Prosthetic Breast Reconstruction Using AlloDerm

By

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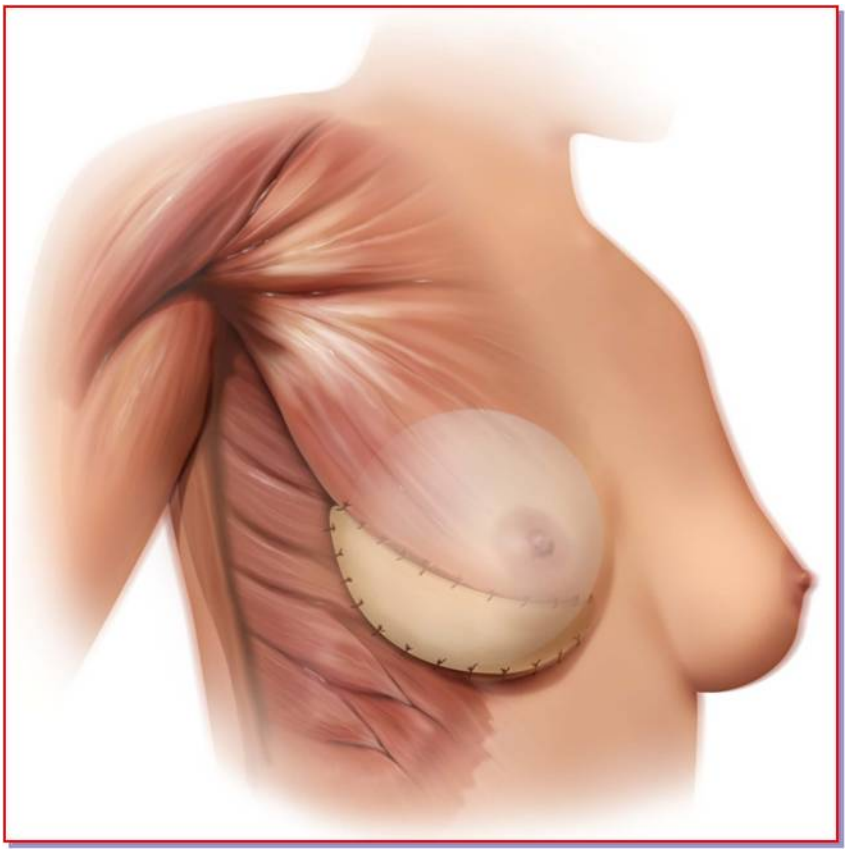

Breast reconstruction using prosthetic devices is currently the most common method of breast reconstruction following mastectomy comprising approximately 75% of all reconstructions. Over the years, there have been numerous modifications that have improved the quality of these procedures. One of the most recent and perhaps most important has been with the introduction of AlloDerm® (Regenerative Tissue Matrix, LifeCell Corporation, Branchburg, NJ). This material has been studied clinically and experimentally and has been demonstrated to be safe and effective in a variety of clinical settings including breast reconstruction. Its ultimate benefit is that it has enhanced our ability to obtain quality breast reconstruction with improved clinical outcomes.

The way AlloDerm works is really quite simple. However, in order to appreciate what it does and why it's beneficial, it is important to understand some basic points about traditional prosthetic breast

reconstruction. In general, breast reconstruction can be performed using the one stage or two stage techniques. With the one stage technique, a permanent implant is used; whereas, with the two stage technique, a temporary tissue expander is inserted followed several months later by removal of the expander and insertion of a permanent implant. Using tradition methods, the device always is placed under the chest muscle (pectoralis major). Total coverage of the device with this muscle often results in superior displacement and a lack of lower pole projection; both of which are very important when striving for ideal breast proportions. Partial coverage of the device with the pectoralis major muscle results in thin skin that is associated with excessive rippling and wrinkling especially in the lower pole of the breast. Another limitation of these traditional techniques is that the tissue expander is minimally filled because the space in which it is placed is relatively tight. All of these factors tend to compromise aesthetic outcome.

AlloDerm, on the other hand, is used to extend the partial muscle coverage such that the device becomes completely covered by both the muscle and AlloDerm (figure 1). The benefit of using AlloDerm in this fashion are that it allows for optimal device position, improved coverage, less rippling and wrinkling, better definition of the inframammary and lateral mammary folds, and increased initial fill volume. AlloDerm is able to achieve this because of its unique physical properties. It is carefully processed cadaveric dermis that is soft and elastic and comes in sheets of various sizes. AlloDerm is void of cells so when it is placed into the mastectomy defect, it is not rejected. AlloDerm is incorporated into the surrounding tissues and is readily revascularized and repopulated with cells of the recipient. However, in order for AlloDerm to be effective, the plastic surgeon must know how to use it because the technique of insertion, suturing, and filling is important. It is sutured to the muscle as well as to the medial, inferior and lateral borders of the breast or implant. Because there is more space for the device, we are able to insert devices of greater volume when compared to device volumes previous to the use of AlloDerm. In fact, it is recommended to insert or inflate these devices to a sufficient volume such that initial volumes are at or near capacity. The reason that this is beneficial and important is because most of the expansion will be complete before any scar or capsule develops around the implant. The capsules that form following traditional prosthetic reconstruction can impede the efficacy of the expansion process.

In addition to the traditional two stage breast reconstruction, some women may be good candidates for a one stage reconstruction in which a permanent implant is inserted immediately following the mastectomy. The need for a tissue expander is not necessary. AlloDerm in this setting has been significant because the device is inserted and secured in such a fashion as to provide optimal volume, position, and contour symmetry. The factors that will make a woman a good candidate for one stage reconstruction are related to initial breast volume or cup size as well as the quantity and quality of the residual native skin following the mastectomy.

Overall, AlloDerm has provided a significant advantage and benefit to patients having prosthetic breast reconstruction. Our outcomes have become more predictable and reproducible. Women following mastectomy are now able to awake following surgery with a breast mound rather than without one. Because of these benefits, more and more plastic surgeons are using AlloDerm for their prosthetic breast reconstruction procedures. Because of AlloDerm, the vast majority of patients and surgeons are

very satisfied with the outcomes. I am certain that the use of a regenerative tissue matrix such as AlloDerm will be considered for most women having mastectomy and prosthetic reconstruction.

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