



## Pre-pectoral breast reconstruction: a less invasive option

*“Sometimes life brings you full circle to a place you have been before, just to show you how much you have grown.”—Anonymous.*

This special edition of *Gland Surgery* journal is the story of pre-pectoral, subcutaneous breast reconstruction. The past few years have been full of excitement and constant change in the world of prosthetic breast reconstruction. Many of us have made a strong push to transition our practices to the less invasive, muscle sparing, pre-pectoral techniques. And while this may seem like a modern-day transition to a new, more advanced method, it in fact represents a return to our roots.

The first description of prosthetic breast reconstruction in 1971 was a cases series of subcutaneous implant placement in patients undergoing modified radical mastectomy (1). However, this technique was quickly abandoned in subsequent years, due to high rates of capsular contracture, implant exposure and infection, and poor aesthetic outcomes secondary to implant migration.

The shift to subpectoral/submuscular breast reconstruction offered increased protection against many of these problems. And for the past 40 years, this method of placing tissue expanders and implants underneath the pectoralis major muscle has been the predominant form of worldwide breast reconstruction.

More recently, we in the breast reconstruction community have begun looking for alternatives to this technique, given the many clinical challenges encountered with submuscular breast reconstruction. Among the many symptoms we frequently see in our submuscular reconstruction patients, and are looking to eliminate, are chronic muscle related pain, animation deformity of the reconstructed breasts, muscle spasms/contractions, reduced physical mobility of the upper extremities, and a reduction in physical strength of patients. All of these symptoms are byproducts of the surgical dissection, elevation, disinsertion, and stretching of the pectoralis major muscle.

As a solution, many of us have begun to revisit the idea of placing reconstructive implants in the same anatomic space as the breast tissue that was removed, above the pectoralis muscle, thus eliminating any surgical involvement of the muscle, and with it, the associated symptoms. This return to the originally described subcutaneous techniques of the 1970's carries many potential benefits, including reduced pain (acute and chronic), reduced narcotic administration, elimination of animation deformity, and a more natural breast aesthetic.

While this seems terrific in theory, why should we, as a community of surgeons, think that our attempt at this procedure should be any more successful than our predecessors were with their attempts almost 50 years ago? Why should we expect that our outcomes will be improved, and we shall not experience the same complications that resulted in previous abandonment of these techniques, as we now return to them?

The answer is found as we take into account the surgical and technological advancements that have occurred in the past 50 years, surrounding the process of oncologic breast treatment, and reconstructive breast surgery:

- (I) Improved collaboration between breast surgeons and plastic surgeons, through multidisciplinary, team-based approaches;
- (II) Improved mastectomy techniques, resulting in improved soft tissue vascularity;
- (III) Superior tissue expanders and implants in the latest generation;
- (IV) Acellular dermal matrices, allowing for reinforcement of weakened soft tissue envelopes;
- (V) Autologous fat grafting to enhance quality and quantity of soft tissue envelopes;
- (VI) Intraoperative perfusion assessment tools, allowing for confirmation of vascularity in soft tissue envelopes.

All of these advancements have allowed us to more safely and reliably revisit the technique of pre-pectoral, subcutaneous, muscle sparing breast reconstruction (2,3). With the ability to assess mastectomy skin flaps precisely, confirm their perfusion and viability with great sensitivity, improve the support with underlying biologic mesh, place implants with lower encapsulation and rippling potential, and enhance the thickness and quality of the skin flaps, pre-pectoral/subcutaneous breast reconstruction has now become a more safe and reproducible technique than ever before. This is precisely what allows us to now return to our roots, and re-adopt these techniques, with vastly superior clinical and aesthetic outcomes. In turn, this has resulted in many of us now improving our patient's experience, satisfaction, and quality of life with their breast reconstruction.

In this edition of *Gland Surgery* journal, we have assembled a collection of articles written by many of the thought leaders and world experts in breast reconstruction, and specifically pre-pectoral breast reconstruction. These authors are responsible for innovating and defining many of our current, most advanced techniques in prosthetic reconstruction. The articles span the entire range of considerations and procedures, and function as a complete and thorough resource on this topic. I hope you enjoy reading this issue, and benefit from the information provided.

## Acknowledgements

None.

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*doi: 10.21037/gs.2018.08.07*

*Conflicts of Interest: Dr. Sbitany is a consultant for Allergan, Inc.*

**View this article at:** <http://dx.doi.org/10.21037/gs.2018.08.07>

**Cite this article as:** Sbitany S. Pre-pectoral breast reconstruction: a less invasive option. *Gland Surg* 2019;8(1):1-2. doi: 10.21037/gs.2018.08.07