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Berish Strauch, Diana Linetskaya, Thomas Baum and David Greenspun

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# Brachioplasty and Axillary Restoration

The authors recommend this brachioplasty technique for patients who have lost a significant amount of weight. The sinusoidal-shaped scar helps to avoid problems such as linear scar contracture, wound tension, and widened or hypertrophic scars. (*Aesthetic Surg J* 2004;24:486-488.)

The increasingly popular and successful surgery for morbid and/or extreme obesity has created a steadily rising population of patients demanding relief from the deforming skin envelope that remains after significant weight loss. After morbidly obese patients lose massive amounts of weight, the resultant contour deformity of the arm and axilla takes the form of a bat's wing or web along the posterior axillary line, which distorts the upper brachium, axilla, and, in severe cases, the lateral chest wall. We have refined our surgical technique to address the limitations of previous brachioplasty techniques, including postoperative recurrent or unresolved contour deformities, hypertrophic and widened scars, and patient dissatisfaction with scar location. Here, we describe our technique of brachioplasty and axillary restoration.

## Technique

Make preoperative markings with the patient in a standing position with the arm raised and abducted. This will facilitate vision of anterior and posterior views of the web hanging off the posterior axillary fold. Plan and mark 2 sinusoidal incisions on each arm based on a reference line that extends from a point overlying the cubital tunnel to the end of the deformity either at the end of the axilla or onto the chest wall (Figures 1-4). Plan these incisions so that the resultant flaps interdigitate and achieve a final scar that lies midway between the bicipital groove and the posterior aspect of the arm. The scar, located in this position, cannot be seen by the patient with the arms placed down. The sinusoidal incisions converge at both their proximal and distal ends. Plan a Z-plasty in the region of the axilla to recreate the dome of

the axilla. Design the limbs of the Z so that in the final closure the transverse limb lies in the dome of the axilla, filling this concave space.

Place the patient under anesthesia and administer antibiotic prophylaxis against gram-positive organisms. Place intravenous lines and venous compression devices on the lower extremities. Prep and drape the arms and chest and place the patient's hands into sterile stockinettes just distal to the elbow. Confirm the position of the markings with the arms abducted and flexed at the elbow. Execute the skin incisions in a distal-to-proximal direction. Elevate the skin and soft tissue superficial to the underlying muscle fascia using face lift scissors as you would use them to elevate subcutaneous flaps for a face lift. Perform careful hemostasis using electrocautery, making sure to preserve all cutaneous nerves. No lateral undermining is required because the existing laxity allows for closure without tension. Incise and transpose Z-plasty limbs and close the incisions over a suction drain. You can use a layer of interrupted simple 3-0 nylon sutures to approximate the skin edges, followed by a running 4-0 nylon final skin closure. Wrap the wounds with Kling gauze (Johnson & Johnson, New Brunswick, NJ) and an outer Ace wrap (Becton-Dickinson, Franklin Lakes, NJ). Cover both arms with a stretch gauze bandage across the back. Remove the Jackson Pratt drains once the drainage has decreased to <30 mL over a 24-hour period.

## Discussion

We believe that this brachioplasty technique is ideal for patients who have lost a significant amount of weight. It avoids many of the recognized pitfalls of other arm-rejuvenation techniques. By creating a final scar that is



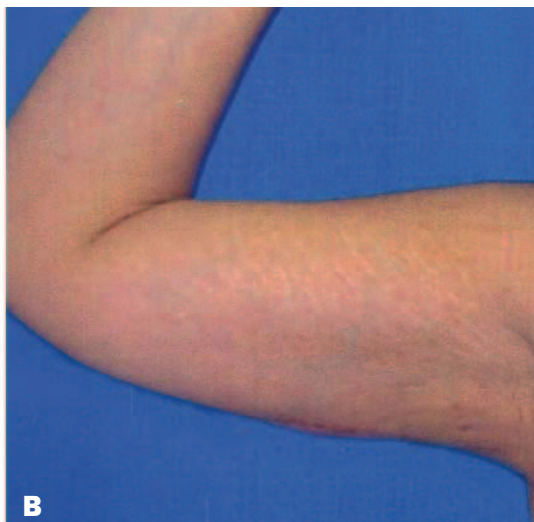
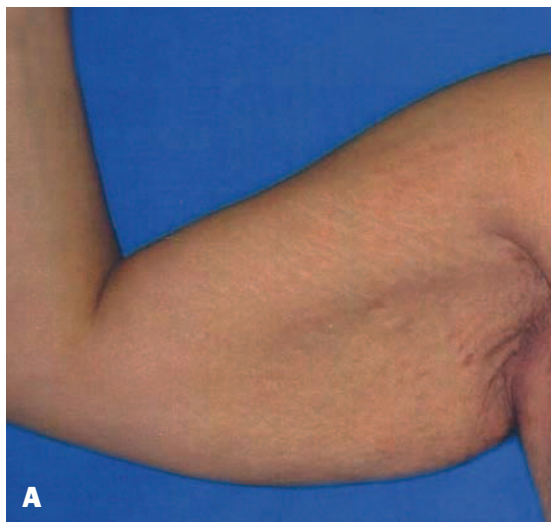
**Berish Strauch, MD, Bronx, NY**, is a board-certified plastic surgeon and an ASAPS member. **Co-authors: Diana Linetskaya, MD, Thomas Baum, PAC, and David Greenspun, MD, Bronx, NY.**



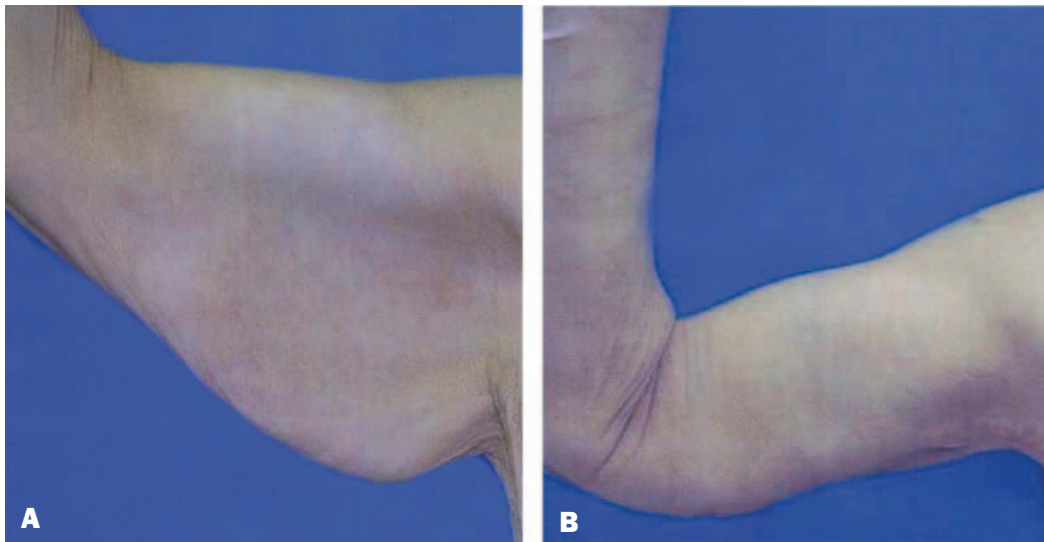
**Figure 1.** Demonstrates interdigitating sinusoidal incisions along a line that extends from the cubital tunnel to the proximal origin of the deformity. A Z-plasty is planned to restore the natural contour of the axillary dome.



**Figure 2.** The Z-plasty flaps have been transposed and the incisions closed. The final transverse portion of the Z-plasty scar falls into the apex of the axilla. The balance of the scar is sinusoidal in shape and lies along the posterior medial aspect of the arm. The incision cannot be seen by the patient looking into a mirror with her arms down.



**Figure 3. A,** Preoperative view of a 49-year-old woman. **B,** Postoperative view 2 years after undergoing brachioplasty and axillary restoration.



**Figure 4.** **A**, Preoperative view of a 36-year-old woman. **B**, Postoperative view 18 months after undergoing brachioplasty and axial restoration.

sinusoidal in shape, active flexion and extension are less likely to produce a linear scar contracture. The added length of a sinusoid reduces tension on the wound and avoids widened and hypertrophic scars. By performing a Z-plasty, a naturally-shaped axillary dome is formed. Finally, by designing the incisions as described, the resultant scar lies more posterior and out of the patient's view when looking in the mirror. Patient acceptance of, and satisfaction with, this procedure has been gratifying. ■

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Reprint requests: Berish Strauch, MD, 1625 Poplar Street, Suite 200, Bronx, NY 10461.

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