

HAMMER TOE CORRECTION FOR THE FIFTH DIGIT

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INTRODUCTION

Contracted fifth digits are easy to reconstruct but often difficult to maintain. The reason for the recurrence of the deformity lies in the fact that the reconstruction often involves an arthroplasty, which by nature is very unstable and very little is done to balance the forces that created the deformity to start with. Contracture of the fifth digit can occur for a variety of reasons. Commonly the deformity is due to the biomechanics of ambulation but can also result from surgical correction of tailor's bunions, trauma, or amputation of an adjacent digit. In any case the deforming force associated with the hammer toe is from the pull of the tendons on the phalanges due to compensation during ambulation or shortening of the metatarsal.

Commonly the surgical correction will include an arthroplasty with some type of skin plasty to correct the rotation of the digit in the frontal plane. With no correction of the deforming forces, the removal of bone to align the toe will be only temporary. The metatarsophalangeal joint (MPJ) will contract because now the arthroplasty site will not be able to withstand the pull from the strong digital flexors or in the case of tailor's bunion repair, the scarring of the surgical

site and pull of the extensor tendon. By taking a few simple but deliberate steps, long-term realignment of the digit can occur with very little effects from the deforming forces associated with regular ambulation.

PROCEDURE

The first step is to determine the main area of contracture. In the fifth digit, the MPJ as well as the proximal interphalangeal joint (PIPJ) are usually contracted (Figure 1). The incision needs to be able to incorporate both of the areas of contracture. The author prefers to use a two-incision approach because this will allow for one incision to expose the MPJ as well as allowing for tendon lengthening and then a second incision over the PIPJ that will provide the derotation of the digit at the time of closure (Figure 2).

The proximal incision is made at the level of the MPJ. The incision is in line with the extensor tendon and is about 1cm in length. Once through the skin, the subcutaneous tissue is separated by blunt dissection to identify the extensor tendon and the joint capsule. The extensor tendon is either transected or lengthened with a z-plasty. When the deformity is severe, the author prefers the tenotomy to the



Figure 1. Contracted 5th digit.



Figure 2. The incision sites.



Figure 3. Extensor tendon and metatarsophalangeal release.



Figure 4. Loading the foot to determine the sagittal plane release.



Figure 5. The skin is ellipsed to expose the proximal interphalangeal joint.



Figure 6. The subcutaneous is reflected and retracted.

lengthening. The MPJ is then released on the dorsum as well as both sides. The incision is closed with two simple interrupted sutures (Figures 3, 4).

The second incision is made at the level of the PIPJ. A double semi-elliptical incision is made perpendicular to the direction of the frontal plane deformity. The greater the deformity, the wider the skin wedge needs to be. The wedge of skin is carefully removed to leave the remaining tissue in place on the digit (Figure 5).

A hemostat is then used to separate the subcutaneous layer from the midline of the digit to either side to expose the PIPJ. The extensor tendon is then sharply transected and the joint opened up. The saw is then used to resect the head of the proximal phalanx. A hemostat is then used to isolate the flexor tendons at the site of the removed bone and they are transected (Figures 6-9).

The wound is flushed and the closure begins (Figure 10). The extensor tendon is sutured together at the



Figure 7. The extensor tendon is transected and the joint exposed.



Figure 8. The head of the proximal phalanx is removed after saw resection with a Freer elevator.



Figure 9A. Flexor tenotomy with a scalpel.



Figure 9B. Flexor tenotomy with an iris scissor.

PIPJ using a 3-0 absorbable suture. The skin edges are reapproximated with a 4-0 or 5-0 suture. A combination of horizontal or simple interrupted sutures is used. The author does not use Kirschner wires in the fifth digit. The digit is held in the desired position during closure and can be adjusted with the placement of the sutures. Steri-strips are then used to support the digit in the corrected position and a dry sterile dressing is applied.

POSTOPERATIVE CARE

The patient wears a rigid postoperative shoe for 4 to 6 weeks. The author changes the dressings weekly. Once the incision site is healed then a compression sleeve is applied until the patient can wear athletic shoes. Either absorbable or non-absorbable suture can be used. The incision should be well healed before removing any suture. The swelling



Figure 10. Wound closure with absorbable suture.

will take several weeks to diminish and it will be 8 to 10 weeks before the patient can wear dress style shoes.

The procedure for repairing contracted fifth digits is very effective and long lasting. The time needed to perform the procedure is slightly longer than a typical arthroplasty but the resulting outcome is well worth the time invested.