A SIMPLIFIED TECHNIQUE FOR PHENOL NAIL PROCEDURES

John A. Ruch, DPM

M. Eileen Bashara, DPM

Permanent correction of onychocryptosis and permanent removal of the nail plate are two of the more routine procedures performed in daily practice. Over the years, a variety of different techniques and methods have been promoted for efficient and effective nail avulsion. Considerations for choice of procedure have included ease and simplicity of execution, minimal pain and bleeding, speed of healing, success rate and incidence of recurrence, or spicule formation.

The variety of techniques have included surgical excision procedures (cold steel), chemical cauterization (phenol, sodium hydroxide) and even electric modalities such as negative galvanism. More recently, techniques employing laser cauterization have been promoted. While many of the techniques have come and gone, simple nail plate and nail side avulsion with phenol cauterization have historically been proven to be as safe and effective as any procedure employed. The phenol technique has consistently proven to have a high rate of success and a low rate of complication.

This paper will clinically illustrate a simple and clean technique for phenol cauterization of the ingrown nail and permanent avulsion of a nail plate.

HALLUX BLOCK TECHNIQUE

The hallux block is usually performed with a solution of 1% or 2% xylocaine with epinephrine 1:200,000. Epinephrine can be safely used in the digits, however it should be avoided in patients with vasospastic disorders or other vascular disease. Marcaine may be added for prolonged anesthesia and analgesia. The skin is prepped initially with alcohol and the following injection technique is performed.

A complete hallux block can be performed with a total of 1-2 ccs of the local anesthetic and with minimal discomfort or trauma to the patient. A two-injection technique is usually all that is necessary to effectively anesthetize the entire digit. Deposition of a wheal at the four corners of the digits will easily block each digital nerve branch for total anesthesia. A third and fourth pass of the needle across the dorsal and plantar aspects of the digit is not necessary.

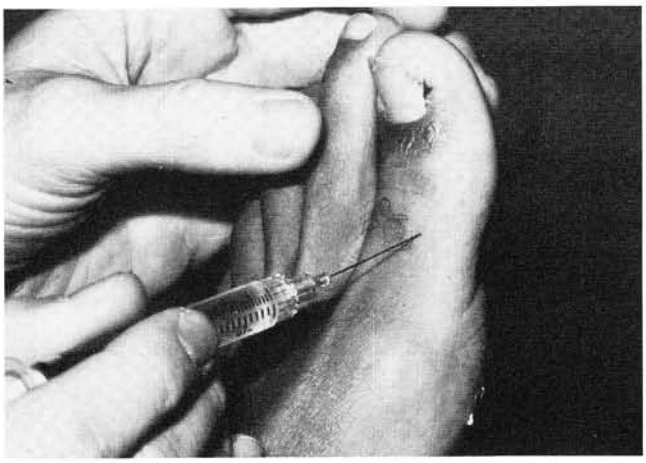

Figure 1A. The initial needle penetration is made over the dorsal medial corner of the base of the proximal phalanx. A subcutaneous wheal is raised using 0.25 - 0.50 cc's.

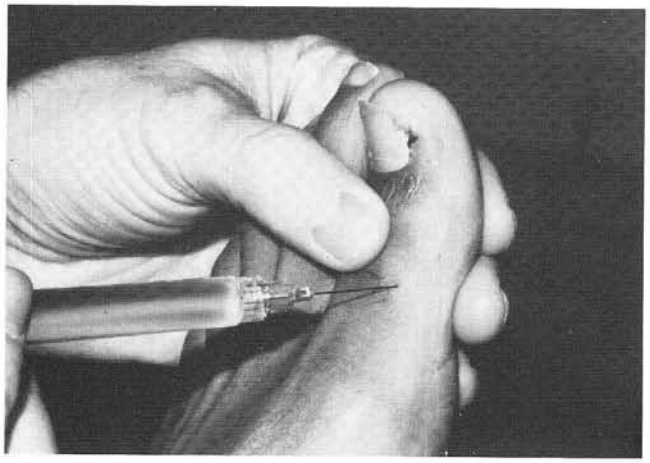

Figure 1B. The tip of the needle is advanced to the plantar medial aspect of the digit. A gentle technique is used to place the needle without causing discomfort or pain. Gentle palpation at the plantar medial aspect of the digit will confirm proper placement. A similar wheal is then deposited to block the plantar medial nerve of the hallux.

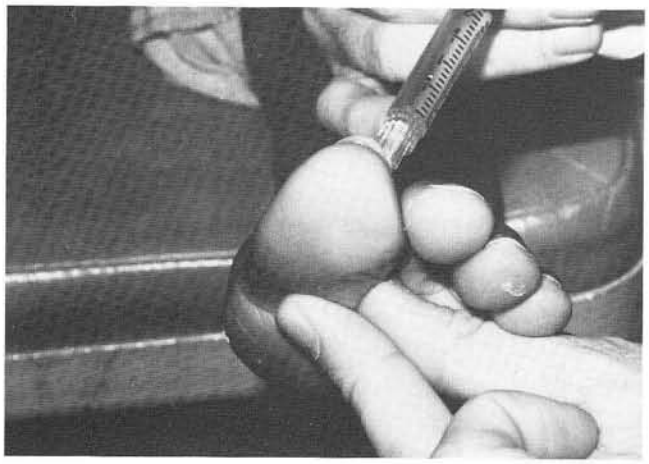

Figure 1D. The needle is then passed to the plantar lateral corner for the final deposition of the anesthetic agent.

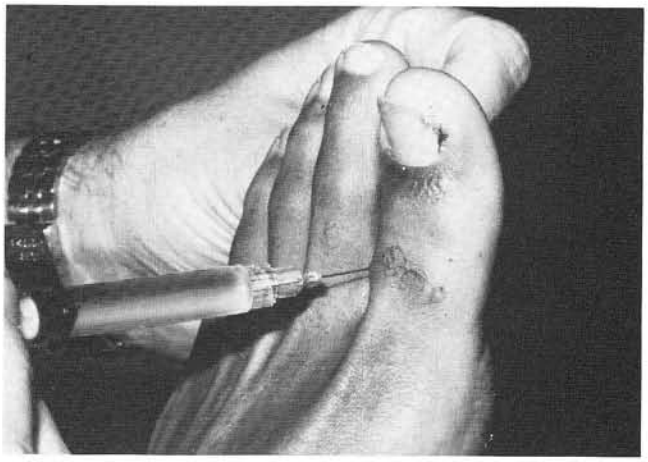

Figure 1C. The second needle pass is directed at the lateral aspect of the digit. The needle is placed at the dorsal lateral aspect of the digit and a subcutaneous wheal is raised.

Tourniquet Application

Figure 2A. Preoperative view of chronic cryptosis of the lateral margin of the right hallux nail. The site is free of chronic or acute infection. The surgical area is prepped and draped in a standard fashion for cutaneous surgery.

Figure 2B. Exsanguination and hemostasis of the digit is accomplished by the application of a specially-designed digital tourniquet. The circular rubber tourniquet is applied to the distal aspect of the digit and rolled proximally. As the device rolls back along the hallux, the digit is exsanguinated.

Figure 2C. The rubber tourniquet is left in place around the waist of the proximal phalanx for the duration of the procedure. The pressure of the rubber band maintains complete hemostasis during the procedure. The rubber band is removed at the completion of the procedure.

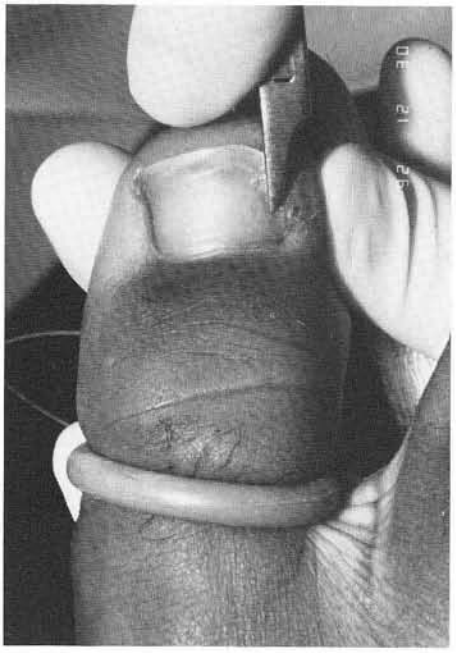

Figure 3A. The initial incision into the nail plate is made with a 1292 nail-splitter. A generous section (4-6 mm) of the lateral nail edge is resected. The tips of the nail splitter are inserted with one jaw beneath the nail plate and one jaw above. As the lower jaw is advanced, it lifts or separates the lateral nail edge from the nail bed. The square configuration of the back side of the nail splitter prevents separation of the remaining nail plate from the nail bed.

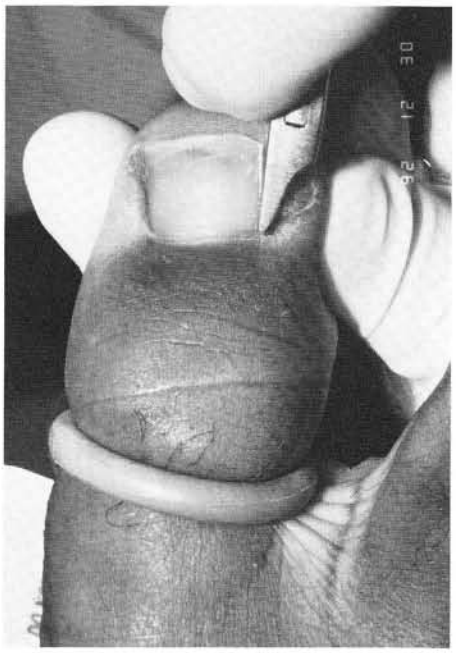

Figure 3B. The nail splitter is advanced to the edge of the eponychium and the tips of the upper jaw are slipped beneath the eponychial fold. The instrument is advanced to the posterior cul-de-sac of the proximal nail fold. The nail splitter is withdrawn.

Figure 3C. A straight-blade nail splitter is used to explore the primary incision of the nail plate and cleanly incise any proximal nail tissue or matrix. Care is taken to not lacerate the nail bed or other soft tissues. The blade of the nail splitter or Freer elevator can be used to free the superior attachment of the lateral nail fold from the lateral section of the nail plate.

Figure 3D. A straight hemostat is inserted with one jaw superior and one jaw below the free lateral nail edge. The tips of the hemostat are pressed to the back edge of the cul-de-sac to grasp the entire piece of free nail. The proximal end of the nail section is lifted and rotated medially to clear the nail fragment from the nail bed and other cutaneous attachments.

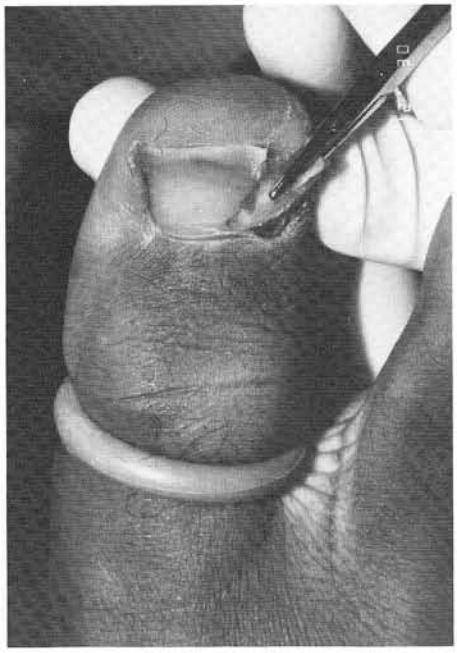

Figure 3E. The complete section of the nail is inspected.

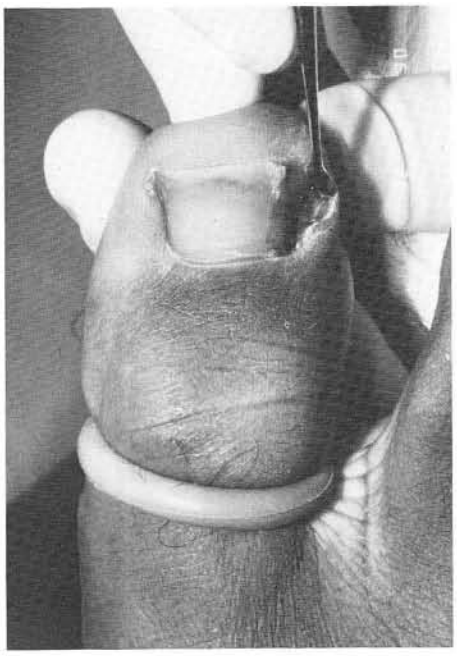

Figure 3F. A 2 mm curette is used to debride any loose soft tissue, or granulation tissue and the lateral nail fold is inspected for any sign of remaining nail plate or matrix tissue. The proximal pouch or cul-de-sac should feel free and open. If there is any restriction or blockage, a portion of nail or matrix has usually been left behind. Upon inspection, the lateral edge of the nail plate should reveal a clean longitudinal surface.

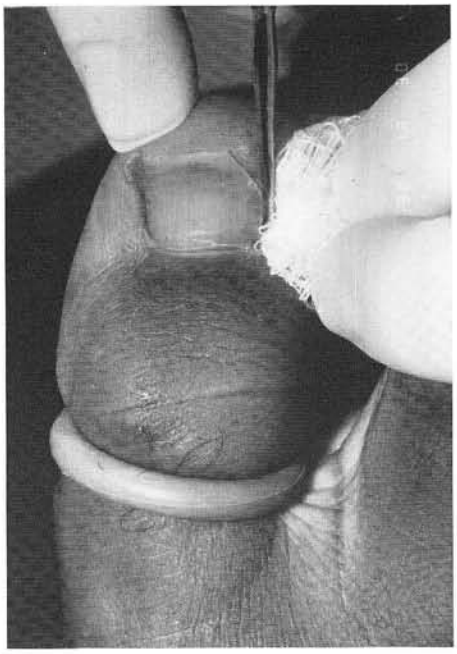

Figure 3G. The lateral nail fold is then dried completely with a surgical sponge.

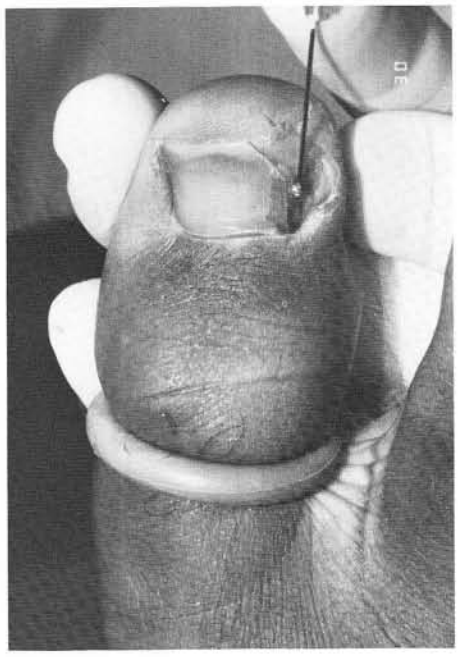

Figure 3H. Liquid phenol is delicately dropped from a small syringe into the nail groove. No cotton swabs, buffers, or dams are used to control the spread of the phenol solution.

Figure 3I. A small curette is used to massage the nail groove and insure that the phenol solution contacts all surfaces. The first application is timed for 60 seconds. The nail groove is dried and a second application is performed for an additional 60 seconds.

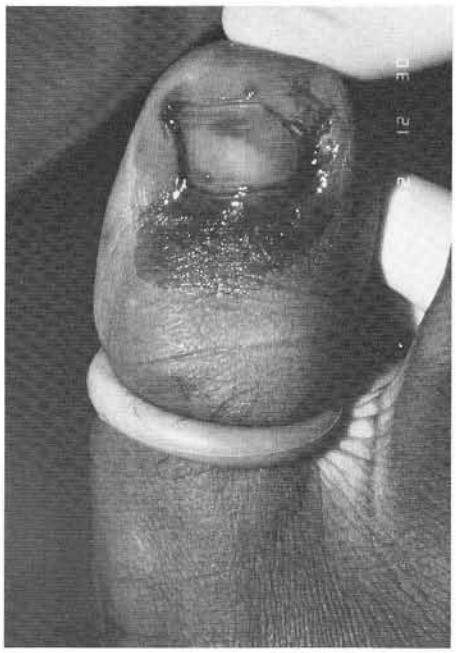

Figure 3J. The nail groove is dried again, filled with a Betadine solution and again sponged dry. Alcohol or any other diluting solution is not used.

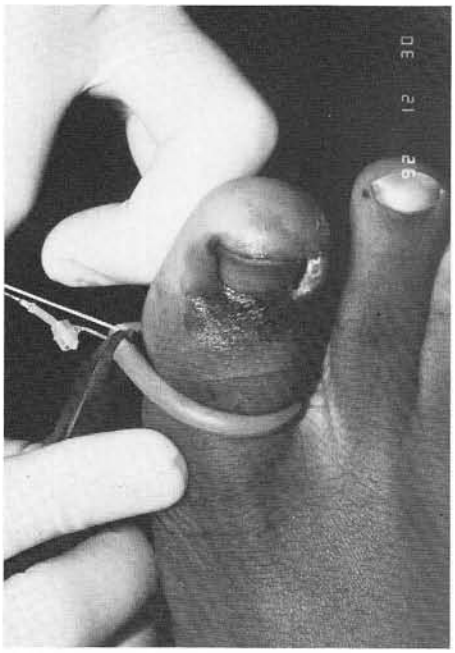

Figure 3K. The rubber tourniquet is removed.

Figure 3L. The hallux is observed for return of normal capillary perfusion. Normally, there is no active bleeding. Bleeding may occur if the nail bed has been lacerated or if inadequate cauterization has been performed.

Figure 3M. The wound is dressed with an antibiotic cream.

Figure 3N. A band-aid is applied for the surgical dressing.

PERMANENT TOTAL NAIL AVULSION

Figure 4A. A thickened dystrophic hallux nail.

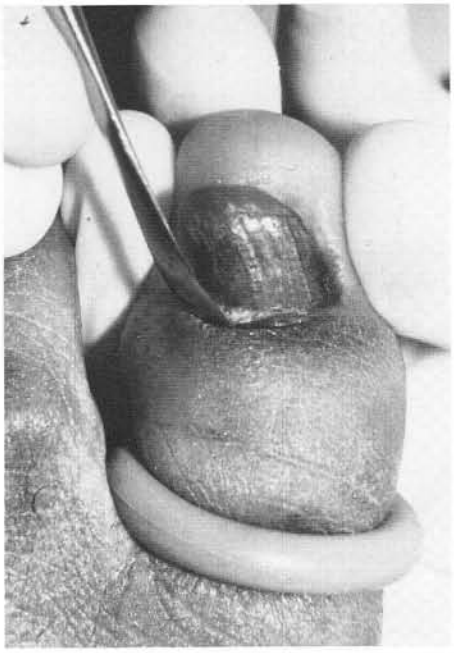

Figure 4B. A rubber collar has been applied as a tourniquet and the eponychium is freed from the dorsal surface of the proximal nail plate. The Freer elevator should separate the eponychium completely from the medial to the lateral gutter of the proximal nail fold.

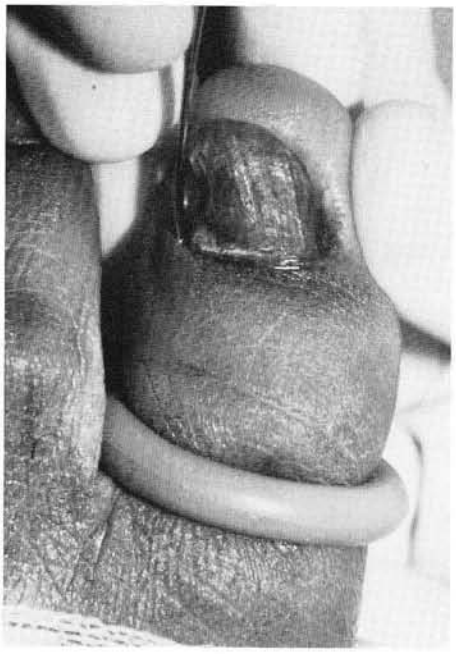

Figure 4C. The Freer elevator is used to free the lateral nail fold.

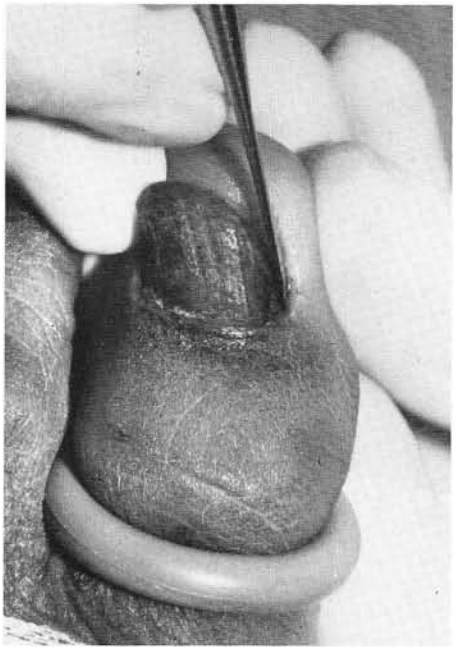

Figure 4D. The medial nail fold is also freed.

Figure 4E. The Freer elevator is introduced to the back edge of the cul-de-sac and inverted beneath the back edge of the nail plate. The blade of the Freer is then directed distally beneath the nail plate with care taken not to penetrate or lacerate the underlying nail bed.

Figure 4F. The blade of the Freer passes beneath the distal edge of the nail plate. Additional freeing is performed to lift the entire nail plate from the underlying nail bed. The technique can be similarly performed by passing the blade of the Freer from anterior to posterior, however it is easier to lacerate the nail bed with this approach.

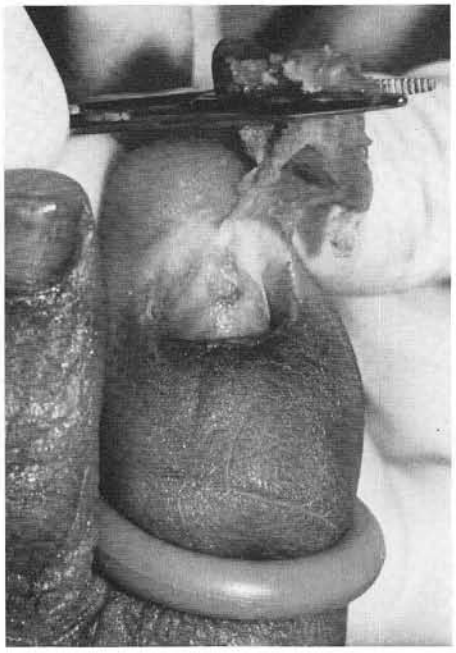

Figure 4G. A hemostat is used to pull the nail plate free from remaining cutaneous attachments.

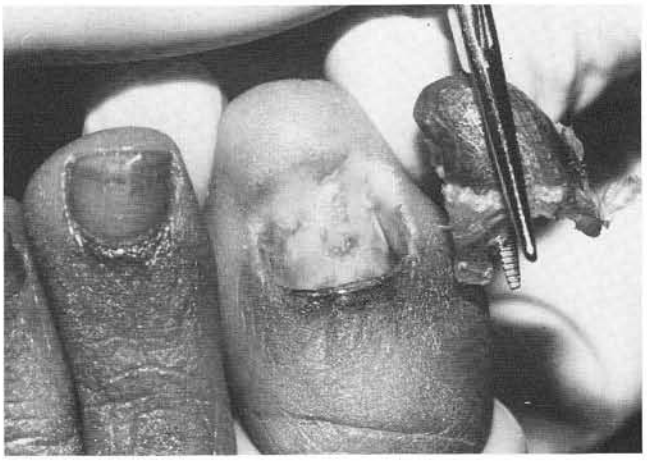

Figure 4H. The avulsed nail plate is examined.

Figure 4I. The nail bed, nail folds and proximal cul-de-sac are dried.

Figure 4J. A 4 mm curette is used to inspect all regions of the proximal and lateral folds. Any residual tissues are debrided or removed.

Figure 4K, 4L. Liquid phenol is drawn up into a small syringe and delicately dripped onto the exposed nail bed, filling the lateral nail folds and proximal cul-de-sac.

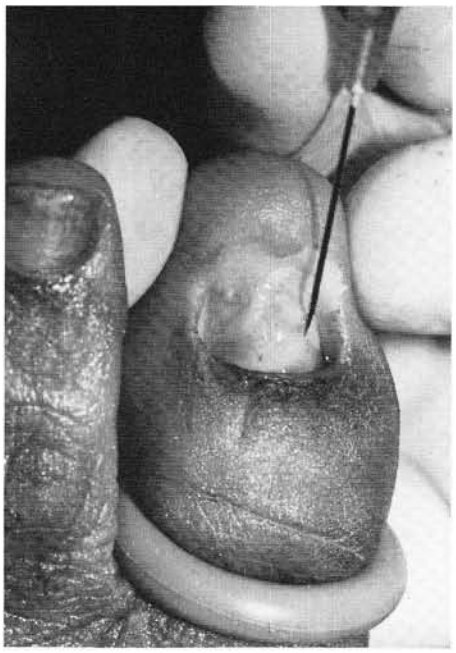

Figure 4L.

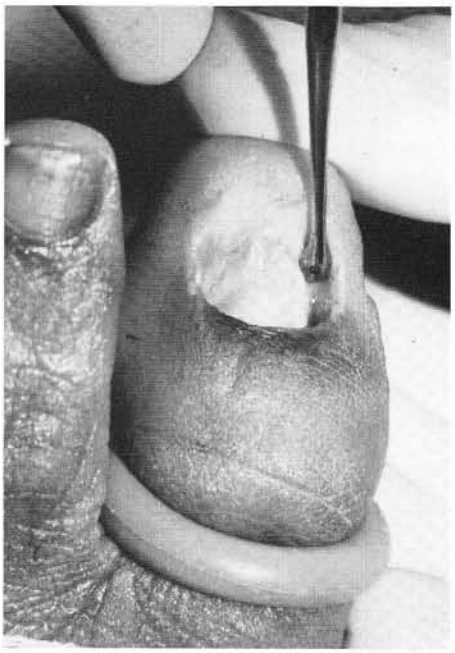

Figure 4M. All nail-generating surfaces are gently massaged with the phenol solution. The same sequence and timing are employed for the total nail avulsion as were used in the partial nail resection.

Figure 4N. The tourniquet is removed.

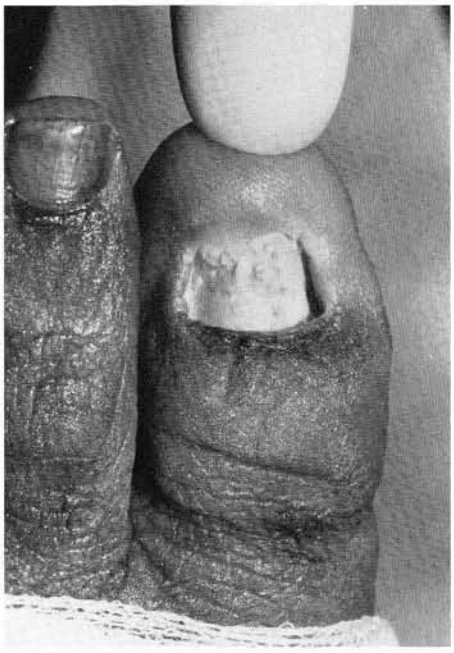

Figure 4O. The hallux is inspected for normal capillary refill. There is usually no active bleeding as long as there has been adequate cauterization and no laceration of the nail bed.

Figure 4P. The nail bed and surrounding tissues are bathed with Betadine solution.

Figure 4Q. A topical antibiotic cream and Adaptic gauze are applied.

Figure 4R. A standard gauze dressing is applied as it is not infrequent that some bleeding will usually occur with the total nail avulsion technique.

Figure 4S. A degree of compression can be created with the application of Elastoplast tape.

POSTOPERATIVE CARE

Partial Nail Avulsion

The wound is treated postoperatively with daily soaks in warm detergent water. The wound is bathed with hydrogen peroxide and manual debridement is performed by the patient with a cotton-swab. An antibiotic cream and band-aid are used for 2-3 weeks. As active drainage decreases, the wound is left open to the air usually at night. Active drainage can occur, to some degree, for 4 to 6 weeks. Periodic contouring of the lateral nail edge may be performed over the next several months.

Total Nail Avulsion

The postoperative regimen is essentially the same as for the partial nail avulsion. An active granulation area remains for a considerably longer period of time, because of the larger wound. It is not uncommon to have an open wound for 2 months or longer. The total hallux nail avulsion is also usually more painful as compared to the partial nail resection.

In the long run, the phenol technique has proven to be a consistent and dependable surgical procedure. When performed delicately and thoroughly, rapid wound healing and a very satisfactory surgical result will be obtained.

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