central role in physician–patient relationships, and it has been shown to influence positively patient satisfaction, compliance, medical outcomes, and the overall quality of the patient experience (6). It is especially important for informed consent, where patients are allowed, and expected, to participate in the decision-making process by weighing the benefits against the risks of recommended options (7). To be able to become true and knowledgeable decision makers, patients need to understand the basis and significance behind those recommendations and discuss them with their physicians properly. The current practice of obtaining informed consent is often centered on the legal duty of having the patient sign a form. Signing does not always represent patient understanding. Furthermore, the U.S. Department of Health and Human Services now requires that all consent forms be "in language understandable to the subject or their representative." Many states require culturally sensitive informed-consent documents, as this process has also been shown to be compromised when language or cultural barriers are present. It is also recommended that documents and brochures be provided in writing that is understandable to the reading level of eighth grade or lower (8).

One of the roles of the physician is to become an effective communicator. Physicians and their staff must be able to deliver information in language that is familiar to their patients and easy to understand, using common words from everyday language. Studies have shown that medical language and everyday language are seen as two separate languages (9). Most physicians and caregivers can translate the necessary medical information into a language that the patients can understand. An interactive communication loop between the patient and physician or nurse educator should be used to frequently check

comprehension and recall while clarifying and tailoring the information in repeated cycles to improve comprehension (10). Some studies suggest that patient understanding might be improved if the consent forms were short and easy to read. They suggest modifications to consent forms with regard to content, writing style, format, and length (11). Others conclude that these modifications are no more successful than other approaches to improving patient comprehension (12). In addition, the term "fully" informed consent would require that every piece of information available would be provided to every patient. No *rational* patient desires all the information about a procedure or a device, nor is there sufficient time. It is also particularly difficult to obtain true informed consent in breast augmentation because there remain unknowns that have yet to be identified (13). Patients should be provided with "reasonable" and "adequate" information, which will always be less than *all* of the available information (14). In breast augmentation, we must also further define risks as either surgical- or implant-related risk (15).

Although the patient's signature on a single surgical consent document might represent agreement, it does not always imply understanding. An attempt to assess understanding should be made at varying steps throughout the educational process and documentation recorded at each step. Several options have been suggested that create an integrated approach to patient education and the informed-consent process (4,5). In addition to providing multiple, short, readable documents in a staged approach, physicians and their staff should frequently check the patient's level of understanding. The method of "teach back" can confirm understanding. The physician or staff can ask the patient to say in her own words what has been described, and ask again if the patient's words show incomplete or inaccurate understanding. Probably the most important factor in ensuring a high level of patient understanding is the quality of the time spent with the patient. When the surgeon and the staff are dedicated to providing their patients with a breast augmentation process that is specifically designed to ensure safe, predictable, long-lasting results with the lowest chance of unnecessary revisions, patients should be given the necessary time to make well-informed decisions. Many patients make their surgical decisions too quickly and select surgical options without taking the time to process the information they have received. Patients should, if possible, always be given the opportunity to return for a second consultation. Between the two visits they should be encouraged to read any educational materials provided, search the Internet, and even seek another surgical opinion if they desire. For women who want to be involved in the surgical decisions entailed in breast augmentation, it is crucial that they are reassured that they have time to evaluate their surgical options.

Much of the research focusing on the quality of patient decisions in surgery has been associated with clinical trials of patient decision aids and other decision support tools. The preoperative decisions in breast augmentation are known as "preference-sensitive" decisions to reflect the fact that although medical evidence is necessary to make decisions, it may not be sufficient. The patient's preferences are also necessary to make the appropriate decision. It follows, however that "preference-sensitive" clinical decisions can be defined as the extent to which the implemented choices reflect the considered preferences of the *well-informed* patient. Therefore patients should be given ample opportunity to become well informed (16). There has been a great deal of discussion in the plastic surgery literature and at scientific meetings surrounding the balance between patient autonomy, that is, the physician's obligation to create the conditions necessary for autonomous choice and an individual's right to self-determination, and beneficence, which is the physician's responsibility to do what is best for the patient. Beneficence is also the belief that physicians are expected to refrain from causing harm in addition to having an obligation to help their patients. While there has been a long tradition in Western medical ethics toward focusing on autonomy, that prioritization has now been critiqued (17,18). The ethical debate in breast augmentation arises when the patient's autonomous decisions conflict with the physician's beneficent duty to look out for the patient's best interest, for example, if the physician wishes to prevent avoidable breast augmentation complications that may eventually result in potentially uncorrectable deformities. Both surgeons and patients may sense this as a return to an era of paternalism and reject the concept of "doctor-knows-best" with regard to patient education in breast augmentation. However, if we accept that there are quantifiable guidelines that can minimize revision surgeries and optimize long-term results, then there is a need to incorporate beneficent actions in the preoperative education process. Patients may still proceed with autonomy during the informed-consent process involved in breast augmentation, provided they are accurately informed and fully understand the long-term consequences of their decisions. They must then also be willing to be held accountable for those decisions.

THE INITIAL PATIENT CONSULTATION

The education process in breast augmentation can actually begin before the first consult, at the time of the initial contact between the patient and the physician's office. The opportunity to set in motion a comprehensive process of patient education starts before the patient even steps foot into the physician's office. Verbal information presented by the office staff will establish a pattern to be followed throughout the breast augmentation experience. Printed material can be mailed to the patient and website information should be suggested for review prior to the first office visit. Both physicians and patients routinely use the Internet as a source of health-related information; however websites are not monitored, and therefore the quality of information is variable. Prospective breast augmentation patients need to be taught to distinguish between sponsored websites, in which advertisers pay for placement, and unsponsored ones, which do not provide payment to the search engine. A physician's website, if current, can be an excellent source of information and should include links to additional sites that are both sponsored and unsponsored. The information on the Internet, however, is not intended to replace information provided by the physician. In addition, the sites visited by the patient before the initial consult should be reviewed by the physician or nurse educator at the first visit to correct any inaccuracies encountered (19).

If patient education is to be a staged repetitive learning process, it will require participation from several members of the surgeon's staff. Many large practices have a patient educator who plays an active role in the educational process. For smaller practices, it may be the responsibility of the surgeon and a well-trained staff member to develop a detailed precise

approach to patient education and informed consent. Extremely well thought out programs that integrate patient education and informed consent have been published (5). Comprehensive informed-consent documents have been developed that are incorporated directly into the preoperative educational process. These documents are specifically designed to verify the patients understanding of content and their acceptance of responsibility for their decisions. These documents are available for downloading from the *Plastic and Reconstructive Surgery* website (20) and can be modified to meet the needs of individual practice styles (Fig. 109.1). There is a substantial quantity of information that will be transferred to the patient.

An approach to education that documents decisions made between the surgeon and patient after each topic has been discussed may produce a more valid informed consent than a single consent document signed at the time of payment for the procedure. It is also extremely important to document whether a spouse, significant other, or relative will be involved in the decision-making process. That individual should be present for at least one of the office educational visits if he or she is to be allowed to participate in any postoperative discussions on the surgical outcome (4,5). Although it may not be the preference or style of all breast augmentation practices to interject the signing of multiple documents throughout the patient's preoperative experience, there should be a verbal discussion with clear written documentation preoperatively that the patient understands the alternatives offered and accepts trade-offs, risks, and possible short- and long-term complications associated with her decisions. In addition, there should be written documentation of the financial responsibilities that the patient may encounter postoperatively either for possible untoward complications or for future radiologic imaging and eventual replacement of her implant.

PATIENT EDUCATION IN BREAST AUGMENTATION: TOOLS, TECHNOLOGY, AND THE SENSES

Most surgeons develop their communication skills over the years are turning with increasing frequency to tools and technology as aids in the patient education process. From use of a simple illustration to the use of interactive digital education, there is a perceived need to reach out to patients with better educational tools so they can make better-informed decisions (21). Most women seeking breast augmentation are highly motivated to learn about the breast augmentation process. Many practices offer patients printed materials or a Web-based introduction to the practice that includes their philosophy on breast augmentation and can be read before the first consultation. These materials are then reviewed by the patient educator or the physician during the initial consultation.

Many patients present with little or no knowledge concerning the history of breast implants and may have biases based on the media, personal experiences, or the experiences of friends or relatives. By incorporating the patient's senses into the learning experience, physicians can utilize both visual and tactile tools to reinforce the messages presented. Visuals have proven to be an important asset in improving patient–physician communications, enhancing education, and advancing the informed consent process. Visuals can increase patient satisfaction and comprehension while reducing the amount of time a physician needs to spend explaining specifics, such as implant designs or fill. Visual tools have also been shown to overcome virtually any literacy or cultural barriers that a patient may display (22). The use of older-generation silicone implants as educational tools can be invaluable when discussing the important changes that have occurred in implant technology over the last 45 years (23,1). The 1992 FDA moratorium on silicone breast implants generated a cohort of women who still maintain a preconceived notion on the safety of breast implants to this day (24). A great deal of misunderstanding can be eliminated when patients are given the opportunity to see and feel the older devices and compare them to the latest generation of saline, round, and form-stable gel devices. Women seeking breast augmentation are increasingly aware of the many implant choices available to them. Providing the patient the opportunity to hold an optimally filled saline device, a round gel, and a shaped form-stable, highly cohesive gel implant may be far more informative than merely describing the differences in shape, shell, and fill. Patients hold on to much more information when it is presented repeatedly, and combining educational modalities has been shown to enhance both written and verbal communication. Most important, patients can be educated to the benefits and trade-offs of each device that they may be considering. In a study designed to evaluate a patient's acceptance of softer or firmer implants, patients were given the opportunity to observe round or shaped saline implants filled to optimal volume. This hands-on demonstration was combined with scripted information regarding implant fill issues and their possible effect on the tissues over time. Patients were then allowed to select a device based not only on their sense of feel, but also on the knowledge of potential outcomes of that decision. Given the choice of implant, along with information describing the possible long-term consequences of each device, the majority of patients in the study chose the optimally filled implants, despite their firmer feel (25). Patients must eventually decide on the fill and shape of their implant and should be informed of their options as well as the trade-offs of each choice. Utilizing actual implants as an educational tool creates a more engaged and informed patient.

A more common approach to patient education in breast augmentation has been the use of "before" and "after" photos as both educational and marketing tools. As of June 2009, a Google search revealed close to two million sites on the Internet with breast augmentation photographs. Images can increase patient comprehension, as well as the retention of information. What most patients fail to understand is that pictures cannot document the tissue characteristics or the quantitative measurements that make each patient unique. Viewing images with a patient can, however, provide invaluable insight into her desires and is an opportunity to educate women with respect to the need to reconcile those desires with their individual tissues and dimensions. Moreover, most patients have only a vague understanding of the possible short- and long-term risks that may be a direct result of the choices made preoperatively, for example, when the patient desires an implant far wider than her tissues will accommodate, or when a mastopexy may also be recommended. Quality images can be used to help patients understand terms like capsular contracture, skin stretch, implant malposition, symmastia, and visible wrinkling (Fig. 109.2A, B). The use of images may also aid the discussion of the incision locations and potential wound-healing problems. These visual counseling tools are also useful

Patient Educator Consultation Checklist

Patient Concerns

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Additional Questions for [Surgeons name]

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Have you had any type of Plastic Surgery before?
- ❑ **Are you happy with your results?**
- ❑ **My role in your care**
- ❑ **Our commitment to patient education**
- ❑ **What we'll talk about today**
- ❑ **Have you read the information we provided you?**
- ❑ **Clinical evaluation sheet medical history and patient preferences**
- ❑ **Brief history of augmentation**
- ❑ **Alternatives versus a single approach**
- ❑ **Do implants cause disease? The research and sources**
- ❑ **Breast implants and breast cancer**
- ❑ **Breast implants and mammography**
  - All implants interfere with mammograms
  - Implants may require imaging as they age to detect rupture and patients may be responsible for all costs
  - ❑ Prophylactic antibiotics may be suggested for all future dental work
- ❑ **Breast implant technology**
  - ❑ Constantly changing alternatives- current alternatives
  - ❑ Limitations of implants- no implant is without tradeoffs
- ❑ **Summarizing the alternatives**
  - ❑ Incision alternatives- inframammary, axillary, periareolar, axillary
  - ❑ Implant pocket locations- retromammary, retropectoral, dual plane, totally submuscular
  - ❑ Current implant choices Saline- Smooth round, textured round, textured shaped - types and manufacturers
  - ❑ Fitting the procedure and implant to your tissues to minimize long-term risks and compromises

- ❑ **Determining the best size**
  - ❑ If you could just pick a size, what would it be?
  - ❑ Which is more important, size or problems long-term?
  - ❑ Common misconceptions
  - ❑ How implant size affects your tissues- now and later
  - ❑ Bra cup sizing-we can't guarantee cup size
  - ❑ Balancing your breast with your figure
  - ❑ Measuring your breast, understanding your tissues
  - ❑ Concentrating on shape, fill, dimensions
  - ❑ Photos and planning the operation

- ❑ **The operation- what's it like**
  - ❑ Day surgery routine
  - ❑ The facility and facility personnel
  - ❑ Anesthesia
    - Safety of anesthesia, misconceptions, risks
    - Local versus general anesthesia
    - Our anesthesia personnel
- ❑ **During surgery**
  - ❑ What will occur, expected time frame

- ❑ **After surgery**
  - ❑ Waking in recovery, then to stepdown with caregiver
  - ❑ **Detailed instructions will be given to you**
    - Tells you and your caregiver what to expect and do
    - What we do simplifies your instructions

- ❑ **Recovery and activity**
  - ❑ Importance of resuming normal activity
  - ❑ What we do and what we need you to do
  - ❑ No bandages, bras, straps, drains or special devices
  - ❑ Nothing aerobic for 2 weeks

- ❑ **Risks of augmentation**
  - ❑ This is a totally elective operation with risks and uncontrollable factors
  - ❑ Bleeding
  - ❑ Infection
  - ❑ Sensation compromise
  - ❑ Capsular contracture
  - ❑ Unsatisfactory aesthetic results or scarring
  - ❑ Interference with cancer detection
  - ❑ Complications may require additional surgery, longer recovery, additional costs
  - ❑ Reviewed risks on consent forms & documents
- ❑ **Capsular contracture and breast firmness**
  - ❑ What is it?
  - ❑ How a capsule forms
  - ❑ Controlling the capsule
  - ❑ How often does it occur?
  - ❑ Correcting the hard breast
- ❑ **Factors that the surgeon cannot predict or control**
  - ❑ Capsular contracture
    - ❑ Different degrees, if severe, requires reoperation
    - ❑ Surgeon alone makes finaldecisions re: reoperation
    - ❑ All costs are patient's responsibility, no insurance
    - ❑ Tissue stretch problems- increase with implant size
    - ❑ Stretch allowing implant shift downward or outward
    - ❑ Stretch allowing implant rotation
    - ❑ Traction rippling
    - ❑ Your request for a different size implant after surgery

❑ **All costs for any surgery relating to factors the surgeon cannot predict or control are the patient's responsibility (surgeon fees, facility fees, anesthesia, lab, time off work)- includes capsular contracture, infection, stretch deformities, implant size changes.**

❑ **Importance of communicating with us**
We want to do what you want
You must be honest with us at all times
The surgeon cannot read your mind

❑ **What you can expect from [Surgeon name]**
Type of care, Written materials, Photos, The operation, Your care.

❑ **[Surgeon's]Qualifications**
Surgical training, board certification, professional affiliations, scientific publications, other.

❑ **Patient has read all information material provided (Yes/No) _____ Pt. initial.**
❑ **Discussed any significant other's involvement, gave patient copy of Will There Be Anyone Else Involved.**
❑ **Written information provided patient was discussed in detail with patient, answered patient's questions to patient's satisfaction.**

❑ **All informed consent documents discussed in detail with patient, answered patient's questions.**

_____Pt. (Initial) _____Dr./educator

Figure 109.1. Patient educator checklist for patients. (Adapted from Tebbetts JB, Tebbetts TB. An approach that integrates patient education and informed consent in breast augmentation. J *Plast Reconstr Surg* 2002;110(3):971–978, with permission.)

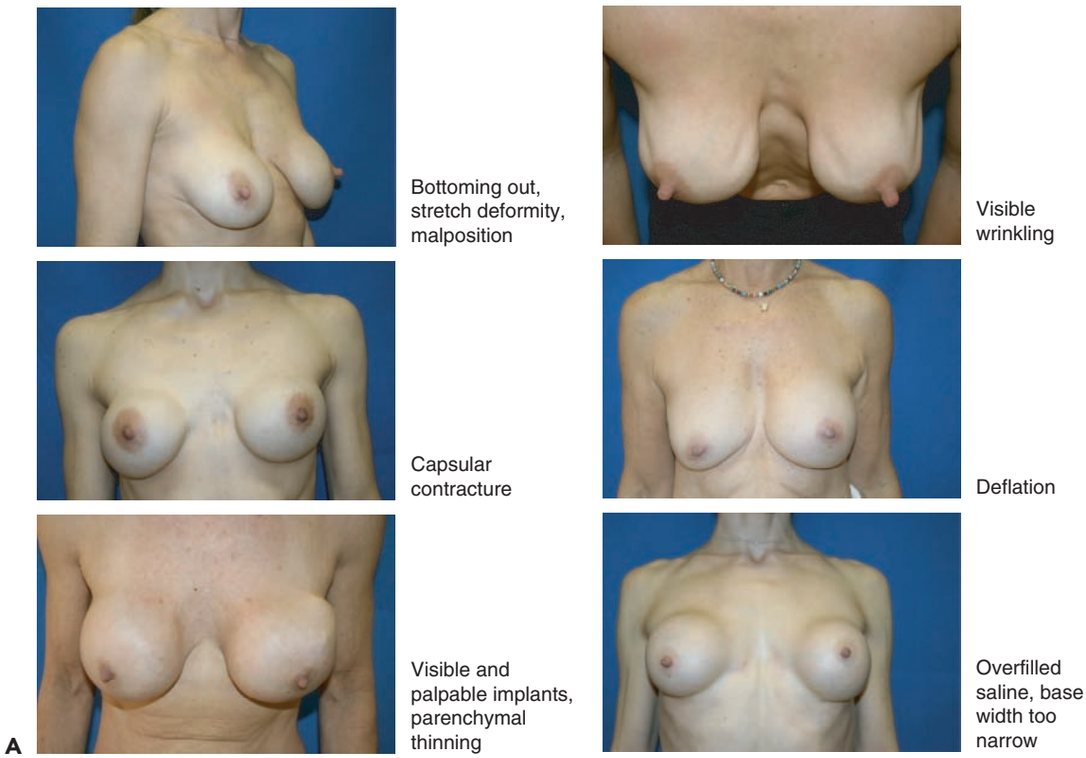

Figure 109.2. **A:** Images can be used as an educational tool to help patients visualize common breast augmentation complications and increase their understanding of the possible short- and long-term risks that may be a direct result of the choices made preoperatively. **B:** Patient educational tools can include a visual demonstration of the possible consequence of selecting an oversized implant placed in the subglandular position. Terms such as stretch deformities, malposition, and parenchymal thinning, as well as the concept of correctable and uncorrectable deformities, can be explained through images. Physicians can then demonstrate revision surgery of a complication using implants and techniques that prioritize implant–soft tissue relationships.

in demonstrating unclear concepts such as parenchymal thinning, skin stretch, and implant malposition. What is more, images can be shown depicting revision procedures necessary to correct some of the discussed potential complications, as well as those problems that may be uncorrectable. The goal of using images in patient education is not to discourage the patient from undergoing a breast augmentation, but to enhance the patient's knowledge base, thereby making her better able to make informed choices.

In an effort to further broaden the educational experience of women seeking information on breast augmentation, the leading implant manufacturers have developed websites that are designed to help inform patients about specific shells, shapes, fills, and sizes. Patients are becoming more savvy with

respect to the language of implants, using terms such as "memory gel (Mentor Corporation) and "gummy bears" (Natrelle style 410), clearly a result of well-designed, direct-to-consumer marketing campaigns. Tools designed to streamline the selection of devices have been available for physicians for decades (26,27). Patient education in breast augmentation may be enhanced with the assimilation of these tools into the implant selection process during the consultation with the patient. In addition to printed device catalogs, manufacturers have developed highly specific implant selector tools that can be used in a verbal format, offered as a numeric list, or presented in a more visual format for patients (Fig. 109.3). Interactive implant selector tools have also been designed. The physician can incorporate the patient's desires (larger, smaller, optimal) with this modality, which, when used during a patient consultation, may help produce a more knowledgeable patient. Eager to enhance the patient learning experience even further, other manufacturers have developed interactive surgical simulation software integrated with image capture technology. This three-dimensional technology is designed to help physicians and their patients predict possible surgical outcomes (28).

Patients must eventually decide upon an implant type and size, pocket location, and location of the incision. Every surgeon can decide which of these educational modalities works best for his or her practice in an efficient manner, ensuring an effective transfer of information to breast augmentation

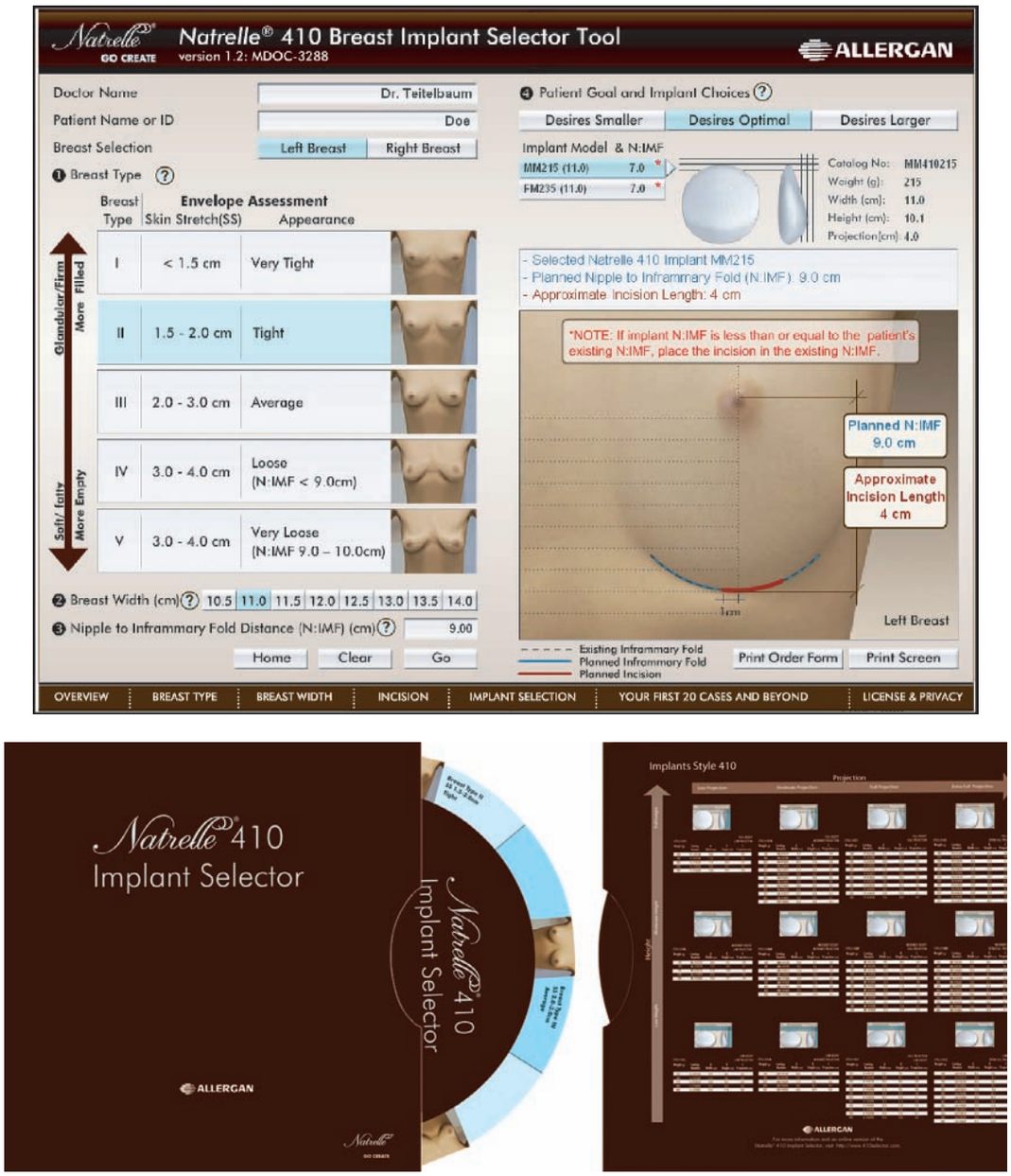

Figure 109.3. Natrelle 410 implant selector: print and interactive formats. Manufacturer's implant selector tools may be useful as both numeric and visual aids in patient education. (Courtesy of William P. Adams Jr., Dallas, Texas.)

patients. In addition, all of the tools can be of great value in the management of patient expectations and help distinguish the realistic from the unrealistic patient. The educational tools described can be used repetitively to address vital issues and make certain that there is effective communication of risk. The expectation is that a well-educated patient is going to make better lifelong decisions and be willing to be held accountable for those decisions.

CONVEYING LIFELONG RISK IN BREAST AUGMENTATION

A key factor in any communication of risk is whether the patient pays attention to the details. In general it is believed that the greater the elaboration of risk messages, the greater is the likelihood that the resulting perception of risk will influence behavior (29). The decision to undergo a breast augmentation is entirely elective, and patients should be presented with useful information to be able to make well-informed decisions. Information should be provided in a clear, positive, and personally relevant format. It is recommended that all information provided, as well as the decisions made between the surgeon and the patient, should be completely and thoroughly documented (4,5).

THE LONGEVITY OF BREAST IMPLANTS

It should be conveyed that despite the advances in technology, no device, saline or silicone, will last forever. Patients must be provided with the manufacturer's package insert, informed-consent documents, and implant warranty information, if the manufacturers offer them. The FDA website also includes current information from the Centers for Devices and Radiological Health, including patient labeling information from both Allergan and Mentor (30). The direct link to the manufacturer's website is also available for the most recent data on rupture and capsular contracture rates, and patients should be provided with these links so they can view them again at home (31). Breast augmentation surgeons who routinely follow their patient's outcomes should be able to provide long-term data on their own revision rates, including surgeries for capsular contracture and other complications. Patients should then be given the opportunity to compare data, focus on realistic risks, and make better choices. Data on rupture and capsular contracture rates can be overwhelming for many patients, but providing the information through visuals, numerically, and verbally will improve the process of risk communication.

BREAST IMAGING FOR CANCER SCREENING AND EVALUATION OF SILICONE GEL IMPLANTS

Several studies have addressed the question of whether breast implants interfere with mammography and therefore delay cancer detection in women with breast augmentation (32,33). Patients need to be informed that the presence of breast implants may interfere with standard mammography. Silicone gel–filled breast implants are radiopaque, and the physical presence of the implant may obscure part of the breast tissue and deform breast structure. The amount of interference varies depending on a variety of factors, including the position of the implant. Although there is evidence that subpectoral placement of the implant may improve the amount of tissue visible on mammography as compared with subglandular placement, the effect that the placement of the implant has on the sensitivity and specificity of screening needs further study (33). Breast implants are not, however, associated with an increased risk of breast cancer incidence or death. Patients should be advised that studies have shown that women with breast augmentation had tumors with better prognostic characteristics, including smaller size, lower grade, and more favorable estrogen receptor status (34,35). This may be due to the fact that augmented women have less natural breast tissue or because the implant provides a firm surface to palpate against (36). The best information that we can provide to breast augmentation patients suggests that although the sensitivity of screening mammography is lower in asymptomatic women with breast augmentation, there is no evidence that this results in more-advanced disease at diagnosis compared with women without augmentation (34,37). To increase sensitivity, patients need to be informed that they may require displacement-type views and possible additional images (38). Under ideal conditions, up to 90% of the breast may be visualized using these modified mammography techniques, but women with breast implants may also require longer mammographic examinations with additional views and a subsequent increase in exposure to radiation. Patients also need to recognize that capsular contracture may make imaging not only more difficult, but also more painful (39).

All patients who opt for silicone gel implants need to be informed of the FDA guidelines on breast imaging with magnetic resonance imaging (MRI) for the detection of rupture. Although some implant ruptures can be diagnosed on physical exam, the sensitivity of plastic surgeons who routinely perform breast augmentation to diagnose rupture by clinical exam has been reported at 30% (40), compared to 89% for MRI (41). For that reason, patients need to be informed that clinical examination is an insufficient screening method, and they will need to have regular MRIs over their lifetime to screen for silent rupture even if they have no problems. The FDA suggests that the first MRI should be performed at 3 years postoperatively, then every 2 years thereafter. Diagnostic procedures will add to the cost of having breast implants, and patients should be told that these costs may exceed the cost of their initial surgery over their lifetime, as they may not be covered by insurance carriers (42). Patients can be advised that newer diagnostic tools including four-dimensional ultrasound imagery may be on the horizon and may be a less expensive option for the long-term evaluation of gel implants.

Women considering breast augmentation need to be encouraged to participate in long-term follow-up studies to help evaluate the long-term safety and benefits of breast implants. Ten-year postapproval studies have been implemented to collect data on women receiving saline and silicone breast implants. These studies provide financial incentives to both the patient and the surgeon who monitors the implants (43,44).

EDUCATION AND ITS ROLE IN THE MANAGEMENT OF PATIENT EXPECTATIONS

If the preoperative educational experience is to be complete, a significant portion of the consultation should be devoted to the management of the patient's postoperative expectations. Time spent prior to surgery should include a discussion of what

factors the surgeon can and cannot predict or control. Patient expectations related to breast size are perhaps the most common early postoperative area of potential conflict between patient and surgeon. The FDA PMA data from 2004 revealed that reoperation for size change accounted for almost one third of all reoperations. Allergan's core study data from the FDA PMA studies, updated in 2007, disclosed that patient request for size change, reported at 23.4%, was the second-most-common reason for revision surgery at 4 years (30,45). Reoperation for incorrect size can mean either that a patient desires a larger size after surgery than was agreed on before surgery or the patient is unhappy with implants that have been oversized for her tissues. Furthermore, physicians need to inform their patients that no method of breast augmentation exists that can accurately determine an exact postoperative breast cup size. The current accepted system of determining bra size is so inaccurate and varies so often it is of no true value. If one includes the many different styles of bras, fabrics, and elastics and the lack of standardization among brands, it is understandable why women struggle to find a comfortable, well-fitting bra. Determining the correct bra size is more a matter of educated guesswork and trial and error than of precise measurements (46). Bra sizing varies worldwide and differs considerably among manufacturers. In addition, many bra manufacturers, designers, and bra shop fitters have their own techniques for sizing and fitting. Patients often are given misleading information concerning both their back measurements and cup size. Confusion exists when patients either underestimate or overestimate their back size, and very few understand the concept of sister sizes; for example, a 34C is equivalent to a 36B bra. In the United States, the US Standard Clothing Size sets some guidelines, but there is no formal standard inch-based brassiere sizing system in the United States (47). Studies have demonstrated, however, that reoperations for size change can be virtually eliminated when the surgeon places a high value on patient education and decision-making processes that emphasize potential long-term complications over postoperative cup size (4,5).

Patients, who share in the selection of their breast implants based on their individual tissue measurements make decisions that are knowledge based and patient centered. Communication is crucial during the informed-consent process, as is the absolute need to document the patient's implant selection in writing. The education process can also continue postoperatively if patients question their size or shape after surgery. Quality preoperative photos are invaluable as teaching tools postoperatively. Patients often forget "how small" or "how asymmetric" they were before surgery. Side-by-side photography offers patients the opportunity to validate the decisions that were made together with the surgeon. Patients who understand and participate in the implant selection process by and large accept their improvements in breast size and shape postoperatively.

Before surgery, patients should also be provided with a clear and forthright dialogue that addresses the very issues that can drain the gratification out of the physician–patient relationship after surgery. One of these issues concerns who will be responsible financially for the possible known and unknown events that might occur after surgery (48). Financial responsibilities after surgery may include surgical or implant-related complications (Table 109.1), costs associated with radiologic evaluation of the implants as they age, and eventual replacement or removal of breast implants. Defining the potential financial risks that may occur over the patient's lifetime and whether the surgeon or patient will be financially responsible is imperative before breast augmentation. These important issues should be delineated in writing during the informed-consent process. Finally, patients should be aware of the physician's policy on "out-points," defining when implant removal without replacement would be recommended to decrease further surgical and financial risks (49).

TABLE 109.1 Implant and Surgery-Related Risks

Implant-Related Risks	*Surgery-Related Risks*
Implant failure: rupture or deflation, including silent rupture	Bleeding
Capsular contracture	Seroma
Malposition deformities	Infection
Tissue stretch	Scarring
Calcification	Allergic reactions
Extrusion	Anesthesia
Chest wall irregularity	Nipple or skin sensation loss
Asymmetry	Thrombosed veins
Gel bleed	Pain
Surface contamination: late infection or capsular contracture	Malposition deformities
Interference with mammography	Suture problems
Unusual occupations	Delayed wound healing
Personal financial expenses	Skin discoloration
Unknown risks	Cardiac complications
	Pulmonary complications
	Shock

Adapted from Jewell M. S8 Breast Education Course. Presented at the American Society for Aesthetic Plastic Surgery Meeting, New Orleans, Louisiana, April 29, 2005.

CONCLUSION

For decades preoperative decisions in breast augmentation, including implant selection, pocket location, and incisions, were based on either a surgeon's subjective preferences or the desires of the patient. Although physicians were responsible for obtaining informed consent prior to the procedure, there failed to be a means to assess whether the decisions made by the patient were fully informed and reflected the patients preferences based on an adequate communication of risk by the physician and staff. Data suggest that breast augmentation surgeons should try to better understand the patient's knowledge base and decision quality so as to address any gaps in comprehension before surgery. Patient decisions in breast augmentation are considered "preference-sensitive" clinical decisions and should reflect decisions made by a *well-informed* patient. Furthermore, debate continues with regard to a plastic surgeon's beneficent duty to recommend that the patient reconcile her desires within the limitations of her tissues if data suggest that doing otherwise may increase risks of revision surgeries and potential uncorrectable deformities. In addition, the simultaneous introduction of informed-consent documents into the educational process will help hold patients accountable for autonomous

decisions while preserving their right to self-determination. Patient consultations are now turning toward more interactive learning experiences, with the inclusion of verbal, visual, and tactile tools in order to create a more engaged and informed patient. Considerable media attention has been focused on the safety of breast implants, and many women seeking breast augmentation may have unsubstantiated biases that may require a multimodality educational approach to surmount. The management of patient expectations should also include what factors a surgeon can and cannot control and who will be financially responsible for possible untoward results.

Finally, the physician must convey to patients the lifelong risks of breast augmentation, which may be complicated by the natural aging process. Events such as weight gains and losses, childbearing and breast-feeding, breast cancer risks, and eventually menopause are all natural events in a woman's life. Furthermore, patient education in breast augmentation does not end with the surgical procedure and should continue over the years as both the patient and the implants age. Plastic surgeons should be aware that the most frequent complaint of women who reported dissatisfaction with breast augmentation surgery to the FDA was that they felt they had not received adequate information before surgery (50). It is unlikely that the government or the media will ever turn their attention away from this issue. Physicians can, however, make a difference by assuring that their patients are *well informed* with regard to the known and unknown risks of breast augmentation surgery.

EDITORIAL COMMENTS

Dr. Glicksman has provided an excellent account of the informed-consent process as it relates to breast augmentation. She has described the importance of effective communication on the part of the surgical team and comprehension on the part of the patient and emphasized the concept of realistic expectations and its role in short- and long-term outcome. Education is critical. Fortunately my practice is very much in sync with what Dr. Glicksman espouses. Photography as an educational tool is invaluable. Patients should be shown good, average, and poor outcomes. I especially enjoyed reading the section on bras because prospective patients overly emphasize desired bra size. The problem is that bra size is not directly correlated to breast volume. It is more reflective of body habitus, breast shape, and proportion. A woman with a 44B cup will usually have a larger volume of breast tissue than a woman with a 34D cup. Thus informed consent is not just about signing a piece of paper that states one understands the nature of the operation; it is about proper education and counseling to minimize the chance of a poor outcome.

Although I agree with all of the concepts reviewed by Dr. Glicksman, there are a few caveats to all of this. The first is that most plastic surgeons are excellent communicators but fewer are good educators. The second is that not all patients are rocket scientists, and thus some may lack the capacity to assimilate a relatively large amount of new information. This, coupled with the fact that some plastic surgeons are biased when it comes to breast augmentation because they want to perform the operation to a far greater degree than they want to deny it, can lead to unrealistic expectations and poor surgical outcomes. The unfortunate reality is that in a few practices, it is the job of the surgeon and staff to "sell" the operation. The feeling is that if they do not, another plastic surgeon will, and rarely does that plastic surgeon want to lose the business. Complicating this further is that some patients often arrive at the consultation with preconceived notions of what they want based on what they have learned from their friends, the Internet, societal tends, magazines, and television. This sets the stage for choices that may be less than optimal. It has been my experience that a few patients know exactly what they want and are not open to the idea of choosing a device or approach that may be better suited for them based on body and tissue characteristics and what is recommended. In these cases, the surgeon should put aside his or her bias and deny the operation. In the ideal world, which is the world we would like to live in, it is the responsibility of the surgeon and staff to redirect patients' expectations from unrealistic to realistic.

M.Y.N.

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[AU1] Reference 5 and what was originally given as ref. 17 were the same, so the duplicated reference was eliminated and all text cites of 17 were changed to 5.
[AU2] OK to change reference to give this updated site?
[AU3] Is this the correct current address?