Round or Teardrop Implant? Insight into a 30-Year-old Controversy

January 29, 2019

Current State of Knowledge

In everyday practice, during the pre-operative surgical consultation in breast augmentation and reconstruction surgery, when presented with breast implant shape options, the choice between round versus teardrop is not a simple question.

Since the introduction of teardrop shaped breast implants in the 1990s, research has been done on the differences in the aesthetic outcomes of current breast implant options. Since 1999, published research articles, online surveys, and intraoperative comparisons have demonstrated that the aesthetic performance of round versus teardrop shaped implants are indistinguishable in patients who have undergone breast augmentation or reconstruction surgeries.

Experienced plastic surgeons, plastic surgery nurses, and lay people were shown before-and-after photos of women who had undergone breast augmentation with either round or teardrop implants and asked to identify any difference between the final aesthetic outcomes and to judge whether the procedure was done using round or teardrop implants.

Most surgeons found it difficult to accurately distinguish between the two implants by physical appearance alone. Many of the panel were unable to identify implant shape correctly.

For all the observations, there was about a 50-50 chance that surgeons and nurses could correctly identify the type of the implants used. Thus far, studies have failed to demonstrate the visible difference in implants that are currently in use.

Looking at this controversy from a different perspective, we’re left to question why we would expect different aesthetic outcomes when round and teardrop implant designs have more similarities than differences. Is it possible to influence this outcome?
Why the aesthetic outcomes are indistinguishable?

It is well known that breast implant shape and design impacts how the implant will perform inside the body. Let us start by revisiting the anatomy of round and teardrop breast implants and point out similarities between the implant shapes that might underlie the indistinguishable outcomes:

A. Fill distribution in upright position: Round implants will take a teardrop shape within the body

B. Fill distribution side-to-side: Both round and teardrop implants have comparable base width and hence perform in a similar fashion

C. Vertical height: Current implant height is shorter than breast footprint height, and although a “tall” implant is 0.5-1 cm taller than wide, neither round nor teardrop implants sits on the entire area of the paraboloid breast footprint, leaving un-augmented breast upper segment, described with a new name of “Breast Crescent”, as shown in the figure below.

![Image of breast anatomy showing Breast Crescent]

D. Upper portion slope: These should be different, wherein the upper slope is very rounded in round implants and subtle in teardrop implants. In reality, placing the implant under the muscle with its upper edge at the pre-auxiliary level masks this difference, hence they became undifferentiated.

It is clear from the above that, the outcomes of the above studies are sound and are rooted in the implant design characteristics. We shouldn’t expect a difference in the
final outcomes of breast augmentation and reconstruction surgeries using either round or teardrop implants.

**How can we affect a difference in the final outcomes?**

Based on the above, how can we design a breast implant capable of making a difference in the aesthetic outcomes?

To influence the performance of breast implants, the breast footprint dimensions must be taken into consideration. Anatomically, the breast footprint height extends from the 2\textsuperscript{nd} to the 6\textsuperscript{th} rib. This necessitates a taller implant than the currently available round and teardrop shapes. Human anatomy requires a design that augments the breast from the 2\textsuperscript{nd} to the 6\textsuperscript{th} rib versus current implants which augment the breast from 3\textsuperscript{rd} to the 6\textsuperscript{th} rib.

The shape of the implant base must be paraboloid, mirroring the breast footprint. By designing an implant with this in mind, we can augment the “whole” of the breast mound sitting on that footprint, including the breast “crescent”.

All the insights were taken into consideration while Dr. Nedaa Al-Jasim at Apex LLC. designed DefyGravity\textsuperscript{TM} novel patented breast implant that improves on the aesthetic outcomes in breast augmentation and reconstruction surgeries.