

Why Supercharging a Wise-Pattern Might Be Wise in a Select Group of Large Breast Reductions

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Breast reduction has become a cornerstone procedure in plastic surgery today in that it combines the principles of both form and function. Not only does a breast reduction provide a great sense of physical relief regarding axial skeletal pain, but patients also endorse a sense of superior body proportion and the improved aesthetics of a breast lift [1, 2]. However, breast reduction is a procedure that self-selects for some of the most challenging patients in aesthetic plastic surgery. These patients often have multiple comorbidities including high BMIs, hypertension, and poor skin quality due to chronic stretching from breast hypertrophy, elevated blood glucose levels either diagnosed or incidental, and at times, a history of nicotine use. Taking these comorbidities into account, it may at times feel as though the procedure is a set up for failure [3]. In a small subset of cases, such as when the aforementioned comorbidities are present and the patient is undergoing a large reduction (typically 1500 grams or more and with tension at the T-junction closure site), it is not uncommon to encounter skin breakdown, infection from T-junction ischemia, or chronic wounds that require extra attention and reassurance for the patient during the recovery phase. Additionally, the risks to the nipple-areolar complex with an excessively long pedicle in very large breast reductions are well-known and traumatic to patients when encountered.

As a resident physician encountering these patients pre-operatively, intraoperatively, and many times in the emergency room post-operatively when wound breakdown becomes an issue, I have found myself contemplating new and creative ways to avoid such complications in these surgical setups seemingly destined for failure. Some surgeons have approached the challenge of decreasing large breast reduction morbidity by utilizing only a superficial layer of suture closure, hoping to avoid fat necrosis that may be a result of multiple layers of deep sutures. Others have applied vacuum-assisted closure devices on the incisions after breast reduction with the thought that the underlying serous fluid is evacuated, tension is relieved with negative pressure, and the closure is given time to heal with tension-free approximation for 7 days. However, this solution carries with it extra cost, discomfort, and an additional burden on the patient during recovery. Still, these solutions are tremendously useful in specific patient situations.

After spending some time thinking of new and creative ways to avoid such recurring complications, I propose a different solution. For women who are poor surgical candidates for a large breast reduction; such as those who may be morbidly-obese, are active smokers, have hypertension and diabetes, or a constellation of medical comorbidities, why not supercharge our pedicle and adipocutaneous flaps? One drawback of this technique would surely be the requirement of a short staging procedure. But would it really be an unnecessary use of resources if longstanding wound care and traumatic recovery can be avoided? This delay method would entail a thirty minute procedure under local anesthetic in the operating room 3-7 days prior to the day of breast reduction and would involve the following:

- The Wise-pattern skin resection would be marked on the patient in an upright position in the standard fashion with a surgical marking pen and ruler tape .
- Pitanguy's point would mark the new position of the center of the nipple-areolar complex [4].
- The vertical-limbs of the Wise pattern would be marked anywhere from 8-12 centimeters as is sometimes required for an aesthetically-appropriate result in dramatic macromastia patients [5].
- The horizontal limbs would extend to the medial and lateral aspects of the inframammary fold in the traditional wise-pattern fashion.

After the patient is marked as such, the patient can remain awake or require minimal anxiolytic medication under monitored anesthesia care (MAC). Then, either a rib block in the 2nd-5th intercostal nerves can be performed or regional local anesthetic can be infiltrated in the soft tissue sites specific to the delay procedure incisions [6]. The superior portion of the inferior pedicle that surrounds the nipple can then be scored sharply extending in a semicircular "C" fashion for 7 cm. Bovie cautery can then be used to deepen the limited incision down to a pre-pectoral layer just above the chest wall, thereby isolating the nipple-areolar complex onto its inferior pedicle blood supply and allowing the opening of choke vessels to improve subdermal vascularity.

Additionally, the confluence of the vertical and horizontal limbs that will form the T-junction can be incised for 4 cm in both vertical and horizontal directions and then be extended down to the level of the breast capsule. The medial and lateral flaps can be elevated for 5 to 6 centimeters to again supercharge the most distal portion of these flaps prior to later insertion at the "T" junction-given that this region

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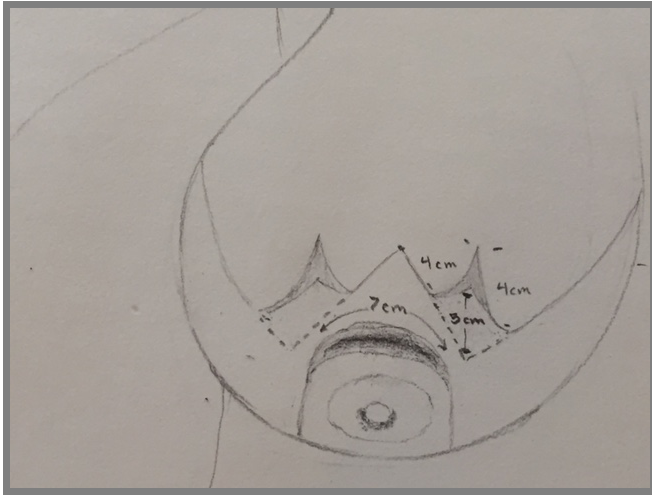


Figure 1: Amount of undermining of breast soft tissue

is often at high risk for wound breakdown. To reiterate, the three most critical portions of this delay procedure would be severing the most distal portion of the inferior pedicle just beyond the nipple-areolar complex, and distal raising of the medial and lateral flaps to increase vascularity to these often-vulnerable soft-tissue structures. After these flaps have been raised, they can be set back down to their original position and sutured gently in place with interrupted, non-absorbable sutures to avoid contraction due to the elasticity of the soft tissue elements. The patient's mammary region can be secured with a surgi-bra to minimize tension vectors on these structures until the day of surgery.

At a later time, 3-7 days after the supercharging procedure, the patient can return for formal breast reduction surgery. The previous sutures would be cut, and the breast reduction would be carried out in the typical fashion. Ideally, with the delay procedure, choke vessels supplying these susceptible soft-tissue units will have dilated, and the nipple areolar complex should be well vascularized from the inferior pedicle and surrounding subdermal plexus. Theoretically, this may allow the surgeon to avoid nipple necrosis and free nipple grafting or other reconstructive procedures for the nipple-areolar complex at a

later time when patients have extremely long pedicle lengths. Additionally, the "T" junction should have better soft-tissues quality with the improved perfusion and decreased wound-healing issues given the improved vascularity at the tips of these flaps. While tension may still be a factor during closure of the "T" junction, the edges of the flaps should be more robust and less susceptible to breakdown.

The technique described here is strictly theoretical and should be limited only to a few appropriately-selected surgical candidates. In the majority of patients, breast reduction is a one-stage procedure with minimal wound breakdown and excellent patient satisfaction. However, patients who are in need of a very large breast reduction and are poor healing candidates - such as smokers, diabetics, hypertensives, or other constellations of medical comorbidities- may be suitable for a supercharging procedure that would greatly improve the axial and subdermal blood supply to the more vulnerable soft-tissue subunits of the wise pattern. This would require a half-hour staging procedure under local anesthetic. This additional local procedure may allow for a successful reduction to be done in precarious patient situations, and may also offset additional operative time by avoiding wound complications, nipple loss, and patient morbidity due to unsightly breakdown and the enormous expense that chronic wound treatment incurs on both the patient and hospital system.

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