

DISCLOSURE

The authors have no financial interest to declare in relation to the content of this communication.

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Reply: Alternative Method for Volume Improvement in Autologous Breast Reconstruction

Sir:

Dr. Bonomi and colleagues make a number of important points and, although their initial assertion that the stacked deep inferior epigastric perforator (DIEP) flap procedure requires great microsurgical skill is true, the theoretical disadvantages they mention have not materialized in my clinical experience with nearly 300 individual patients. The issue of denervation of the rectus muscle in the second flap's harvest site is unsupported. The rectus abdominis is a segmentally innervated muscle band and receives multiple motor nerves along its length. Losing a single nerve through dissection in the muscle bundle would be highly unlikely to functionally denervate the muscle. More importantly, the muscle retains anatomical continuity and surface coverage from its origin to its insertion.¹ Beyond this, because our technique keeps the second flap's pedicle very short, the intramuscular dissection is also very short (approximately 4 cm), and when nerves are encountered in this shortened dissection, the pedicle can usually be slid from beneath them after it is ligated, thus preserving their continuity.

Regarding the question of muscle transection, the great majority of the secondary flaps are based on a single perforator. Because the required volume of this flap is often less than that of the primary flap, perfusion on a single central perforator is often adequate. When multiple perforators are rectilinear, we may elect to include more than one if it benefits the perfusion of the flap significantly. This avoids the need for muscle bundle transection and so morbidity is little more than splitting the fascia alone. We also retain the option of perfusing the second flap with the superficial inferior epigastric pedicle, when present, thereby avoiding muscle dissection entirely. Thus, the advantage of the DIEP muscle preservation, both anatomical and functional, is maximized and not lost because of double-pedicle dissection with our technique.

The commentary regarding perfusing an entire abdominal soft-tissue composite with a single one-sided vessel set is interesting. Ulusal et al.,² as referenced by Bonomi et al., discarded a portion of their flaps before inset and did not fold the flaps. If they had folded the flaps, their fat necrosis rate would likely have been much higher in the contralateral tissue. We have found little use for a long thin flap with respect to restoring breast projection. The prevailing literature, as referenced in our article,^{3–5} is in agreement that the amount of crossover from one side of the abdomen to the other is often modest, and attempts at perfusing all four zones with a single-sided pedicle will be met with disappointment. Whether Hartrampf's or Holm's description of zonal territory is your favorite, the essence of the point is that overinclusion of zonal territory without augmenting vascularity invites the very difficult complication of extensive fat necrosis. The added hour of surgical time for our procedure compared with a single-pedicle procedure is well worth the time spent to maximize the flap's overall vascularity, and making compromises in this regard for the sake of ease is not consistent with our philosophy. Considering that we also recommend separating the flaps completely in the great majority of cases to allow for independent inset and maximum resultant shaping, this issue becomes moot and irrelevant to the procedure we use.

There has been a recent resurgence in the popularity of fat injection. Despite this, it has yet to be proven as a reliable way of making up substantial volume deficits in breast reconstruction. No controlled long-term clinical studies exist on the matter. The claims for percentage retention vary from surgeon to surgeon, and independent claims have few objective data to back them up. Our patients are thin to begin with, so the volume of extra fatty deposits to harvest and inject will be generally limited. If we are performing DIEP flap surgery to reconstruct a breast of insufficient size only to throw away the contralateral fat, we have wasted a golden opportunity to give back a fully sized breast with a reliable operation for an hour's extra effort. If we compare the added time spent performing a stacked DIEP flap compared with another procedure that produces an undersized breast with multiple fat injection sessions, it is likely that the stacked DIEP flap will be more cost efficient and better received by patients than multiple procedures over time. Bonomi et al.'s preoperative and postoperative photographs are impressive, but the postoperative photograph appears to reflect an early result. Observation after 1 year would be of interest and value to those considering the benefits of high-volume fat injection, because the referenced article reports a 30 to 50 percent loss of volume over time compared with the early result of a fat injection session.⁶

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Clinical Analyses of Clustered Microcalcifications after Autologous Fat Injection for Breast Augmentation

Sir:

Dr. Wang et al. present the complication of clustered microcalcifications.¹ Although in my series of 650 cosmetic breast augmentations there were microcalcifications, none was clustered. The complication presented is, in my opinion, related to technique. It is easily avoided by properly spacing each microinjection, as I always discussed in my early presentations. Also, knowing that even with proper technique, mammographic changes can occur, I set strict criteria to ensure the safety of this new procedure. I will briefly repeat what I set forth 27 years ago, as I believe these principles are still valid.

Each patient electing fat transfer cosmetic breast augmentation must agree to preoperative and postoperative radiographic evaluations. There should be absolutely no injection into the breast glandular tissue. Thus, any abnormality secondary to the fat injection should be where fat is placed and, conversely, suspicion may be heightened by a lesion where one knows fat was not injected. Also, patients who develop microcalcifications tend to develop multiple lesions rather than a single lesion and micro-fat necrosis usually occurs by the 6-month follow-up mammogram. Finally, we can rely on the skill of the radiologist. In all of the evaluations during my years performing autologous fat breast augmentation, the radiologist confidently determined the lesion to be benign and related to the procedure. With newer techniques, that confidence has increased.

However, if a determination cannot be made on the basis of skill, we would then resort to a needle biopsy, which can only give us one of three possibilities. One, the lesion is benign and related to our fat transfer; or two, the lesion is benign and not related. In the event

of the third possibility, a malignancy, our first criterion of follow-up evaluations may save a life. On the basis of postoperative microcalcifications, which may occur in all breast operations, autologous fat breast augmentation is a safe procedure.

Dr. Wang and his group conclude that fat transfer should continue to be “prohibited.” It is my understanding that there is no prohibition on this procedure, and I believe it should be properly learned and advanced. I agree wholeheartedly with the expert discussion associated with this article and can only imagine where we would be had that thinking been prevalent 27 years ago. DOI: 10.1097/PRS.0b013e318230bf6a

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Reply: Clinical Analyses of Clustered Microcalcifications after Autologous Fat Injection for Breast Augmentation

Sir:

Dr. Bircoll does a lot of work on cosmetic breast augmentation and believes that clustered microcalcifications are related to technique and are easily avoided by properly spacing each microinjection. I previously thought so too, but with experience with autologous fat injection, I found this is not true. As we know, many experts^{1,2} have their methods of refining the fat and injecting it into the breasts. They space microinjections to make the injected fat evenly distributed. If we perform mammographic follow-up, all types of methods probably produce clustered microcalcifications. We know that masses produced by fat necrosis are oil cysts or superficial ovoid lesions. However, in recent years, the experts rarely find oil cysts or superficial ovoid lesions because they use the appropriate methods to refine the fat and inject the fat into the breasts. In other words, the technique has been properly learned and advanced in recent years, and breast plastic surgeons can use the technique as refined by experience. Oil cysts or superficial ovoid lesions usually occur in the early stage of autologous fat injection into the breasts. Now, the experts generally space microinjections; this type of injection, in my opinion, easily produces clustered microcalcification because of the even distribution of fat necrosis. In other words, spacing microinjections may cause clustered microcalcifications, but we cannot return to the early stage of producing oil cysts or superficial ovoid lesions.

I agree that the patients developing microcalcifications tend to develop multiple lesions, but even if we see