

# Considerations in Breast Augmentation in the Adolescent Patient

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## Abstract

Nearly 320,000 breast augmentations were performed in 2011, with adolescents under 18 years of age accounting for 4,830 procedures (1.5%). Breast development typically starts at 11 years (range, 8–13 years) and is complete at 15 years (range, 11–18 years). This wide age range for physical maturity matches the equally wide range of emotional maturity in this patient population. Developmental, psychological, and regulatory aspects unique to adolescent breast augmentation are reviewed. Self-image and societal influences must be considered, including both internal and external motivations for seeking breast augmentation. Preoperative assessment and counseling of these patients are discussed. Both parental consent and adolescent assent must be considered. Ideal conditions for adolescent assent are described. Breast augmentation for purely aesthetic purposes should be undertaken with extreme caution as ideal conditions for complete assent are rare. Augmentation as a technique for breast balancing in cases of significant asymmetry can be helpful.

## Keywords

- ▶ breast development
- ▶ body image
- ▶ patient selection
- ▶ assent

According to the American Society for Aesthetic Plastic Surgery (ASAPS), breast augmentation continues to be one of the most commonly performed cosmetic surgical procedures, and its popularity has more than doubled since 1997. Nearly 320,000 breast augmentations were performed in 2011, with adolescents, those individuals under 18 years of age, accounting for 4,830 procedures (1.5%). Reasons for surgery were evenly divided between purely cosmetic augmentation and correction of deformities such as severe asymmetry, tubular breast deformity, and Poland syndrome.<sup>1</sup> The U.S. Food and Drug Administration (FDA) has approved the use of saline-filled breast implants for breast augmentation in women aged 18 years or older and the use of silicone gel-filled implants for breast augmentation in women aged 22 years or older. No age limitations exist for either type of implant when used for breast reconstruction.<sup>2</sup> In 2006, the American Society of Plastic Surgeons (ASPS) began specifically tracking the age group of 18- to 19-year-old women to capture those patients who likely waited until the FDA cutoff

of 18 years. Notably, in 2009, over 8,000 breast augmentations were performed in this group (18 to 19 years old), and some have advocated extending the definition of “adolescent” to include this subset of patients given their similar clinical characteristics and psychosocial considerations.<sup>3</sup>

Here we will review the developmental, psychological, and regulatory aspects unique to adolescent breast augmentation, to address methods for preoperative assessment and counseling of these patients, and to review available published outcomes.

## Surgical Technique and Complications

The surgical techniques and complications of breast augmentation are well described and are beyond the specific scope of this review. In brief, a pocket is dissected in either or both the submuscular and subglandular planes. An implant is placed within the pocket and the incision is closed. Common incisions include inframammary, periareolar, or transaxillary.<sup>4</sup>

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Recovery from postoperative discomfort may last up to 1 to 2 weeks. Strenuous activities and sports are restricted for approximately 6 weeks.

Breast augmentation is a low-risk procedure. Immediate complications include wound infection, periprosthetic infection, hematoma, seroma, altered skin and nipple sensation, hypertrophic scarring, or complications related to anesthesia. Late complications may include visible skin rippling, implant displacement, capsular contracture, or implant rupture. There is no contraindication to breastfeeding infants after implant breast augmentation, but cohort studies after both saline and silicone implant augmentations report decreased success rates for breastfeeding in augmented women.<sup>5</sup> Surveillance for silicone gel implant rupture by magnetic resonance imaging (MRI) is recommended 3-years postimplantation and every 2 years thereafter. Indications for reoperation vary from a desired change in size to painful capsular contracture.<sup>6</sup> Finally, a rare association between breast implants and anaplastic large cell lymphoma (ALCL) of the breast has recently been reported.<sup>4</sup>

## Body Image

The first sign of female puberty is the appearance of the breast mound and occurs at a mean age of 11 years. This is generally followed by a period of rapid height and weight gain then menarche, 1- and 2.3-years later, respectively. Breast development continues to a mean age of 15 years with a range of 12 to 19 years.<sup>7</sup> With rapid changes in physical appearance comes the psychological task of coping with a changing body image. Adolescents compare their bodies to those of their peers as well as those portrayed in popular media. The constant re-evaluation of self may manifest itself in changing tastes of clothing or hairstyle, or in the extreme, may lead to pathological eating behaviors, particularly in girls.<sup>8</sup> According to Cooley's theory of a "looking-glass self," a person imagines their perceived appearance to others as well as their perceived judgment by others and forms a self-judgment of pride or shame based on these imaginations. Through role playing, altered social experiences contribute to the developing body image. For example, a teen may wear a padded bra and receive compliments on her dress, thus reinforcing an already existent belief that larger breasts would make her more attractive.<sup>9</sup>

"Celebrity worship" is defined as a parasocial, or one-sided relationship, wherein an individual admires or identifies with a celebrity. Celebrity worship is described along a severity spectrum from entertainment-social (e.g., the individual enjoys talking about the celebrity), to intense-personal (e.g., the individual takes pride in the success of the celebrity), to borderline-pathological (e.g., the individual would die for the celebrity). Most adolescents exhibit some degree of celebrity worship.<sup>8</sup> There exists a positive correlation between celebrity worship and the acceptance of cosmetic surgery among female undergraduates.<sup>10</sup> Maltby and Day examined the impact of celebrity worship on the incidence of elective cosmetic procedures among 137 young adults age 18 to 23 years. Cosmetic procedures ranged from injections of

botulinum toxin and soft tissue fillers to breast augmentation and rhinoplasty. The study concluded that intense-personal celebrity worship was a predictor of cosmetic surgery within an 8-month period, and that this correlation persisted after controlling for other known predictors of cosmetic surgery.<sup>11</sup>

Contrary to early literature that described breast augmentation patients as prone to anxiety, depression, and low self-esteem, several studies within the last decade have suggested that breast augmentation patients have similar or better overall body image and self-esteem indices than controls and other cosmetic surgery patients.<sup>12</sup> Specific to the adolescent population, a comparative study of 184 plastic surgery candidates, including 62 breast patients, and 684 controls, ages 12 to 22 years, concluded that adolescents accepted for plastic surgery had similar satisfaction with their overall appearance, but were dissatisfied with the body part considered for operation. Furthermore, adolescent perceptions of the severity and visibility of their deformities and appearance-related burdens were consistent with those of their parents and surgeons.<sup>13,14</sup>

Fowler et al considered the recent sociologic phenomenon of "breast implants for graduation" through a narrative study of 10 girls and their mothers in middle-class Texas. Although the participants of this study received implants toward the end of adolescence, the authors noted that the processes leading to the decision to undergo breast augmentation began much earlier. Psychosocial constructs that led to a desire for breast augmentation included perceived physical inadequacy and social expectations of "femininity" that were often supported or reinforced by mothers. Peers and media influenced the teens' perception of self and interestingly, also influenced the teens' acceptance of cosmetic surgery as common and "no big deal." Finally, a trend of conspicuous consumption emerged from this study group, whose ability to afford breast implants was recognized as a symbol of leisure status.<sup>9</sup>

## Preoperative Assessment, Patient Selection, and Informed Consent

The goals of preoperative assessment should include evaluation of physical maturity, stability of body image, and emotional maturity. Physical maturity includes both stature and breast maturity. Height typically nears completion approximately 2 years after menarche. This coincides with stability in the foot size. Screening for the last time shoe size changed is helpful in determining stature stability. The senior author uses 2 years of stable shoe size as a rule of thumb. Tanner staging is used to determine breast maturity; Tanner stage V breasts are mature breasts.<sup>7</sup>

In a general statement regarding plastic surgery in teenagers, the ASPS suggests that the best outcomes are achieved when the following are true<sup>15</sup>:

1. The teenage patient initiates the request and repeats this request.
2. The teenage patient has realistic goals and expectations.
3. The teenage patient has sufficient emotional maturity.

These points should be minimum criteria for any adolescent patient pursuing breast augmentation. The first criterion brings to the forefront a key element of medical decision making in pediatrics—the role of the adolescent as an autonomous party in shared decision making. The American Academy of Pediatrics (AAP) advocates that all children and adolescents participate in informed assent at a level appropriate to their developmental stage. Assent of the adolescent patient is in some respects an expansion of informed consent of the adult patient, and should be approached as an interactive exchange through which expectations and values are shared between the patient, parent or guardian, and physician.<sup>16</sup> Although the adolescent patient is not legally empowered to give informed consent, empiric studies suggest that by the age of 14 years, the adolescent is cognitively similar to her adult counterpart in making rational, health-related decisions.<sup>17</sup>

Recently, Caniano discussed the ethical issues surrounding adolescent bariatric surgery and the virtue-ethical obligations of the surgeon to the patient. Notably, the author sets a degree of detail for talking to adolescents about informed consent that includes short- and long-term expectations, necessary short- and long-term lifestyle modifications, short- and long-term risks and benefits, and short- and long-term financial considerations. Perhaps unique to pediatrics, Caniano further evokes the virtue of phronesis, or the capacity of the surgeon to integrate large amounts of information with practical wisdom to aid in the guidance of the adolescent who due to age simply lacks practical experience.<sup>18</sup>

The teenage patient's motivation and expectation for breast augmentation surgery should be directly addressed. Simis et al reported that patient and parent motivations contributing to the urgency of breast surgery included perceived burdens on sports, leisure time, and self-confidence. Surgeon motivations for the breast group were weighted toward medical considerations such as severity of the deformity and physical maturity, though impediments in school/work and leisure time were also significant.<sup>13</sup> Larson and Gosain asserted that references to internal motivators such as "I will be happier about the way my clothes fit," in contrast to references to external motivators such as "Boys will notice me more," relate to stronger self-esteem and often more realistic goals and expectations.<sup>3</sup>

Preoperative consultation should include a detailed discussion about the expected perioperative course. The process of obtaining informed consent begins with the establishment of a realistic perception of surgery and outcomes. Physical recovery with associated pain, bruising, and fatigue may be estimated to last 1 to 2 weeks. Restrictions on athletic, work, academic, and social activities may be in place for up to 6 weeks. Has the teenager thought about her school and extracurricular obligations during this period? Specific scenarios involving possible complications and how the patient might cope with these situations should be openly considered. A thorough informed consent should weigh the expected psychological benefit against potential complications and the psychological impact of these complications. An attempt should be made to assess how the teenage patient

will incorporate her new implants into her body image and social interactions. Has she thought about how her friends will react? Does the teen have an older female confidant with whom she can discuss the issues of what altered sensation of the nipple may mean? For the adolescent of consenting age, who has an intimate relationship with a partner, has the surgery been discussed openly with the partner? How does she feel about breast feeding in the future? During this discussion, the surgeon may gain valuable information regarding the patient's emotional maturity. Because parents are responsible for legal consent, it is important that they are involved in the determination of readiness for surgery.

Although most contemporary studies have demonstrated no increased prevalence of psychopathology among plastic surgery patients compared with the general population, preoperative assessment should include a thorough psychological history and possible psychiatric referral. A recognized psychiatric contraindication to cosmetic surgery is body dysmorphic disorder (BDD), which is found in approximately 1 to 2% of the general U.S. population and 5 to 15% of adult cosmetic surgery patients.<sup>19</sup> The prevalence of BDD among children and adolescence is unclear, although adult studies suggest that BDD often begins during adolescence. Recognizing BDD in an adolescent is particularly challenging because some degree of preoccupation with appearance is part of normal development. BDD is diagnosed when the preoccupation causes clinically significant distress or impairment. Signs may include frequent excuses to go to the bathroom to check their appearance in the mirror, ritualistic grooming or camouflaging at the expense of homework or social activities, or social avoidance fearing embarrassment due to their perceived flaws. BDD may also be suspected in patients whose perception of her breasts is at significant odds with that of the surgeon. Depressive symptoms and suicide attempts are common; thus, it is critical that any patient presenting for cosmetic surgery with any suspicion of BDD be referred for psychiatric evaluation prior to surgery.<sup>20</sup> In addition to screening for BDD, patients with a body mass index < 20 kg/m<sup>2</sup> should be assessed for eating disorders. Finally, an epidemiological link between suicide and breast augmentation has been reported, but the nature of this relationship remains a topic of investigation.<sup>19</sup>

From a practice perspective, the senior surgeon (JFC) prefers to defer augmentation for purely aesthetic purposes until the patients are able to sign their own consent, and will encourage patients to wait until they have the choice between saline and silicone implants at 22 years of age. For young women with significant asymmetry, such as Poland syndrome or severe unilateral hypomastia, the senior surgeon will place a unilateral postoperatively adjustable saline implant with the proviso that the family and patient understand that the implant must be replaced and probably repositioned when full height is achieved and contralateral breast growth is complete.

## Outcomes

Outcomes research for aesthetic surgery by nature extends beyond objective parameters such as mortality, complication

rates, and physical assessment, and must include subjective measures such as patient satisfaction, quality of life, and potential changes in psychosocial function. Few quality outcomes studies exist, and even fewer studies are related to adolescent cosmetic surgery.

Kamburoglu and Ozgur conducted a simple, 12-point poll of 86 adolescent patients (ages 12–18 years) regarding life satisfaction, body image, and self-esteem 6 months following a variety of cosmetic surgical procedures. The study included only four breast augmentation patients. Over half of the patients responded positively to improved mood, increased self-confidence, and improved body image. However, most patients did not report any change in popularity, ability to make friends, or ease in having romantic relationships, again highlighting the difference between internal and external references. Eighty-eight percent of patients answered yes to being satisfied with surgery, and 93.8% of patients scored Overall Positive using the 12-point questionnaire.<sup>21</sup>

Simis et al compared 184 adolescent plastic surgery patients (ages 12–22 years) to 83 control participants over a 6-month interval to study changes in appearance-related burdens following surgery. The case population included 84 interventions related to reconstructive congenital or traumatic defects and 100 cases related to corrective, or other aesthetic concerns. The control population included patients with a self-reported deformity who were not planning surgery (16 congenital/traumatic, 67 other aesthetic). Methods were designed to assess body satisfaction, bodily attitude, and appearance-related burdens. The authors concluded that adolescent perception of appearance and appearance-related burdens improved over time for both cohorts, but that improvement was most remarkable in the corrective surgery group. Furthermore, Body Cathexis Scale scores converted from Dissatisfied to Satisfied only for the breast group, suggesting that aesthetic breast surgery was the most rewarding intervention of those included.<sup>22</sup>

## Conclusions

Overall, teenagers have a realistic view and expectation of surgery similar to their adult counterparts; sparse research exists on overall patient satisfaction and a trend toward psychological benefit after cosmetic surgery. Nonetheless, the assessment of readiness for surgery for an adolescent is challenging. Adolescents are vulnerable to wishful thinking, dichotomous thinking, and may lack the experience to consider long-term future consequences. Unlike other cosmetic procedures, breast augmentation is associated with a high rate of reoperation and requires continued surveillance of the implant. In part because most plastic surgeons do not perform breast augmentation prior to the age of 18 years, long-term outcomes are not available for primary breast implantation performed during adolescence.

Adolescence is a time of rapid physical change and concomitant body image and identity reorganization. Psychosocial interactions with peer groups and increasing sociocultural pressures contribute to self-dissatisfaction and perceived appearance-related burdens. Given the lack of

compelling evidence of psychological benefit, it is difficult to justify purely esthetic surgery during this developmental period. Use of unilateral augmentation to balance asymmetry during this period can be a helpful adjunct in management. In either situation, careful patient selection is paramount.

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