Discussion: Anatomical and Round Implants: How to Select and Indications for Use

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The authors of this article are prominent international and American experts in breast augmentation with perhaps the world's largest collective experience using anatomical implants (>20,000 cases). This article is intended to dispel misconceptions regarding these devices and present experience-based concepts that ensure their successful use in breast augmentation. In the spirit of full disclosure regarding the following commentary, this discussant has 14 years' experience using anatomical implants in breast reconstruction but has been using round implants in breast augmentation for approximately 30 years, not yet experiencing an epiphany with anatomical devices for the latter application.

The topic of round versus anatomical implants is still controversial, at least in the United States. The debate here is somewhat akin to political beliefs where advocates on either side of an issue "drink the Kool-Aid" of their choice and argue their biases accordingly. Incontrovertible proof of anatomical implant aesthetic superiority is currently lacking. If attainable, it would settle the argument and perhaps justify the greater number of disadvantages of these devices. Unfortunately, proving this point beyond question defies ethical study design.

There are two existing studies demonstrating that anatomical and round implant results are indistinguishable by photographic review. Plastic surgeons could not reliably identify the implant type used and lay reviewers actually rated *round* implants as more natural appearing.[1,2] A coauthor of this article was also a coauthor of one of these studies. In this current article, it is stated that there is little difference between the two implant types except when full- or extra–full-projecting round devices are used (a rare need) or soft-tissue coverage is poor. The authors go on to say that the differences between anatomical and round implants are small when low or moderate projecting implants are used in the presence of good tissue cover, arguably the most common clinical scenario.

The authors describe several specific indications where they achieve superior results with anatomical implants. This is welcome information, as it begins to define the best role for these devices. It would also be of interest to know in what percentage of their patients they use anatomical implants overall. This would clarify whether they believe that anatomical implants should be regarded as a general replacement for round implants, that they function best as a niche player, or that their role lies somewhere in between (and if so, where?).

The argument for the superiority of anatomical implants in patients with lower pole laxity seems logical. Although the problems mentioned by positioning round implants either too high or too low can be largely avoided by proper technique, anatomical implants may indeed be better if by their grip and firm substance they avoid the bottoming-out sometimes seen with smooth round devices used in this scenario.

The authors argue that round implants are not suitable for tuberous breast shapes. Although they present a spectacular result in Figure 1, a recent publication has shown many superb results using round implants, with the improvement in outcomes attributed more to better technique in managing tuberous breast tissue characteristics rather than the type of implant used.[3]

It is hard to agree with the assertion that anatomical implants are uniformly the best choice for treating breast and chest wall asymmetries. Implant shape is a minor variable compared to optimal volume, implant diameter, and projection selection, for which a wide variety is available with round implants. Indeed, saline implants are probably the best device for treating pure volume asymmetry. In any event, this particular claim

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seems to be the least verifiable regarding anatomical implant superiority.

A question not opined on in this article is, What effect does increasing volume have on the difference between anatomical and round implants, if any? Do the differences become more apparent when trying to accommodate larger volumes within fixed anatomical limits? Conversely, is there no aesthetic advantage when using implants below a certain volume? It would be of interest to know the average implant size the authors have been using in their practices.

There is evidence that anatomical implants have lower rates of capsular contracture, rupture, and rippling. This is presumably because of the form-stable nature of the filler material, which would explain an advantage in all three areas. However, if anatomical implants are more firm to begin with, perhaps most results using them start off as Baker grade II at best.

To wander off the main topic at hand briefly, the authors state that, if three-dimensional imaging is not available, photographs of other women may be helpful and that sizers should *never* be used to select the implant. Although photographs of others give insight into the patient's aesthetic sense, they obviously do not provide patient-specific information on implant volume, given the wide variation in women's proportions, baseline breast volume, tissue characteristics, breast configuration, and key measurements such as breast base diameter. Preoperative sizing with implants does give an accurate simulation of volume choices, realizing that final size selection is still subject to all of the anatomical factors just enumerated.[4] Although certainly not a high-tech twenty-first century method compared with the virtual representation of three-dimensional imaging, it makes up for it with an actual three-dimensional experience for the patient. Moreover, three-dimensional images shown to patients to demonstrate differences in implant shapes has questionable objectivity, given that the images generated are the product of unproven assumptions in writing the software.

The authors do not mention the drawbacks of anatomical implants beyond discussing postoperative rotation. Although an early study reported an incidence of this problem in as many as 14 percent,[5] the authors cite more recent large studies that establish the number at less than 2.5 percent. Although low, this is in the range of capsular contracture incidence and an issue completely avoided by the use of round implants. Moreover, surgeons may have to explain with chagrin that an option previously eschewed is now the best choice when unsuccessful treatment of implant rotation requires replacement with round devices.

Another drawback of anatomical implants is the textured surface necessary for rotation prevention. Texturization has been implicated as a cause of late seroma that frequently leads to reoperative surgery.[6] In addition, it has been shown recently to be associated with a higher incidence of biofilm formation, assumed to be the precursor of capsular contracture.[7] Perhaps most importantly, texturization is associated with the development of anaplastic large cell lymphoma (ALCL).[8] It may turn out that more nonadherent texturization such as the Biocell (Allergan, Inc., Santa Barbara, Calif.) type causes more chronic inflammatory stimulation (a presumed cause of ALCL, among others) than the more aggressively textured anatomical devices. Until this is proven, however, the prospect exists that the population at risk for the development of ALCL is growing by using anatomical implants.

Other drawbacks of anatomical implants include increased firmness, restricted incision choices, the need for longer incisions, limited application in secondary cases, and greater cost. Increased firmness is a design tradeoff of tactile aesthetics for visual aesthetics. However, the growing preference by physicians and patients alike for silicone implants compared with saline argues for the importance of tactile and not just visual aesthetics. Even though it has been demonstrated that anatomical implants can be placed through a transaxillary incision,[9] their use is largely restricted to an inframammary approach. Incisions of 5 to 6 cm are recommended for ease of insertion and avoiding fracture of the form-stable filler, longer than that required for placing smooth round implants.[10] The requirement to have a tight-fitting pocket can limit the use of anatomical implants in secondary cases, depending on the circumstances. Anatomical implants are also more expensive than round implants by up to 50 percent with some manufacturers. This difference may be critical for some patients and in some markets. Finally, the numerous implant height and projection combinations available with anatomical implants, although advantageous, is also a disadvantage in practical terms when it comes to maintaining a fully stocked inventory of implants that probably includes round devices also.

Despite these counterpoints, the authors' collective experience of 20,000 cases proves that anatomical implants can form the foundation of a successful breast augmentation practice.

Moreover, the patient results they show are impressive and highlight some of the best indications for these devices. We are indebted to the authors for adding clarity to the role that anatomical implants play in breast augmentation today. However, more data are needed to establish the unequivocal aesthetic superiority of anatomical implants, to define the true extent of their role in breast augmentation, and to make sure that their use does not increase the incidence of long-term problems such as late seroma and ALCL.

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