Soft-Tissue Injuries of the Fingertip: Methods of Evaluation and Treatment. An Algorithmic Approach

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Learning Objectives: After studying this article, the participant should be able to: 1. Understand the anatomy of the fingertip. 2. Describe the methods of evaluating fingertip injuries. 3. Discuss reconstructive options for various tip injuries.

Summary: The fingertip is the most commonly injured part of the hand, and therefore fingertip injuries are among the most frequent injuries that plastic surgeons are asked to treat. Although microsurgical techniques have enabled replantation of even very distal tip amputations, it is relatively uncommon that a distal tip injury will be appropriate for replantation. In the event that replantation is not pursued, options for distal tip soft-tissue reconstruction must be considered. This review presents a straightforward method for evaluating fingertip injuries and provides an algorithm for fingertip reconstruction. (*Plast. Reconstr. Surg.* 122: 105e, 2008.)

Fingertip injuries are among the most common traumatic injuries that present for acute care.[1,2] The fingertip is a specialized structure that permits fine motor activity and precise sensation and contributes to hand aesthetics. The techniques for reconstruction of digital tip soft-tissue loss are numerous, and careful consideration must be used to determine the proper method of repair for each patient. Thorough knowledge of anatomy and a logical algorithm allow for a patient-specific and injury-specific treatment. This review presents guidelines and treatment algorithms for various fingertip injuries with the goal of providing the surgeon with a logical process for addressing these common injuries.

ANATOMY

A fundamental understanding of fingertip anatomy is paramount to the evaluation and treatment of a particular injury (Fig. 1). The fingertip is defined as the portion of the digit distal to the insertion of the flexor and extensor tendons on the distal phalanx.[3] The perionychium composes the dorsum of the fingertip and plays a critical role in fingertip protection, pad sensation,[4] and fingertip aesthetics. The nail plate and nail bed are adherent to each other and to the underlying periosteum of the distal phalanx. The hyponychium lies beneath the distal nail margin at the junction of the nail bed and the fingertip skin. The relationship among the distal phalanx, the perionychium, and the hyponychium is delicate, and attention to this interplay during reconstruction is important to prevent postinjury nail deformities.[5,6]

The epidermis of the fingertip is thick, with deep papillary ridges that constitute unique fingerprints. The underlying pulp consists of vascular fibrofatty tissue that is stabilized by fibrous septa extending from the dermis to the periosteum of the distal phalanx. The volar pulp contributes over half (56 percent) of the fingertip volume and plays a fundamental role in grip, proprioception, and sensation.[7] It is this soft-tissue requirement that must be considered in reconstruction.

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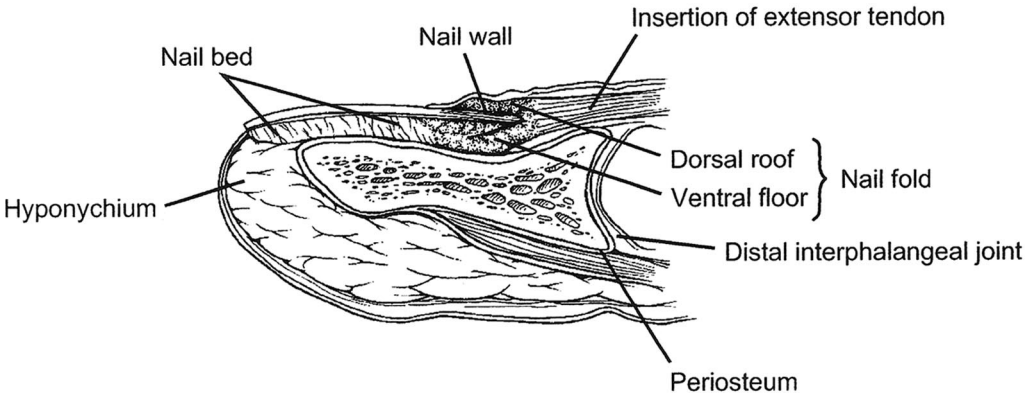

Fig. 1. Fingertip anatomy. (Reprinted with permission from Fassler, P. R. Fingertip injuries: Evaluation and treatment. *J. Am. Acad. Orthop. Surg.* 4: 84, 1996.)

EVALUATION

Evaluation begins with a focused history and physical examination. Important considerations include the patient's age, sex, occupation, hand dominance, and mechanism of injury. Children are treated differently than adults, and women are often treated differently than men. A digital injury in a manual laborer must be managed differently than in a musician, and the time frame required for return to work may affect the method of treatment. In general, dominant hand digital injuries are treated more aggressively. The presence of comorbid illnesses, such as a history of diabetes, Raynaud's phenomenon, or tobacco use, may limit the reconstructive options that rely on random flaps. A patient troubled with Dupuytren contracture or arthritis may be unable to sustain the position needed for reconstruction with regional flaps and would be at increased risk for postoperative joint contractures.

A thorough hand examination is required, including a complete evaluation of neurovascular status and both tendon systems. Digit-specific radiographs should be obtained, which will demonstrate associated phalangeal fractures and some foreign bodies.

The evaluation of the injury itself must be systematic, including details on the size of the defect, the presence of exposed bone, and the geometry of the injury. The composition of the amputated or devitalized tissue should be classified into skin, pulp, bone, and nail bed. The geometry of the injury is crucial to the determination of the potential reconstructive options. Standard terminology should be used to help facilitate documentation and communication (Fig. 2).

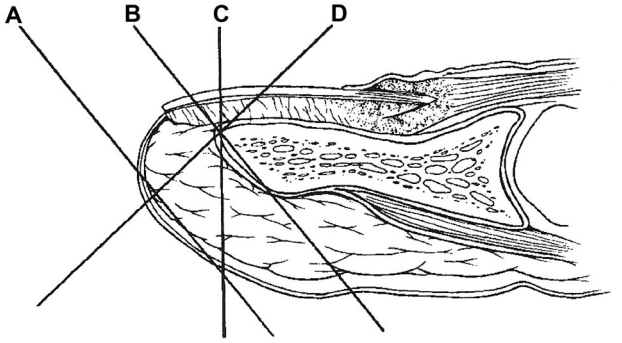

Fig. 2. Injury geometry. *Line A*, Volar oblique without exposed bone; *line B*, volar oblique with exposed bone; *line C*, transverse with exposed bone; *line D*, dorsal oblique with exposed bone. (Reprinted with permission from Fassler, P. R. Fingertip injuries: Evaluation and treatment. *J. Am. Acad. Orthop. Surg.* 4: 84, 1996.)

TREATMENT

After assessment of the injury, the method of treatment is considered. The basic tenets of fingertip reconstruction include the following:

- Providing durable coverage.
- Preserving sensation and length.
- Minimizing discomfort.
- Expediting return to work and leisure.

The treatment should produce the best functional and cosmetic result for the given patient. The following treatment algorithms (Figs. 3 and 4) are based on the aforementioned criteria. They are meant to serve as guidelines and should be tailored to the individual patient.

Soft-Tissue Loss without Exposed Bone

For small distal tip defects (<1.5 cm^2) without exposed bone, wound healing by secondary in-

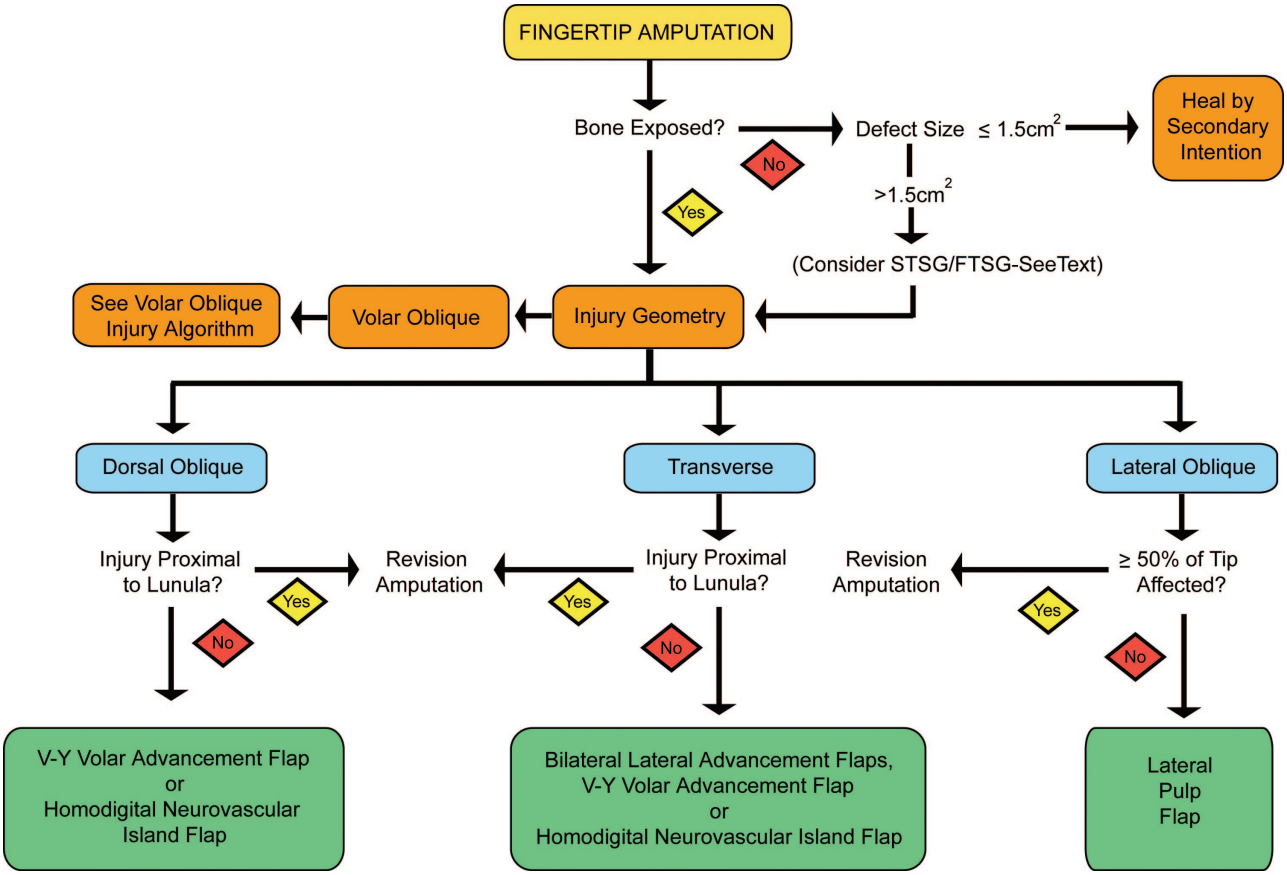

Fig. 3. An algorithm for fingertip amputation management.

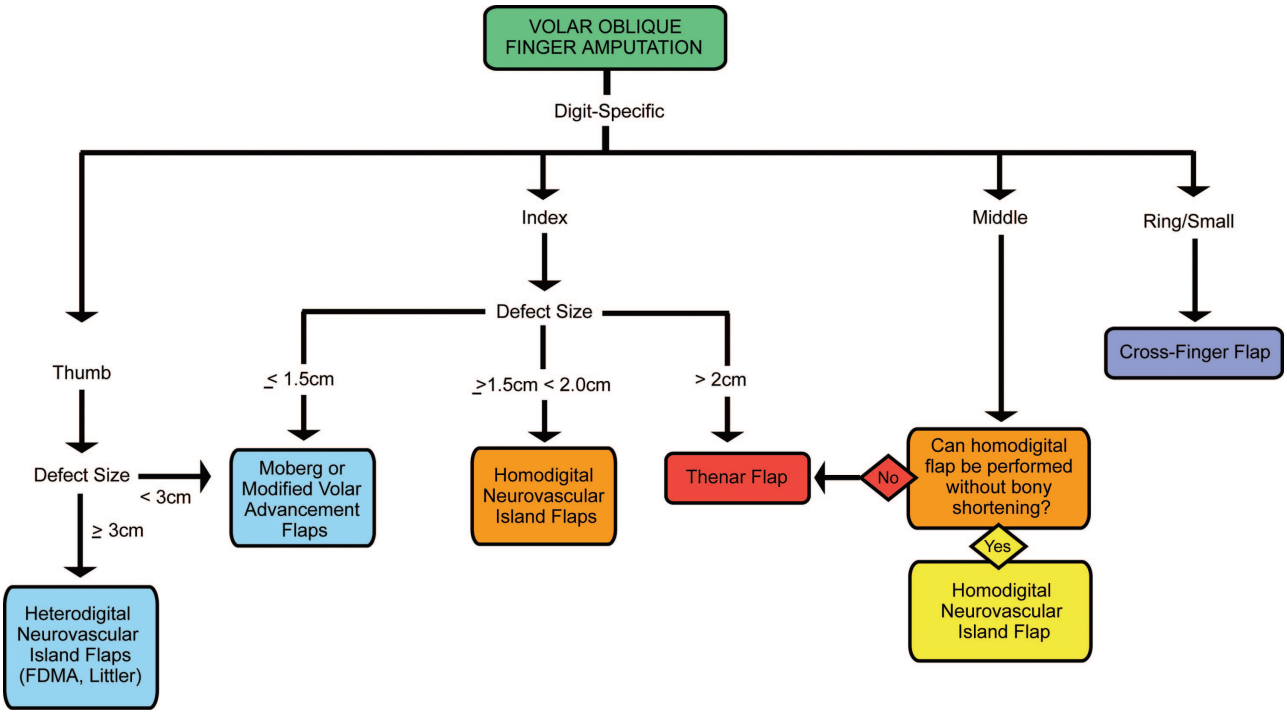

Fig. 4. An algorithm for management of volar oblique fingertip injuries.

tention can produce excellent results.[8–12,15] Mennen and Wise reported a series of 200 fingertip injuries treated by this method with good results in terms of residual bulk, recovery of premorbid functional status, and sensation.[8] In another series, 90 percent of the patients were satisfied with the digit's final appearance.[15]

A variety of different dressings have been suggested, including silver sulfadiazine,[12] semiocclusive dressings[13] [e.g., OpSite (Smith & Nephew); Tegaderm (3M, St. Paul, Minn.)], occlusive[14–16] dressings [e.g., Hyphecan cap (Van Ming)], or simple nonadherent sterile dressings [e.g., Xeroform (Sherwood Medical, St. Louis, Mo.), Adaptic (Johnson & Johnson Medical, New Brunswick, N.J.)]. Dressing changes are performed at varying frequencies depending on the chosen method.

There are several disadvantages to conservative treatment, however. First, there is a prolonged time to complete wound healing, with an average of 3 to 4 weeks.[8] Many patients will have difficulty returning to work until complete soft-tissue coverage has been obtained. In addition, this method of reconstruction is predicated on patient motivation and compliance. Finally, aesthetic results are often inferior to other methods of reconstruction.

Skin grafting is an alternative option. Split-thickness and full-thickness glabrous skin grafts can be harvested from the hypothenar eminence. Split-thickness grafts have a higher degree of secondary contracture and may therefore be desirable for larger wounds.[17] Unfortunately, the use of skin grafts for fingertip reconstruction does not provide consistently good outcomes. Authors have shown an increased presence of cold intolerance and postoperative tenderness when skin grafts were used over other methods of reconstruction.[18,19]Furthermore, the procedures did not expedite return to work.[20] For these reasons, skin grafts should be used only when the wound is too large for healing by secondary intention and other options for reconstruction are not feasible or are contraindicated.

Soft-Tissue Loss with Exposed Bone

More complicated techniques are required when treating fingertip injuries with exposed bone, as a decision must be made as to whether to perform bony shortening, fingertip reconstruction, or revision amputation. This decision should be made *along with the patient* by an experienced surgeon in a patient-specific and digit-specific fashion.

Bone Shortening

Bone shortening can make the management of fingertip injuries simpler, especially in injuries with only 1 or 2 mm of bony exposure. It can permit healing by secondary intention or even primary closure, but the surgeon must recognize the limitations of this method. When the distal phalanx is debrided, the support for the nail bed is lost. As wound contraction occurs, the nail bed can be pulled inferiorly and result in a hook-nail deformity. This can be prevented by excising the nail bed 2 mm proximal to the shortened bone,[5] ensuring bony support of the nail bed throughout its length. Care should also be taken to avoid shortening the distal phalanx to a point proximal to the insertion of either the flexor or extensor tendons. Shortening of this degree would sacrifice not only length but also distal interphalangeal joint function. Furthermore, the remaining bone fragment frequently is a source of chronic pain,[21] which may require disarticulation of the distal interphalangeal joint and revision amputation.

More frequently, the amount of exposed distal phalanx is too great to permit primary closure or healing by secondary intention. In these situations, it is best to consider reconstructive options in a systematic fashion on the basis of the injury geometry and heed the principles proposed by Beasley[22]: (1) the importance of good sensibility and tolerance of normal usage, (2) minimization of donor-site morbidity, and (3) the use of a practical and reliable method with predictable results.

Treatment by Wound Geometry

Dorsal Oblique Injury

In injuries with a dorsal oblique geometry, there is a relative preservation of the volar skin and pulp (Fig. 2, *line D*). This allows reconstruction by advancing glabrous skin and pulp to preserve length and provide excellent postoperative contour and sensibility. The volar V-Y advancement flap described by Tranquilli-Leali[23] in 1935 and Atasoy et al. in 1970[24] continues to be the procedure of choice for these injuries (Fig. 5). The wound is debrided of devitalized tissue and minimal bone shortening is performed if necessary. The flap is then designed with the wound edge as the base of the triangular flap. It does not need to be the full width of the wound, as some soft tissue will usually advance distally from the wound margins. A full-thickness flap of skin and digital pulp are then elevated under loupe magnification, with care taken to avoid injury to the neurovascular bundles. Originally, the flap was designed so that

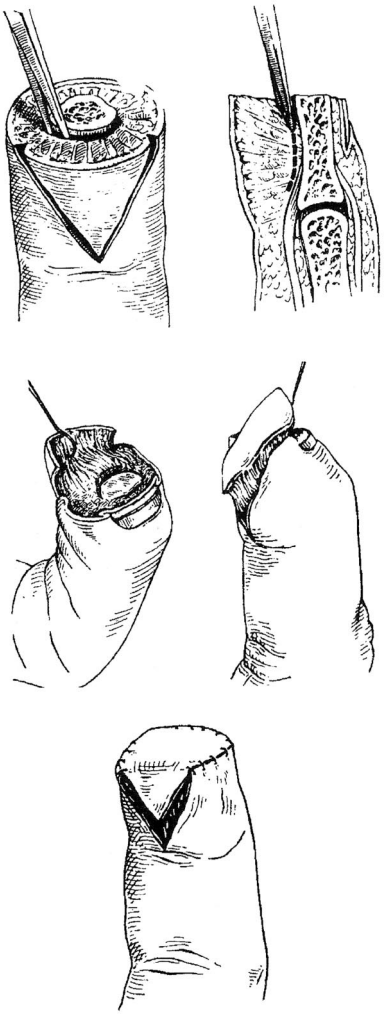

Fig. 5. V-Y advancement flap. (Adapted and reprinted with permission from Chao, J. D., Huang, J. M., and Wiedrich, T. A. Local hand flaps. *J. Am. Soc. Surg. Hand* 1: 28, 2002.)

the apex did not extend proximal to the distal interphalangeal joint flexion crease, to avoid potential flexion contracture. Recent modifications that incorporate more proximal extension allow for its use in more proximal tip injuries.[25] The fibrous septa that anchor the pulp tissue are sharply released from the distal phalanx and the flap is mobilized distally. The flap is secured to the distal nail bed and the volar surface is closed in a "Y" pattern. The distal edge can reliably be advanced 1 cm, and postoperative nail deformities are rare, provided the flap is inset in a tension-free manner. Atasoy et al. reported near-normal motion and sensibility in 56 of 61 patients. Others published less favorable results in smaller series.[26–28] Elliot et al.[25] reported the outcome of 101 patients with original and extended triangular volar flaps. The long-term sensibility and motion are good, and the incidence of pain (14 percent) and cold intolerance (13 percent) are comparable to those for other methods of fingertip repair.

The extent of perionychial injury is a significant consideration when treating dorsal oblique injuries. Some authors suggest that if less than half of the original length remains, the nail bed should be ablated.[47] Others state that the nail bed should be ablated if less than 5 mm remains.[3] In our experience, if the injury is proximal to the lunula, the nail should be ablated and revision amputation performed.

Nail-lengthening procedures have been described for injuries that sacrifice all but the most proximal sterile matrix. With these techniques, the nail can reliably be *relatively* lengthened 2 to 3 mm (Fig. 6).[52]

Transverse Injury

In these injury patterns, the amount of dorsal loss is similar to the amount of volar loss (Fig. 2, *line C*), which often makes reconstruction more difficult. The volar V-Y advancement flap often works well for relatively distal transverse injuries, but a greater degree of bone shortening is usually necessary when the injury is through the proximal sterile matrix, making this a less desirable option. Instead, other homodigital flaps can be used.[37,51] Kutler described the use of bilateral lateral advancement flaps in 1947.[53] The limitations to this technique, such as limited advancement and the creation of a volar tip scar, lead to its use only in rare instances. Unilateral modifications of this technique have proven more useful, such as the oblique triangular flap[38,39] (Fig. 7), the Hueston flap[54] (Fig. 8), and the step-advancement island flap.[55]

Lateral Oblique Injury

Occasionally, a lateral oblique geometry will be encountered where the fingertip is injured in the sagittal plane with radial or ulnar tissue loss (Fig. 9). Although homodigital flaps mentioned previously often work well for these injuries, the lateral pulp flap is particularly useful.[56] With this method, the remaining volar pulp is advanced laterally to cover exposed bone (Fig. 10). The defect then reepithelializes with moist wound care. When greater than half the distal phalanx is amputated in this plane, revision amputation will provide the best functional and aesthetic result.

Volar Oblique Injury

Unlike dorsal oblique injuries where volar V-Y advancement flaps can be reliably used, volar oblique injuries are more difficult to manage (Fig. 2, *line B*). In this situation, the precious volar skin and pulp are deficient. Homodigital, heterodigital, and regional flaps have all been

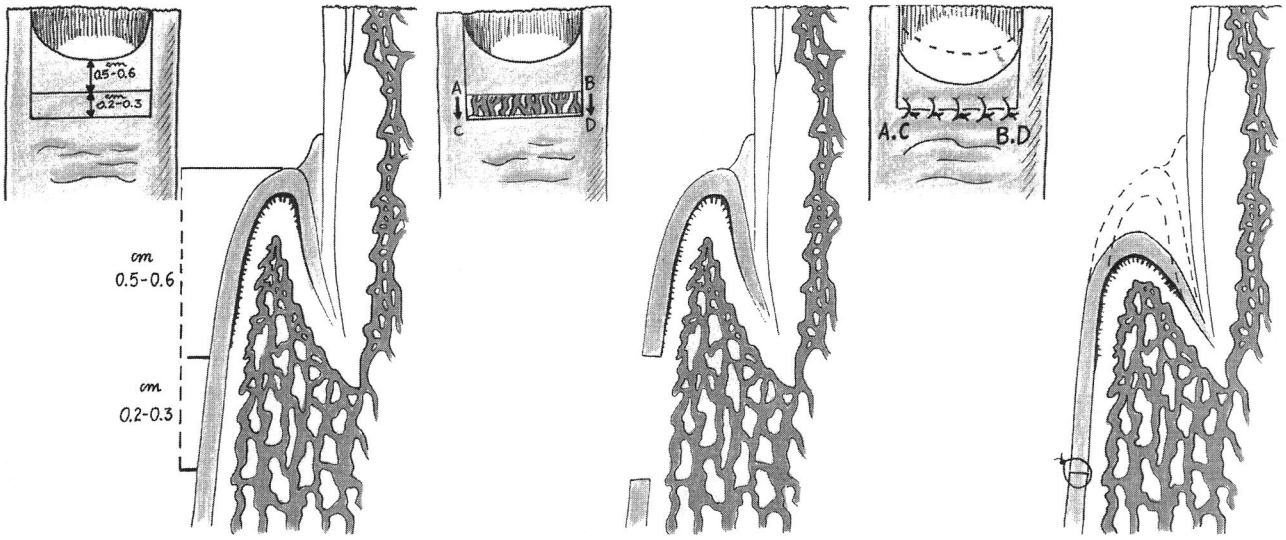

Fig. 6. Nail-lengthening procedure. A thin strip of dorsal skin is deepithelialized and the dorsal roof of the nail fold is advanced proximally, exposing more of the nail plate. (Reprinted with permission from Adani, R., Marcoccio, I., and Tarallo, L. Nail lengthening and fingertip amputations. *Plast. Reconstr. Surg.* 112: 1287, 2003.)

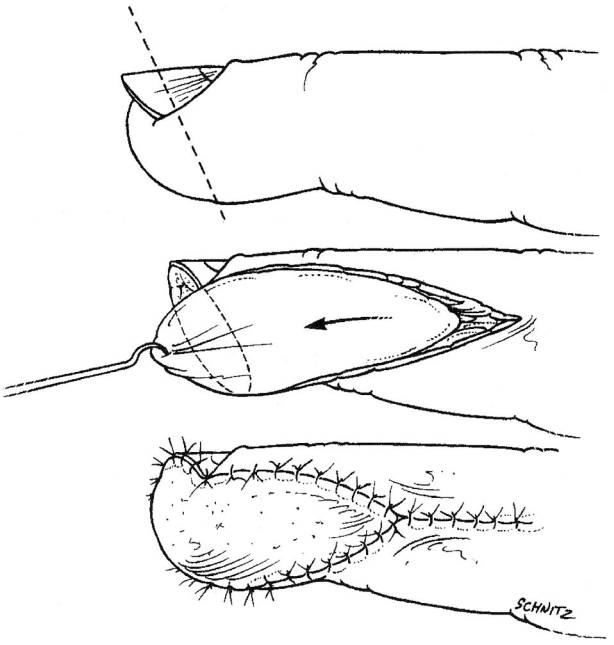

Fig. 7. Oblique triangular neurovascular island flap. (Reprinted with permission from Chao, J. D., Huang, J. M., and Wiedrich, T. A. Local hand flaps. *J. Am. Soc. Surg. Hand* 1: 28, 2002.)

described, and the surgeon must choose the option that is most appropriate for the patient and that provides the most predictable results in his or her hands. Furthermore, the best treatment of volar oblique injuries is often digit-specific (Fig. 4). Each digit should be considered individually to preserve or reconstruct its most valuable characteristics.

Treatment by Involved Digit (for Volar Oblique Geometry)

Thumb

The use of a volar advancement flap was first described by Moberg[26] and remains an excellent first-line option for thumb tip reconstruction with a volar oblique injury pattern (Fig. 11). Rohrich and Antrobus[27] provide a review and list the advantages of this technique:

- Immediate restoration of normal sensation.
- Preservation of length.
- Low donor-site morbidity.
- Single-stage procedure.
- Restoration of pulp contour and character.
- No requirement of cortical relearning.

Radial and ulnar mid-axial incisions are made dorsal to the neurovascular bundles. Flap elevation proceeds just volar to the flexor tendon sheath and is carried to the proximal metacarpal phalangeal crease. This axial flap is then advanced distally and sutured to the distal extent of the injury or nail bed as described previously. Limitations include the fact that the flap can be advanced only 1 to 1.5 cm and requires flexion of the interphalangeal joint, thus increasing the risk of postoperative stiffness.

Several modifications have been described in an attempt to increase the amount of advancement. A transverse incision can be made across the base of the flap, allowing an extra 0.5 cm of advancement. The resulting defect is repaired with a skin graft[28] or closed in a V-Y pattern.[29] For

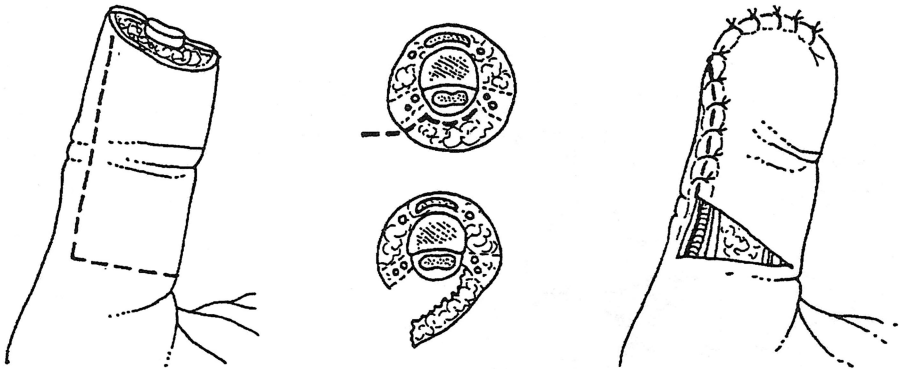

Fig. 8. The Hueston flap. (Reprinted with permission from Chao, J. D., Huang, J. M., and Wiedrich, T. A. Local hand flaps. *J. Am. Soc. Surg. Hand* 1: 28, 2002.)

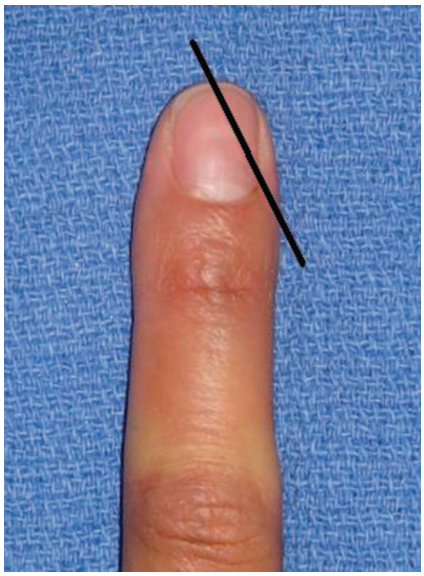

Fig. 9. Lateral oblique injury geometry.

additional advancement, flap elevation can extend proximally onto the thenar eminence, allowing coverage of wounds 3 cm in size.[30] Reported outcomes demonstrate near-normal sensibility (within 2 mm static two-point discrimination when compared with the contralateral side)[27] and rates of postoperative pain and cold intolerance comparable to other procedures. Interphalangeal flexion contracture is a rare complication. In fact, in digits that are normal preoperatively, all have been shown to have full range of motion or less than 5 degrees of extension loss.[31]

Unlike the thumb, which has a dedicated dorsal vascular supply (the princeps pollicis artery), the dorsal skin of the other digits relies on perforating vessels off the proper digital arteries. If these vessels are compromised, dorsal skin necrosis can occur. For this reason, volar advancement flaps are rarely recommended in digits other than the thumb.

When larger areas of the volar thumb require reconstruction, pedicled neurovascular island flaps from the middle or ring finger[32] or the dorsum of the index finger proximal phalanx[33] can be used. The pedicled Littler neurovascular island flap involves creating a flap on the ulnar surface of the middle finger (or radial surface of the ring finger) pedicled on the ulnar digital neurovascular bundle. The pedicle is dissected back to its

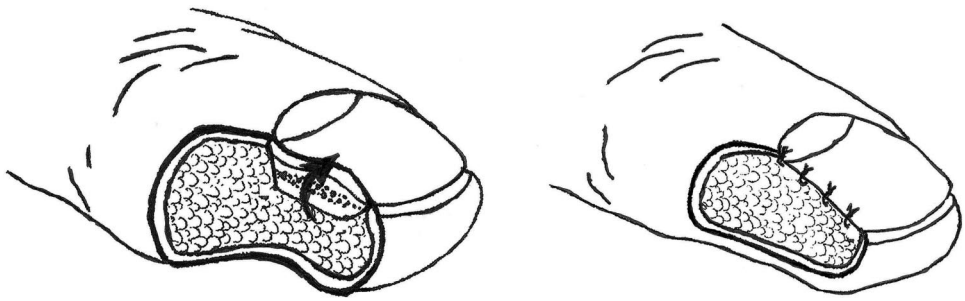

Fig. 10. (*Left*) Lateral oblique fingertip injury with exposed distal phalanx. (*Right*) Lateral pulp flap performed with lateral advancement of remaining pulp to cover exposed bone. [From Elliot, D., and Jigjinni, V. A. The lateral pulp flap. *J. Hand Surg. (Br.)* 18: 423, 1993. Reprinted with permission.]

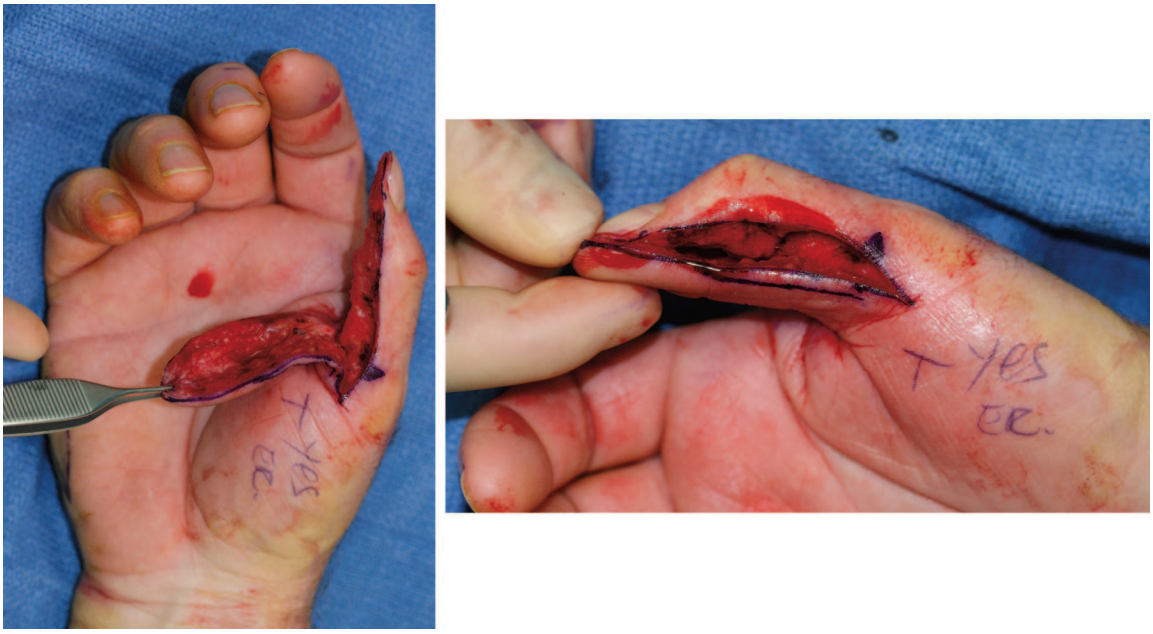

Fig. 11. Moberg volar advancement flap for reconstruction of a traumatic volar oblique soft-tissue defect of the thumb tip.

common digital origin, and tethering branches are ligated to permit transfer to the thumb defect. The donor recipient nerve can either be left in continuity with its donor source or divided and coapted with the recipient thumb digital nerve as described by Foucher et al.[34] Although yielding relatively good sensibility results, the transferred flap is recognized as coming from the thumb in only 61 percent of patients.[35] Donor-site morbidity can be significant with this technique and drastically limits its use in modern hand surgery. The first dorsal metacarpal artery flap[33] is another heterodigital flap option. With this technique, the soft-tissue from the dorsum of the index finger proximal phalanx is transferred based on the first dorsal metacarpal artery (Fig. 12). Sensation is permitted by including a branch of the superficial radial nerve. Sensibility is not quite as good as with the Littler flap (static two-point discrimination, 10.8 mm versus 9.0 mm), and the cortical reorientation rate is 50 percent at best.[36] As mentioned, perhaps the greatest disadvantage of these het-

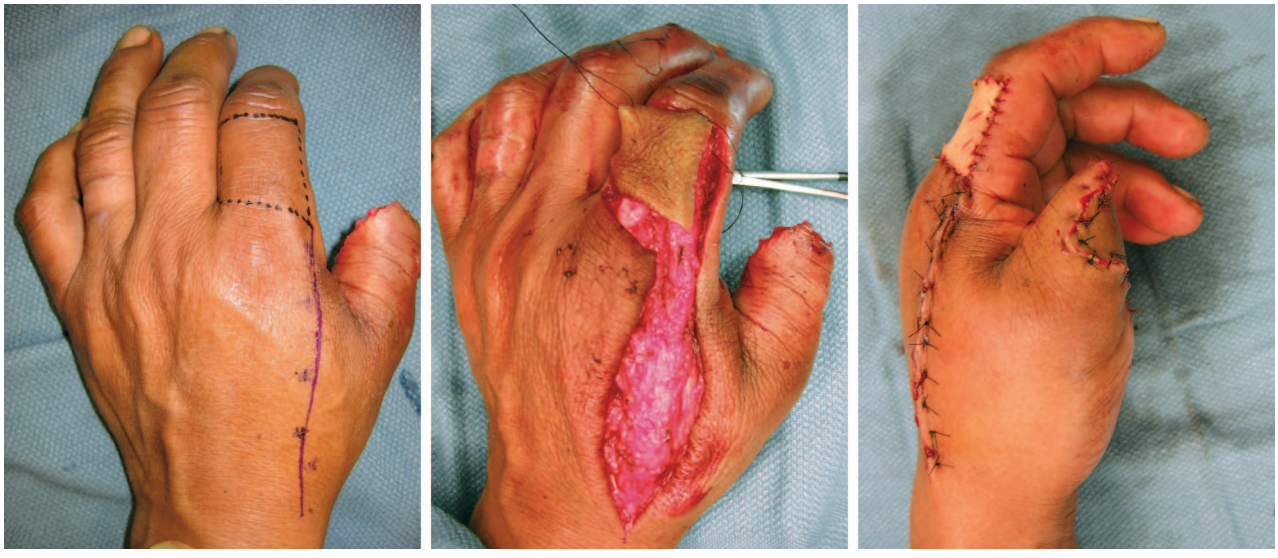

Fig. 12. First dorsal metacarpal artery flap used for soft-tissue reconstruction of volar thumb.

erodigital techniques is the violation of a normal digit for the reconstruction of the injured digit.

Index Finger

The index finger is intimately involved with the thumb in pinch grip and requires good sensibility for precision. Homodigital procedures are therefore preferred, as they share the advantages of being single-stage reconstructions with limited donor-site morbidity and providing near-normal sensibility. Volar advancement flaps provide excellent sensibility but are rarely performed in digits other than the thumb because of the risk of dorsal skin necrosis. However, these techniques can be applied to the index finger, provided that care is taken to preserve the perforating vessels to the dorsal skin. This can be accomplished with the spreading dissection method described by Macht and Watson.[31] In a series of 69 volar advancement flaps performed on digits other than the thumb, no dorsal skin necrosis was identified, and static two-point discrimination was within 2 mm of the contralateral fingertip in each case.[31] Surprisingly, the authors were able to prevent interphalangeal joint flexion contractures by using dynamic splints and aggressive occupational therapy, with no contractures present postoperatively. Experience at our institution suggests that distal advancement is limited to 1.5 cm with this technique. When greater advancement of up to 2 cm is necessary, a homodigital oblique triangular neurovascular island flap should be used[38,39] (Fig. 7).

If the index finger defect requires more coverage than can be obtained by these techniques, regional flaps should be used. The thenar flap is the best option for the index finger. Gatewood[40] first described this procedure, which was modified by Flatt[41] into its present form. A full-thickness subcutaneous flap is elevated in the area where the fingertip meets the palm. Flap design near the volar and radial surface of the thumb metacarpophalangeal joint positions the donor scar away from the main contact surface of the palm. The flap dimensions should be 1.5 times as long and wide as the defect to be covered. The fingertip is flexed and the flap sewn into place. The flap is then divided at 2 to 3 weeks (Fig. 13). Several options exist for closure of the donor site, including healing by secondary intention, skin grafting, or primary closure with a variety of techniques (e.g., thenar "H-flap"[42]). Postoperative results include fair sensibility (7-mm static two-point discrimination), low donor-site morbidity, and good aesthetic appearance[40,41] (Fig. 14). The procedure is contraindicated in patients who are unable to fully flex the proximal interphalangeal joint and in those at high risk for postoperative joint contracture. Some have argued that mobility complications increase over 30 years of age, making the procedure contraindicated.[45] Recent data do not support this, and its use has been well-tolerated in adults of all ages.[43,44,46]

Middle Finger

Sensibility is not as essential in the function of the ulnar three digits.[47] The middle finger is the central digit of the hand, and in this position, length rather than sensibility is most important. Significant shortening limits function and disrupts the aesthetic pattern of the hand.[47] Bone short-

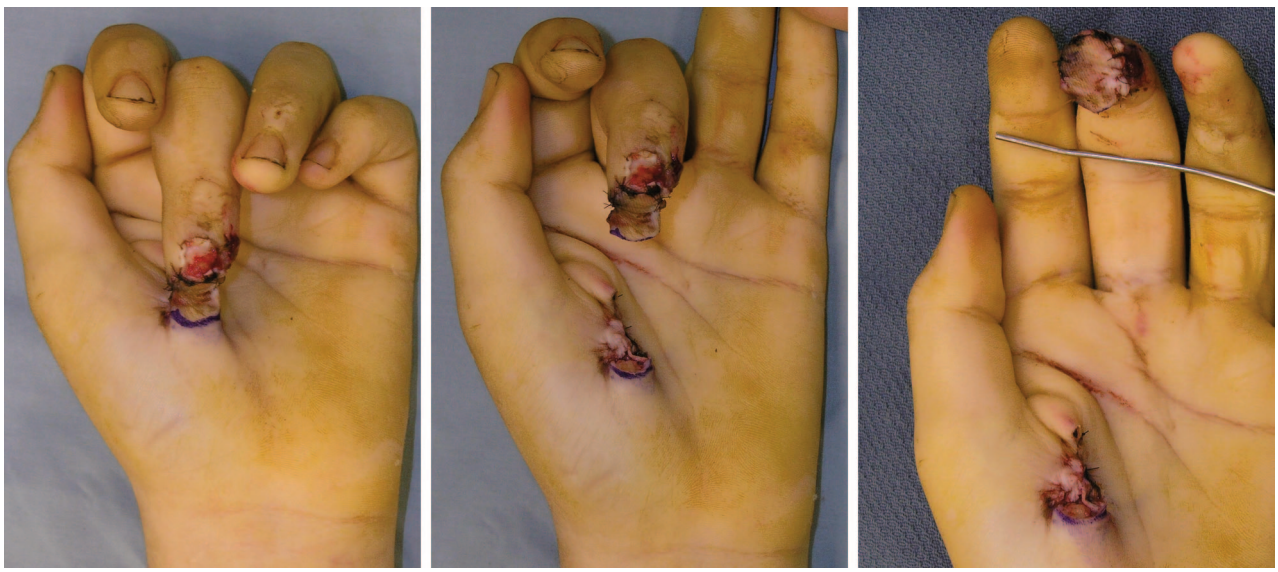

Fig. 13. Photographs of a thenar flap (*left*) pedicled to the thenar eminence, (*center*) divided, and (*right*) inset.

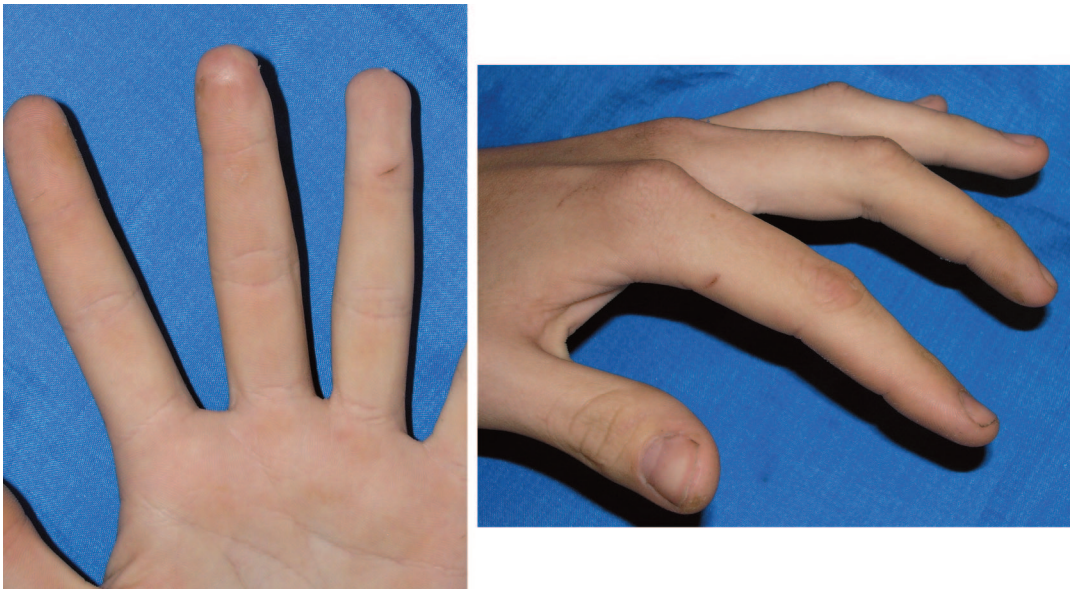

Fig. 14. Photographs of the patient in Figure 13 obtained 18 months postoperatively.

ening should be avoided whenever possible. Because homodigital flaps usually require a small but frequently significant amount of bone shortening, a thenar flap is often the most appropriate treatment for volar oblique injuries of the middle finger (Figs. 13 and 14).

Ring and Small Fingers

The primary function of the ring and small fingers is power grip. Mobility at the metacarpophalangeal and proximal interphalangeal joints is crucial for normal grip. Homodigital flaps may be used, but they often result in a scar across the volar surface of the digit that can be a source of chronic irritation and pain with grip. Heterodigital flaps, particularly the cross-finger flap, are often better choices, especially for the ring finger (Figs. 15 and 16). The procedure was first described in 1950 by Gurdin and Pangman.[48] A full-thickness skin flap is raised on the dorsal aspect of the middle phalanx of the long finger. The paratenon covering the extensor apparatus is preserved to allow for subsequent skin grafting. The ring finger is then flexed into position, and the flap is sutured to the wound. A full-thickness skin graft is secured to the middle finger defect with a tie-over bolster. This technique restores protective sensation, provides durable soft-tissue coverage, and maintains metacarpophalangeal and interphalangeal joint mobility. Unfortunately, sensibility does not routinely permit tactile gnosis,[49] and preinjury pulp contour is often absent. Furthermore, this technique is associated with frequent donor-site morbidity. The incidence of cold intolerance in the donor digit can be as high 63 percent,[50] and the aesthetic result on the dorsal finger is poor.

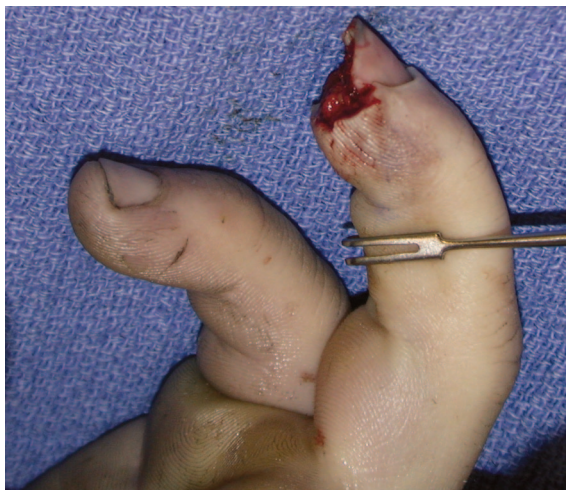

Fig. 15. Volar oblique traumatic injury prior to cross-finger flap reconstruction.

Other Considerations

Composite Grafting

The simple nonmicrovascular reattachment of the distal fragment has historically been associated with good results only in children.[57,58] Others have reported the use of this technique with adults.[59] In adults, documented graft survival is only approximately 50 percent.[60,61] Different techniques have been attempted to improve graft survival, including postoperative cooling[62] and creation of subcutaneous pockets.[61,63] In the latter, the fingertip

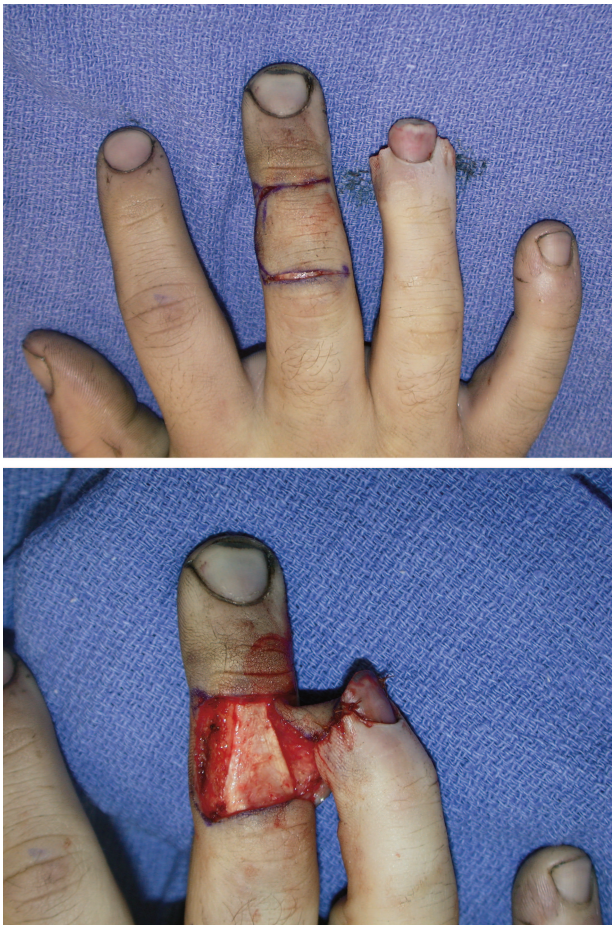

Fig. 16. In this young laborer, a volar oblique soft-tissue injury was reconstructed with a cross-finger flap from the middle finger. A skin graft was applied to the dorsum of the middle finger (not shown).

is deepithelialized and reattached without vascular anastomoses and buried in a subcutaneous pocket to enhance graft survival by imbibition. It is unclear what role these techniques may have in the future. In our opinion, it should only be attempted in children and young adults and should never be performed in smokers or diabetics or in the setting of crush injury.

Revision Amputation

Revision amputation is also an acceptable option in many circumstances. Laborers who desire a rapid return to the workforce may choose a well-performed terminalization rather than a reconstruction to speed recovery. Often, characteristics of the injury itself will not permit reconstruction, such as in the heavily contaminated human bite wound. Injuries proximal to the lunula are best managed with nail ablation and revision amputation. Zachary and Peimer[47] offer an excellent review of the goals and technique of digital amputations:

- The remaining skeleton should be contoured to a tapered, smooth end.
- Digital nerves should be divided 1 cm proximal to the injury and placed away from contact surfaces to prevent symptomatic neuroma formation.
- The digital arteries and dorsal veins should be cauterized to prevent hematomas.
- Care must be taken to completely ablate the nail bed to prevent problematic ungual remnants.

When the amputation results in loss of profundus insertion, proper handling of the tendon is often overlooked. It should *not* be advanced distally, as a "quadriga effect" will develop. This occurs because the profundus tendons share a common muscle belly, and if one tendon is advanced, contraction of the muscle will not permit symmetric flexion of the adjacent digits.

Replantation

With the modern advances in microvascular surgery, replantation of fingertip injuries is possible and associated with good results, allowing for normal use in the vast majority.[64] Multiple retrospective studies have reported replantation of fingertip amputations at the level of the nail fold or between the nail fold and the distal interphalangeal joint, with a survival rate of 70 to 86 percent.[65,66] Frequently, these replantations are performed with arterial anastomoses only with nonmicrosurgical techniques for venous outflow—leeches or nail removal with anticoagulants—and without digital nerve repair. Static two-point discrimination averages 5.9 to 8 mm, and most patients regain preinjury function (91 percent).[65–67]

These techniques have been largely developed and practiced in Asian countries, where cultural differences place a greater importance on the presence of a normal fingertip. Replantation is less common in the United States and typically occurs only at tertiary referral centers. "Supermicrosurgery" techniques are not realistic for the majority of physicians who treat these injuries. Nevertheless, replantation should be considered for all fingertip injuries, especially in young women, children, and musicians.

CONCLUSIONS

Fingertip injuries are among the most common injuries that plastic surgeons are asked to treat. A multitude of techniques have been described for reconstruction. We present algorithms for treatment based on characteristics of the injury and the digit involved. Despite these recommendations, the surgeon should proceed with recon-

struction only after a thoughtful discussion with the patient and then perform the procedure with which he or she is most comfortable.

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CPT CODES COMMONLY USED IN TREATING FINGERTIP INJURIES

This information prepared by Dr. Raymond V. Janevicius is intended to provide coding guidance.

15120	Split-thickness skin graft
15240	Full-thickness skin graft, including direct closure of donor site
15760	Composite graft (e.g., tip reattachment)
14040	Adjacent tissue transfer; defect 10 sq cm or less
15574	Formation and transfer of direct or tubed pedicle (e.g., cross-finger flap, thenar flap) [full-thickness skin graft closure of donor site is separately reported - 15240]
15620	Division and inset of flap (e.g., cross-finger flap, thenar flap)
15740	Flap; island pedicle
15750	Flap; neurovascular pedicle (e.g., Moberg)
26951	Amputation of digit (including neurectomies); with direct closure
26952	Amputation of digit (including neurectomies); with local advancement flap (e.g., V-Y)

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