Fat Grafting: Fact or Fiction?

To the Editor:

Fat grafting is an accepted and frequently used procedure, particularly with the current interest in volume restoration surgery. The varying results achieved by this procedure, which are often explained as “technique-dependent,” likewise seem to be widely accepted.

The reports on different techniques for harvesting, treating, and injecting fat cells that appear in the literature are often contradictory. One author may advocate the use of small cannulas to harvest the fat in order to reduce trauma, while another may argue just the opposite. Similar differences exist with respect to both treatment of the fat before grafting (eg, to centrifuge or not to centrifuge) and techniques for fat injection. There is even controversy concerning fat longevity before or after being stored.

It was perplexing to me how we can continue to perform a procedure that involves so many contradictory approaches and so little scientific evidence of success. It was even more perplexing to see the very good long-term results demonstrated at various professional meetings; I’ve often asked myself, “Why can’t I get these results for my patients?” It was not until I viewed a videotape on the procedure by one of its more fervid proponents that I was able to resolve this dilemma. I realized that the secret to success has nothing to do with the fat grafted, and everything to do with the technique.

In reviewing the tape, I noted that the surgeon created hundreds of tunnels in different planes, injecting a minuscule quantity of fat in each. I also noticed that after the procedure, the patient experienced severe edema that persisted for weeks, an obvious sequel to the trauma caused by the tunneling. However, months and even years later, the postoperative results demonstrated an obvious improvement in volume restoration.

At first, this technique and its results seemed contradictory to me. Why perform so much tunneling if the goal was to preserve viability of the fat cells to the maximum extent possible? Doesn’t this inevitably involve, at least to some extent, going over the same area more than once, thus causing additional cell trauma? Wouldn’t it be preferable to proceed more gently and carefully to avoid unnecessary trauma?

It was only then that I realized that the trauma is precisely what is required to achieve the desired result. Unrelenting tunneling in multiple layers from the periosteum to the dermis resulted in trauma and a consequent inflammatory response that endured months and even years later, along with tissue reaction. (Similarly, we have all noted aesthetic improvement in the neck after even minimal lipoplasty, which we know was the result of tunneling.) In fact, in the taped procedure, fat was injected in such minute quantities (large quantities, of course, would risk fat necrosis and lumpiness) that now I wonder whether fat had any real effect on the result!

It is my theory that in fat grafting procedures, it is the tunneling that is the secret to achieving successful results; the fat has nothing to do with it. Does this seem reasonable?

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