









proximity. The injection should be placed lateral to the tendon and artery (Figure 3B). The needle should be inserted until bone is reached, withdrawn slightly, and then 3 to 5 mL of anesthetic should be injected. To block the saphenous nerve, the needle can then be directed superficially toward the medial malleolus, and 3 to 5 mL should be injected in a subcutaneous wheal (Figure 3C). To block the superficial peroneal nerve, the needle should then be directed toward the lateral malleolus, and 3 to 5 mL should be injected in a subcutaneous wheal (Figure 3C).

The posterior tibial nerve is located posterior to the medial malleolus. The dorsalis pedis artery can be palpated near this location. The needle should be inserted posterior to the artery, extending until bone is reached (Figure 3C). The needle is then withdrawn slightly, and 3 to 5 mL of anesthetic is injected. Finally, the sural nerve is anesthetized between the Achilles tendon and the lateral malleolus, using 5 mL of anesthetic to raise a subcutaneous wheal (Figure 3C).

## Conclusion

Proper pain management is integral to ensuring a positive experience for cosmetic patients. Enhanced knowledge of local anesthetic techniques allows the clinician to provide for a variety of procedural indications and patient preferences. As anesthetic strategies are continually evolving, it is important for practitioners to remain informed of these developments.

## REFERENCES

- Scholz A. Mechanisms of (local) anaesthetics on voltage-gated sodium and other ion channels. *Br J Anaesth.* 2002;89:52-61.
- Auletta MJ. Local anesthesia for dermatologic surgery. *Semin Dermatol.* 1994;13:35-42.
- Park KK, Sharon VR. A review of local anesthetics: minimizing risk and side effects in cutaneous surgery. *Dermatol Surg.* 2017;43:173-187.
- Reiz S, Nath S. Cardiotoxicity of local anaesthetic agents. *Br J Anaesth.* 1986;58:736-746.
- Klein JA, Kassardjian N. Lidocaine toxicity with tumescent liposuction. a case report of probable drug interactions. *Dermatol Surg.* 1997;23:1169-1174.
- Minkis K, Whittington A, Alam M. Dermatologic surgery emergencies: complications caused by systemic reactions, high-energy systems, and trauma. *J Am Acad Dermatol.* 2016;75:265-284.
- Morais-Almeida M, Gaspar A, Marinho S, et al. Allergy to local anesthetics of the amide group with tolerance to procaine. *Allergy.* 2003;58:827-828.
- To D, Kossintseva I, de Gannes G. Lidocaine contact allergy is becoming more prevalent. *Dermatol Surg.* 2014;40:1367-1372.
- Wahlgren CF, Quiding H. Depth of cutaneous analgesia after application of a eutectic mixture of the local anesthetics lidocaine and prilocaine (EMLA cream). *J Am Acad Dermatol.* 2000;42:584-588.
- Bjerring P, Andersen PH, Arendt-Nielsen L. Vascular response of human skin after analgesia with EMLA cream. *Br J Anaesth.* 1989;63:655-660.
- Ismail F, Goldsmith PC. EMLA cream-induced allergic contact dermatitis in a child with thalassaemia major. *Contact Dermatitis.* 2005;52:111.
- Thakur BK, Murali MR. EMLA cream-induced allergic contact dermatitis: a role for prilocaine as an immunogen. *J Allergy Clin Immunol.* 1995;95:776-778.
- Waton J, Boulanger A, Trechot PH, et al. Contact urticaria from EMLA cream. *Contact Dermatitis.* 2004;51:284-287.
- Bucalo BD, Mirikitani EJ, Moy RL. Comparison of skin anesthetic effect of liposomal lidocaine, nonliposomal lidocaine, and EMLA using 30-minute application time. *Dermatol Surg.* 1998;24:537-541.
- Guardiano RA, Norwood CW. Direct comparison of EMLA versus lidocaine for pain control in Nd:YAG 1,064 nm laser hair removal. *Dermatol Surg.* 2005;31:396-398.
- Nestor MS. Safety of occluded 4% liposomal lidocaine cream. *J Drugs Dermatol.* 2006;5:618-620.
- Oni G, Rasko Y, Kenkel J. Topical lidocaine enhanced by laser pretreatment: a safe and effective method of analgesia for facial rejuvenation. *Aesthet Surg J.* 2013;33:854-861.
- Niamtu J 3rd. Simple technique for lip and nasolabial fold anesthesia for injectable fillers. *Dermatol Surg.* 2005;31:1330-1332.
- Naumann M, Flachenecker P, Brocker EB, et al. Botulinum toxin for palmar hyperhidrosis. *Lancet.* 1997;349:252.
- Naumann M, Hofmann U, Bergmann I, et al. Focal hyperhidrosis: effective treatment with intracutaneous botulinum toxin. *Arch Dermatol.* 1998;134:301-304.
- Shelley WB, Talanin NY, Shelley ED. Botulinum toxin therapy for palmar hyperhidrosis. *J Am Acad Dermatol.* 1998;38(2, pt 1):227-229.
- Davies T, Karanovic S, Shergill B. Essential regional nerve blocks for the dermatologist: part 2. *Clin Exp Dermatol.* 2014;39:861-867.