term therapy may be required to eradicate disease.[4]
DOI: 10.1097/PRS.0b013e318213a27b

Andre Panossian, M.D.
Keck School of Medicine
University of Southern California

Myles J. Cohen, M.D.

Irving Posalski, M.D.
Cedars-Sinai Medical Center
Los Angeles, Calif.

Correspondence to Dr. Panossian
Division of Plastic Surgery
Children's Hospital Los Angeles
4650 Sunset Boulevard, MS Suite 96
Los Angeles, Calif. 90027
drpanossian@gmail.com

REFERENCES

1. Mateo L, Rufi G, Nolla JM, Alcaide F. *Mycobacterium chelonae* tenosynovitis of the hand. *Semin Arthritis Rheum.* 2004;34:617–622.
2. Kozin SH, Bishop AT. Atypical *Mycobacterium* infections of the upper extremity. *J Hand Surg Am.* 1994;19:480–487.
3. Wallace RJ Jr, Brown BA, Onyi GO. Skin, soft tissue, and bone infections due to *Mycobacterium chelonae chelonae*: Importance of prior corticosteroid therapy, frequency of disseminated infections, and resistance to oral antimicrobials other than clarithromycin. *J Infect Dis.* 1992;166:405–412.
4. Franck N, Cabié A, Villette B, Amor B, Lessana-Leibowitch M, Escande JP. Treatment of *Mycobacterium chelonae*-induced skin infection with clarithromycin. *J Am Acad Dermatol.* 1993;28:1019–1021.

Our Trick to Control the Depth of Injection of the Botulinum Toxin in the Treatment of Hyperhidrosis

Sir:

The efficiency of the treatment of hyperhidrosis with botulinum toxin has previously been demonstrated.[1] The main technical inconvenience reported consists of difficulty injecting the product at an even depth and avoiding diffusion into the dermis, which in the case of palmar hyperhidrosis may lead to diffusion toward the muscles of the hands. The most frequent complication in palmar hyperhidrosis is loss of muscle strength, which has been reported in 6 to 77 percent of patients.[1]

Zaiac et al. described the use of special ADG needles with adjustable tops to control the depth of penetration.[2] Unfortunately, these needles are not available in all countries, and they add an extra cost to the procedure. De Almeida et al. reported the addition of a plastic top obtained by modifying the protective cap included in the needle, leaving only 2.5 mm of the needle tip exposed.[3] The main inconvenience with these modifications is that direct vision of the needle tip is lost, which results in a "blind" injection procedure.

In treating the palm of the hand, it has also been suggested that physicians inject obliquely into the skin, but this technique is more painful and produces more bleeding by coursing through more capillaries and nerve structures. We propose a new technique to modify the shape of the needle, transforming it into a 90-degree-angled needle and allowing the injector to stop the needle insertion when it is introduced vertically into firm palmar skin. This prevents the liquid from penetrating into the deeper dermis, which may result in muscle weakness (Figs. 1 and 2).

In the axilla, this technique allows for parallel introduction of the needle. It even allows the injector to use the needle as a hook to raise the skin to make sure that the injection is superficial, thereby minimizing the subsequent loss of effect of the product.

To modify the needle, sterile clamps and sterile surgical gloves are used. The depth at which the injection is intended is calculated (approximately 2.5 to 3 mm for the palm of the hand and 5 mm for the armpit), and the caudal end of the needle is bent without reducing the caliber or damaging the cutting edge.

In our experience, this technique has simplified the work significantly, resulting in reduced pain when the

Fig. 1. The needle is bent with a sterile clamp. The finished appearance of the modified needle is shown on the *right*.

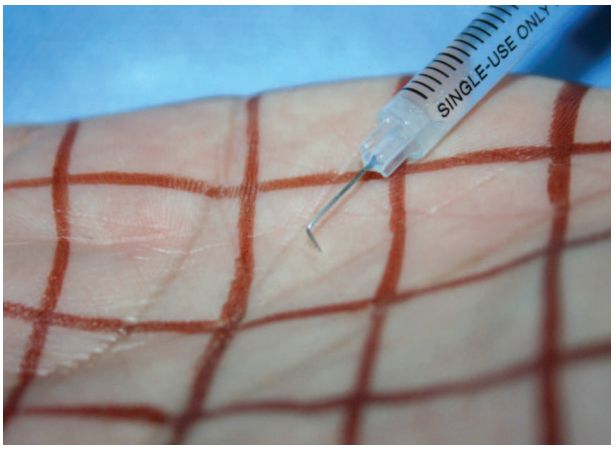

Fig. 2. The modified needed can be used on the palm, entering at a 90-degree angle to the skin's surface. In the axilla, it enters parallel to the skin and raises it.

needle is inserted into deeper areas by mistake, fewer complications, and significantly better outcomes, which result in better patient satisfaction.
DOI: 10.1097/PRS.0b013e318213a292

Guillermo Blugerman, M.D.
Diego Schavelzon, M.D.
Honorio Labaronnie, M.D.
Andrea Markowsky, M.D.
Jorge D'Angelo, M.D.
B & S Clinic
Buenos Aires, Argentina

Correspondence to Dr. Blugerman
B & S Clinic
Buenos Aires, Argentina
blugerman@clinicabys.com

REFERENCES

1. Glaser DA, Hebert AA, Pariser DM, Solish N. Palmar and plantar hyperhidrosis: Best practice recommendations and special considerations. *Cutis* 2007;79:18–28.
2. Zaiac M, Weiss E, Elgart G. Botulinum toxin therapy for palmar hyperhidrosis with ADG needle. *Dermatol Surg.* 2000;26: 230.
3. de Almeida AR, Kadunc BV, de Oliveira EM. Improving botulinum toxin therapy for palmar hyperhidrosis: Wrist block and technical considerations. *Dermatol Surg.* 2001;27:34–36.

Free Flap Skin Temperature Correlates to Microcirculatory Free Flap Capillary Blood Flow

Sir:

In case of free flap failure, time is of utmost importance, as salvage rates have been reported to be inversely related to the time interval between the onset of ischemia and its clinical recognition.[1] The more rapid the assessment and decision-making, the more likely the failed free flap will be salvaged. Besides clinical inspection and capillary refill testing, various technical methods have been suggested to be useful.[2] However, to date, the majority have certain limitations as far as practicability, availability, and financial issues are concerned.

Inspired by the technical tip of Robert Allen published in *Plastic and Reconstructive Surgery* using temperature strips to determine free flap skin temperature, we thought to underscore the clinical observation that a skin temperature difference of more than 1°C is supportive for flap malperfusion.[3]

As such, we used laser Doppler imaging to determine microcirculation of free flaps to determine its correlation with flap temperature. A total of 54 free flaps were monitored using a regular digital infrared surface thermometer (Medisana FTD, Germany) simultaneous with microcirculatory assessment using combined laser Doppler and photospectrometry (Oxygen to See; Lea Medizintechnik, Giessen, Germany).

We found a positive correlation between free flap temperature and free flap capillary blood flow (Pearson correlation, $r = 0.44$, $p < 0.001$) in 54 free flaps (Fig. 1). A 1°F less free flap temperature decreased the mean microcirculatory capillary blood flow by 20.8 relative units.

One free flap showed a temperature drop to 78.8°F caused by postoperative combined arterial and venous malperfusion. After consecutive revision, the flap temperature was 97.1°F at regular microcirculatory blood flow. We therefore postulate an acute temperature drop of 3°F at the center of the skin island as indicative of arterial thrombosis, whereas a 1° to 2°F uniform drop of the flap is indicative of venous compromise.

Despite meeting ideal monitoring criteria, surface temperature monitoring is still regarded to be of value only in monitoring replantation and small free flap reconstruction by some authors.[2] A recent study proved laser Doppler flowmetry to be a useful investigative tool with which to monitor microcirculatory

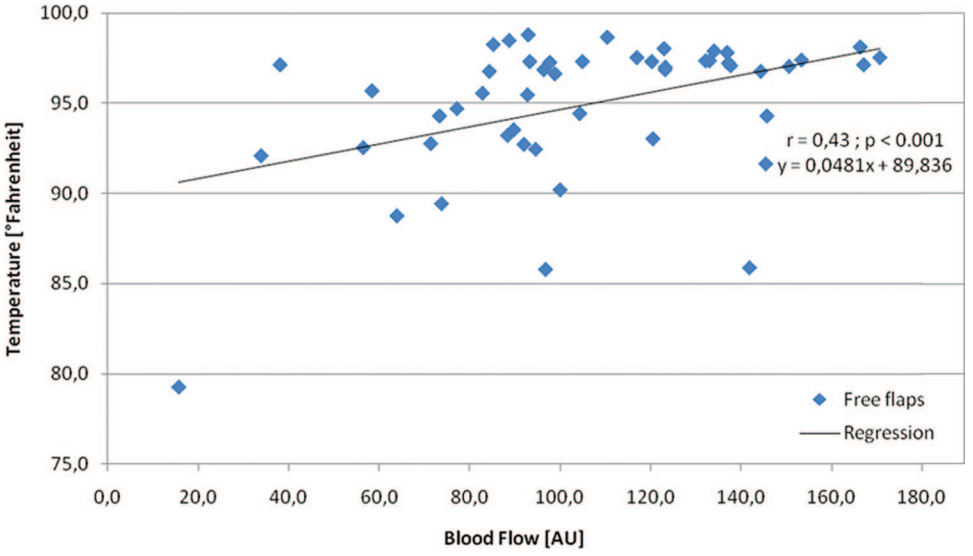

Fig. 1. Blood flow temperature correlation.