

Special Topic

Primary Breast Augmentation Today: A Survey of Current Breast Augmentation Practice Patterns

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A study was undertaken to survey current practice patterns concerning primary breast augmentation. Members of the American Society for Aesthetic Plastic Surgery (ASAPS) were electronically surveyed concerning issues such as incision location, implant size and type, and complications, as well as information about the surgeons, their practices, and where procedures are performed. The survey response rate was 30%. Plastic surgeons from the South and Southwest made up 40% of respondents. Forty-six percent of respondents had more than 20 years of experience in practice. Forty-three percent of primary breast augmentations were performed in outpatient surgery centers. An anesthesiologist was in attendance in 60% of cases. The average operative time—indicated in 80% of responses—ranged from 45 to 90 minutes. Thirty-three percent of responding plastic surgeons used the base diameter to determine implant size and respondents most commonly used a smooth saline implant placed through an inframammary incision in a submuscular pocket. The most frequently reported complication was nipple sensation changes. Although the reintroduction of silicone gel implants was accompanied by expectations of a sharp increase in their use, this survey revealed that among ASAPS members, saline implants currently are used more often than silicone gel implants. However, both saline and silicone gel implants are used frequently, safely, and reliably. This survey represents a snapshot of current practice and future trends in primary breast augmentation will require additional assessment, although increased use of silicone gel breast prostheses over time is expected. (*Aesthetic Surg J* 2009;29:116–121.)

In 1992, restrictions on the use of silicone gel breast implants limited plastic surgeons in the United States with respect to their choice of implants for primary breast augmentation. Fourteen years later, they regained the ability to decide how best to treat their patients when the US Food and Drug Administration (FDA) approved silicone gel implants for general clinical use in breast augmentation. In the interim, saline breast implants were shown to have a low risk of capsular contracture, low rupture rate, and only a small incision is required for implantation. When revision surgery was required, the procedure was relatively minor with a short recovery period and only moderate expense.¹⁻³

Silicone gel breast prostheses have generated excitement in the plastic surgery community since their reintroduction, and new interest and questions concerning these implants can be expected from patients. The latest generations of silicone gel implants are stated to have improved

durability and to herald a “new age” of silicone gel breast augmentation. Although the premarket approval data for silicone gel prosthetics are several years old, they are high-quality, objective, and solid data that testify to the safety and efficacy of these implants. The major drawback to these data is the limited follow-up period, which leaves unanswered the question of what impact the use of silicone gel implants may have on practice patterns. Comparisons of data concerning silicone gel and saline implants are difficult because of the paucity of follow-up for the newly introduced silicone gel implants.

A recent American Society of Plastic Surgeons (ASPS) survey revealed that most responding members believed that many primary augmentation patients would return to exchange saline for silicone gel implants.⁴ In addition, members anticipated that more than 60% of future primary augmentation candidates would request silicone gel implants.⁴

The current survey was conducted among a somewhat smaller population of plastic surgeons: those belonging to the The American Society for Aesthetic

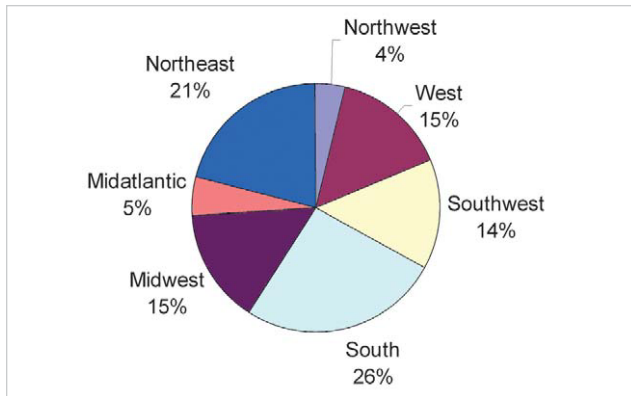


Figure 1. Demographic data on plastic surgeons participating in the breast augmentation survey.

Plastic Surgery (ASAPS), who tend to perform a relatively large volume of cosmetic breast surgery. A primary purpose of the survey was to identify the impact of the reintroduction of silicone gel breast prostheses on ASAPS members' practice patterns for primary breast augmentation. The study further represents other general trends in the practices of respondents to suggest current practice patterns in primary breast augmentation.

METHODS

A survey containing 27 questions was created to assess current practices in primary breast augmentation (see Appendix). Questions were chosen that might elucidate the gestalt of practice pattern choices relevant to primary breast augmentation. The survey queried not only information such as incision location, implant size and type, and complications, but also details about the surgeons, their practices, and where procedures are performed. During a 3-month period beginning in June 2007, the survey was sent to 1746 ASAPS members. ASAPS members were chosen for the study population in an attempt to gather data from surgeons who most likely perform the highest volume of primary breast augmentation procedures. In addition to the questionnaire, a cover e-mail was sent asking for the participation of the ASAPS member in gathering information about current trends in breast augmentation. A total of 3 e-mails were sent to the entire group of potential respondents, with a total response of 508 digital surveys (30%). This response rate is comparable to that of a similar survey in the plastic surgery literature.⁵

RESULTS

The data collected can be separated into seven distinct categories, with subquestions composing each category. These categories include surgeon characteristics, environment of the procedure, size of implant, type of implant, approach, position, and complications.

Surgeon Characteristics

Regional statistics were collected. Plastic surgeons from the South and Southwest made up 40% of respondents, the West represented roughly 15%, and the Northeast

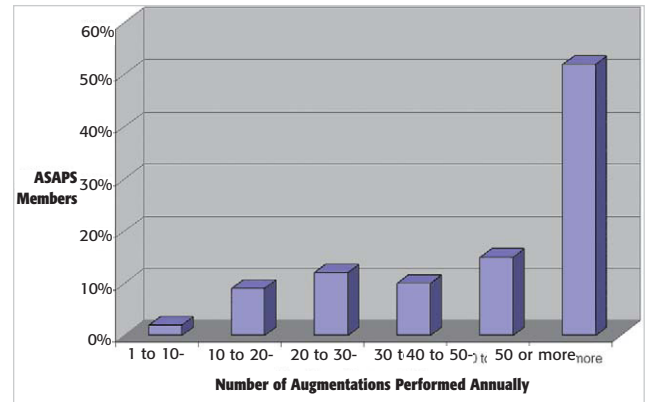


Figure 2. Surgeon experience with breast augmentation.

made up 20%. The remaining 25% of the respondents were located in the Midwest, Mid-Atlantic, and Northwest (Figure 1).

Forty-six percent of the plastic surgeons polled had more than 20 years of experience, with less than 14% having less than 10 years of practice (Figure 2).

When questioned about the number of primary breast augmentations performed per year, 51% of plastic surgeons surveyed stated that they perform more than 50 per year. Thirty-seven percent documented between 20 and 50 primary breast augmentations per year. Each surgeon was asked to rank the top three procedures performed in their practices. About 52% of respondents ranked breast augmentation as the most frequently performed procedure in their practices. Body contouring was ranked second by the largest number of respondents (about 25%). Lipoplasty and facial cosmetic procedures were reported equally as the third most common procedures.

Environment

Forty-three percent of primary breast augmentation procedures took place in outpatient surgery centers. This was followed by offices with integrated operating rooms in another 33% of responses. Only 18% of breast augmentation procedures were performed in a hospital setting.

Plastic surgeons performed primary breast augmentation with the help of fully-trained anesthesiologists in 60% of cases. Alternatively, certified registered nurse anesthetists were used in 33% of primary breast augmentation procedures.

Operative time is a consideration in primary breast augmentation and has been scrutinized.⁶ The average operative time in 80% of responses ranged between 45 and 90 minutes. Thirty-two percent of practicing surgeons reported operative times less than 60 minutes. Six percent of surgeons reported an operative time of less than 30 minutes.

Postoperative management, specifically patients' return to regular activity, has also been carefully examined.⁷ Four percent of plastic surgeons reported a same-day return to regular activity. Forty percent indicated resumption of regular activities within several days. Twenty-four percent reported resumption of normal activities within 1

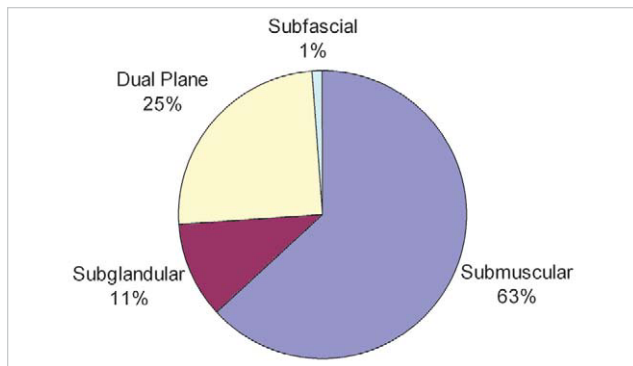


Figure 3. Frequency of implant position.

week and 25% reported 1 month. Only 7% of plastic surgeons queried used pain pumps for their patients.

Implant Size

Sizing implants can be undertaken in many ways. Thirty-three percent of surgeons used base diameter as part of their preoperative evaluation for sizing. Within this group, 16% used base diameter as the main determinant of implant sizing. Other determinants of sizing were also queried; 25% of surgeons used preoperative implants placed in the bra to decide size. Only 16% of plastic surgeons reported using intraoperative sizers and patient-selected photographs to dictate implant size. Tebbetts' High Five system was reported to be used by only 4.6% of those surveyed.⁶ Other answers reported for preoperative size selection included patient desires, surgeon experience, and "rice in stocking" measurements.

The average size of breast implants reported by 81% of plastic surgeons was between 300 and 400 cc. Eleven percent of those queried stated an average size of 200 to 300 cc and 6% reported an average size between 400 and 500 cc.

Implant Type

Despite the reintroduction of silicone gel breast implants 60% of plastic surgeons reported using saline implants, and 65% of those surgeons reported using saline implants in three-quarters of their primary breast augmentation cases. Twenty-three percent of the total survey population reported using saline implants 100% of the time.

Eighty percent of respondents reported that their use of silicone gel implants is greater now than before the FDA's approval of the devices for primary breast augmentation; 18% reported no change in their use of silicone gel implants. Overall, 55% of surgeons used silicone gel implants 50% to 100% more than before, supporting ASPS statistics. Fifteen percent of plastic surgeons have converted to using silicone gel implants 100% of the time.

Most plastic surgeons (92%) used smooth implants most often. Eighty-two percent of these plastic surgeons said that they use smooth implants in every breast augmentation. Seven percent of surgeons reported using textured implants in most cases. Of the few respondents

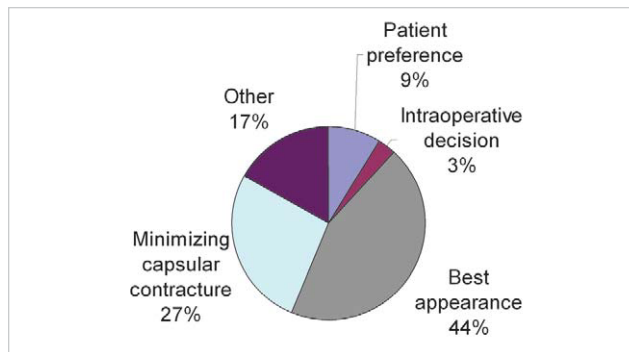


Figure 4. Decisions on implant position.

using textured implants, 69% used round versus 31% using anatomically-shaped implants.

The reasons for the current trends were examined in other questions. Thirty-six percent of surgeons cited that "patient preference" was part of the reason for choosing a particular type of implant. Thirty percent of surgeons reported improved results with their chosen implant. Eight percent of surgeons made the choice of implant based on ease of use. Six percent said they choose implants based on decreased capsular contracture rates. Frequent reasons given for choosing silicone gel versus saline implants were surgeon preference (16%), less wrinkling, overall better cosmetic result, and a more natural feel.

When asked whether shaped implants were preferred, 2.4% of surgeons responded that they used anatomically-shaped implants for primary breast augmentation. Ninety-six percent of respondents preferred round implants, mostly because of improved results. Another reason for round implant use was ease of placement, cited by 22% of surgeons. Eleven percent noted other reasons for use of round implants, including less shifting, availability of implants, and the lack of any real difference between round and anatomically-shaped implants.

Approach

Incision placement in primary breast augmentation was surveyed to determine the most popular approach. The majority of surgeons (64%) preferred an inframammary approach, while 25% preferred a periaerolar approach. The transaxillary incision was used by 8.7% of surgeons, while only 0.4% of surgeons used the transumbilical approach.

When questioned about how often they used their preferred approach, 38% reported using their indicated approach 100% of the time regardless of patient preference or anatomy. Fifty percent of plastic surgeons indicated using their preferred incision type 75% of the time and 10% of respondents indicated using the same approach 50% of the time.

The main determinant of incision selection was surgeon preference for best cosmetic result, cited by 56% of surgeons surveyed. Thirty-two percent reported that patient preference dictated incision approach. Another 8% stated that ptosis determined incision placement, followed by skin quality and skin color.

Implant Placement

When determining the most common position for implant placement, the overwhelming response was submuscular, reported by 62% of surgeons (Figure 3). This response was followed by 25% of surgeons who preferred dual-plane positioning. Only 11.5% of respondents reported implant placement in the subglandular position.

The most common reason for the above preferences regarding implant position was cosmetic result (Figure 4). Forty-four percent of surgeons believe that their preferred position for implant placement produces the best cosmetic appearance. Other reasons for selection of implant location included decreased capsular contracture rate (27%), patient preference (8.5%), and intraoperative decision (2.75%). Sixteen percent of respondents reported other reasons for implant position such as the use of silicone gel versus saline implants, anatomy of the patient, and mammography considerations.

Complications

The most common early complication reported was nipple sensation changes (50% of surgeons surveyed). The second most common complication, cited by 28% of surgeons, was hematoma. These complications were followed by seroma, wound infection, and thrombophlebitis. More than 50% of surgeons reported capsular contracture as the most common delayed complication of primary breast augmentation. This was followed by implant rupture/deflation and bottoming out.

DISCUSSION

Several points are worth repeating. ASAPS members are still using saline implants more frequently than silicone gel implants. Saline is used 60% of the time; the implants are usually smooth and round. This choice reflects the surgeons' positive experience and data collected over the past 15 years concerning saline implants.^{2,3}

The greatest percentage of responding ASAPS members was from the South and Southwest, followed by the Northeast. The largest percentage of respondents had more than 20 years' experience and the majority performed more than 50 breast augmentations per year. ASAPS member surgeons typically require an hour to perform primary breast augmentation and most commonly choose saline implants placed through an inframammary incision into a submuscular pocket. Submuscular placement is preferred by surgeons, who believe it provides the optimal cosmetic result. Patient preference was the most common factor driving the choice of silicone gel implants. The most common implant size selected by respondents was 300 to 400 cc; this size was reportedly used in 80% of cases. Base diameter and preoperative implants placed in the patient's bra are the most commonly used tools for size selection. Finally, the most common procedure performed by ASAPS members is breast augmentation, fol-

lowed by excisional body contouring, liposuction, and facial cosmetic surgery.

Several shortcomings of the questionnaire were pointed out after its distribution. These included the lack of several choices that are critical to the decision-making process, such as incision placement based on optimal exposure for surgeon control and an option to minimize tissue trauma. Another omission of the survey was an option for optimizing soft tissue coverage when selecting breast implant pocket location which, according to Tebbetts,¹¹ is a primary priority. Finally, this survey was only designed to reveal a point-in-time snapshot of ASAPS member practice patterns concerning primary breast augmentation. The nature of this survey did not lend itself to statistical analysis and its value is only in identifying current trends. Additional surveys at yearly intervals might reveal how practice patterns have changed or remained the same over time.

CONCLUSIONS

FDA regulations regarding silicone gel breast implants have had a significant impact on the current trends in primary breast augmentation. In order to ensure patient satisfaction, plastic surgeons must be familiar with current data and have command of the skills necessary to effectively use those techniques and devices that have been shown to be most effective. Although this study represents data from only a limited cross-section of plastic surgeons across a small interval of time, it supports the assertion that surgeons find both saline and silicone gel breast implants to be safe and effective for their patients. The practicing plastic surgeon can assure patients that satisfaction is high with both types of implants.^{14,15}

ASAPS members have successfully embraced new technology in primary breast augmentation. Future trends are expected to reflect an increase in the use of silicone gel breast prostheses and further data collection will be necessary in order to definitively track these trends. ▀

DISCLOSURES

The authors have no disclosures with respect to the contents of this article.

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APPENDIX

Survey Questions

1. What is the principal method of implant size selection in a majority of your patients? (Mark all that apply.)
 - Preoperative implants in bra
 - Intraoperative sizers
 - Patient selected photographs
 - Base diameter
 - Tebbetts' High Five system
 - Other
2. What implant position do you most commonly utilize?
 - Submuscular
 - Subglandular
 - Dual Plane
 - Subfascial
3. How do you most commonly decide implant position?
 - Patient preference
 - Intraoperative decision
 - Best appearance
 - Minimizing capsular contracture
 - Other
4. What type of implant are you most commonly using?
 - Saline
 - Silicone
5. What percent of the time are you using the above implant?
 - 100%
 - 75%
 - 50%
 - 25%
6. Do you more commonly use textured or smooth implants?
 - Textured
 - Smooth
7. What percent of the time are you using this textured or smooth implant?
 - 100%
 - 75%
 - 50%
 - 25%
8. If textured implants are used, which of the following do you use?
 - Round
 - Anatomic
9. Since US FDA approval of silicone gel implants for primary breast augmentation, do you use silicone implants:
 - More often
 - The same amount
 - Less often
10. If more, by what percentage has your use of silicone gel implants increased?
 - 5%
 - 25%
 - 50%
 - 75%
 - ≥100%
11. Why do you typically choose the above? (Mark all that apply.)
 - Improved results
 - Decreased capsular contracture
 - Patient preference
 - Ease of use
 - Surgeon preference
 - Other

12. What shape of implants do you typically use?
- Round
 - Shaped
13. Why do you use this shape of implant? (Mark all that apply.)
- Patient preference
 - Ease of placement
 - Improved result
 - Other
14. What incision site do you typically use?
- Inframammary
 - Transaxillary
 - Transumbilical
 - Periareolar
15. What percent is this incision used?
- 25%
 - 50%
 - 75%
 - 100%
16. What is the main determinant of incision selection?
- Ptosis
 - Surgeon preference
 - Skin quality
 - Skin color
 - Patient preference
17. What is the average size of implants placed in your practice?
- 0-200 cc
 - 200-300 cc
 - 300-400 cc
 - 400-500 cc
 - ≥ 500 cc
18. In which of the following regions do you practice?
- Northeast
 - Mid-Atlantic
 - Midwest
 - South
 - Southwest
 - West
 - Northwest
19. How many years have you been in practice?
- ≤ 5
 - < 10
 - < 15
 - < 20
 - ≥ 20
20. What are the top three procedures that you perform? (Please rank 1-3.)
- Liposuction
 - Facial cosmetic surgery
 - Body contouring
 - Breast augmentation
 - Mastopexy
 - Reduction mammoplasty
21. What is the number of primary augmentation mammoplasty procedures you perform per year?
- 1-10
 - 10-20
 - 20-30
 - 30-40
 - 40-50
 - ≥ 50
22. Location of procedure? (Mark all that apply.)
- Office
 - Outpatient surgery center
 - Surgery center with short stay
 - Hospital
23. Anesthesia provider? (Mark all that apply.)
- Certified registered nurse anesthetist
 - Registered nurse
 - Anesthesiologist
 - Surgeon
24. Postoperative patient management? (Mark all that apply.)
- Patient resumes regular activities same day
 - Patient resumes regular activities within several days
 - Patient resumes regular activities same week
 - Patient resumes regular activities same month
 - Implantable pain pump used
25. Average operative time to perform augmentation mammoplasty?
- < 15 minutes
 - < 30 minutes
 - < 45 minutes
 - < 60 minutes
 - < 90 minutes
 - < 120 minutes
 - > 120 minutes
26. Most common perioperative complication (1 = most common; 5 = least common; 0 = never observed)? (Please number from most to least common.)
- Seroma
 - Changes in nipple sensation
 - Wound infection
 - Hematoma
 - Thrombophlebitis
 - Other
27. Most common delayed complication (1 = most common; 3 = least common; 0 = never observed)? (Please number from most to least common.)
- Capsular contracture
 - Implant rupture/deflation
 - Bottoming out