CASE SERIES

Novel Fixation Solution to Address Flexible Hammertoe as a Replacement for Girdlestone-Taylor Procedure

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FEATURED PRODUCTS: TenoTac® Soft Tissue Fixation System and Gorilla® MTP Plating System

Introduction

The Paragon 28® TenoTac® Soft Tissue Fixation System (Figures 1A, 1B) was developed to provide surgeons an alternative fixation option for contracted toes. Additionally, the TenoTac® System was designed to supplement fixation of rigid hammertoes and plantar plate repair by providing stabilization of the metatarsophalangeal (MTP) joint in the sagittal and transverse planes. The system allows the surgeon to select whether only the flexor digitorum brevis (FDB) tendon, flexor digitorum longus (FDL) tendon, or both are "tacked" down against the proximal phalanx, depending on deformity. Medial and lateral tendon tensioning can be performed to correct transverse plane deformity prior to securing the implant.

Indications for Use

The TenoTac® Soft Tissue Fixation System is intended to be used for soft tissue to bone fixation. Specific indications for the TenoTac® device include: medial/lateral repair and reconstruction of the foot and ankle, mid and forefoot repair, hallux valgus repair, metatarsal ligament/tendon repair or reconstruction, and Achilles tendon repair.

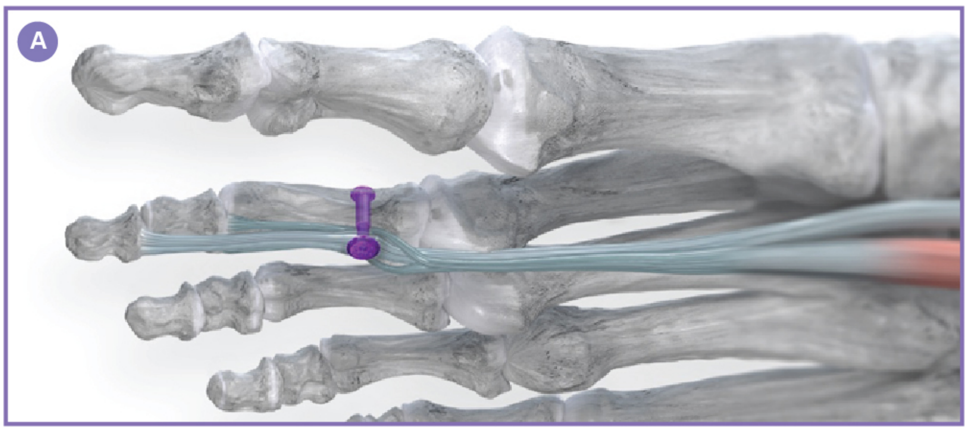
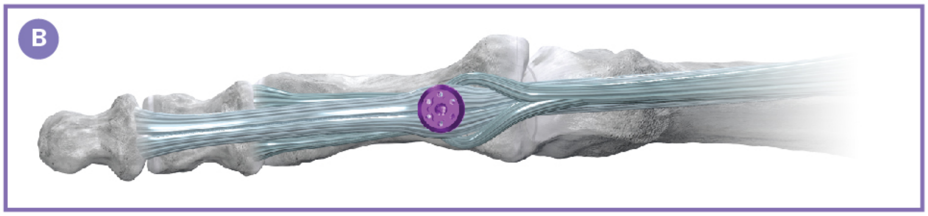


Figure 1: (**A**) Plantar oblique view of the TenoTac® implant and (**B**) Plantar view of the TenoTac® implant showing capture of the FDB and FDL tendons.



TenoTac® Soft Tissue Fixation System

CASE 1:

Presentation

A 58 year old female presented due to painful contracted toes and restricted motion of the first metatarsophalangeal joint of the left foot. She had these problems for many years and has failed conservative treatments including rigid sole/deep toebox shoes. Previously the patient had an osteotomy of the first metatarsal. The second, third, and fourth toes were painful both distally and at the dorsal proximal interphalangeal joints.

Clinical Examination

Physical examination revealed palpable pulses and an intact sensorium. Overall foot alignment was mildly overpronated with associated flexor stabilization type contracted toes. The first metatarsophalangeal joint was with restriction of motion, pain and crepitus. Toes 2, 3, and 4 had reducible contracture of both the proximal and distal interphalangeal joints. Pain was present at the dorsal proximal interphalangeal joints and the distal ends of the toes.

Radiograph Examination

Weightbearing radiographs displayed joint space loss and end stage degenerative changes at the first metatarsophalangeal joint with retained screws in the metatarsal head. The lesser toes demonstrated contracture without gross arthritic changes of the interphalangeal joints (Figures 2A, 2B).

Figure 2: Preoperative radiographs showing arthritic changes at the first metatarsophalangeal joint and contracture of the lesser rays: (**A**) Anteroposterior and (**B**) Lateral.

Initial Management and Decision Making

Discussion regarding all treatment options took place. Because she did not achieve adequate relief from rigid sole shoes with a deep toebox, surgical treatment was proposed. Arthrodesis of the first metatarsophalangeal joint was offered as the procedure most likely to resolve the pain from the joint. The surgical options for the contracted toes included tenotomy of the flexor tendons, transfer of the flexor tendons, arthroplasty of the interphalangeal joints, or arthrodesis of the interphalangeal joints. As the toes were flexible, a functional tendon transfer with the TenoTac Soft Tissue Fixation System was proposed.

Introduction

Several treatment options exist for addressing the contracture of toes 2, 3 and 4. Tenotomy of the flexor tendons may be performed and would allow reduction of the interphalangeal joint deformities. Tenotomy, however, can result in extended toes with lack of metatarsophalangeal stability. This could result in metatarsalgia with the toes not effectively able to plantarflex at the metatarsophalangeal joint. Other options include interphalangeal joint arthroplasty or arthrodesis. Arthroplasty can result in unstable interphalangeal joints and cause gradual deformity in any direction. Arthrodesis is an effective option but sacrifices all motion of the interphalangeal joints and is not necessary for correction of flexible deformities.

Flexor tendon transfer offers a functional means of deformity correction. Because the deformity is caused by an imbalance of the muscles controlling the toes, rebalance of the flexor tendons allows correction of the interphalangeal joint contracture with continued function as a flexor of the metatarsophalangeal joint. A traditional Girdlestone Taylor (GT) procedure involves release of the flexor digitorum longus tendon from its insertion at the plantar base of the distal phalanx and transfer dorsally to the extensor complex (Figure 3). While this does preserve the flexor tendon function at the metatarsophalangeal joint, the interphalangeal joints can progress into extension deformities due to the loss of the flexor pull.

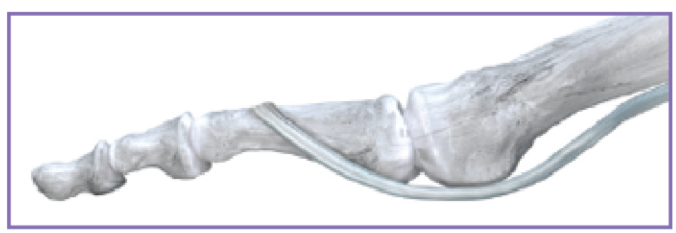


Figure 3: Flexor Tendon Transfer – Traditional GT procedure showing release of flexor tendons to correct toe position

The TenoTac from Paragon 28 facilitates the creation of a new insertion at the plantar base of the proximal phalanx while maintaining the original insertion at the base of the distal phalanx (Figure 4). This prevents the evolution of extension deformities of the interphalangeal joints and allows the "tacked" flexor tendon to more effectively plantarflex the metatarsophalangeal joint. The other advantage of the TenoTac System is that the procedure is accomplished via small incisions dorsally and plantarly. A traditional GT transfer requires much more extensive dissection to wrap the tendon being transferred dorsally from its native plantar course. This dissection and circumferential tendon "bulk" may contribute to digital swelling.

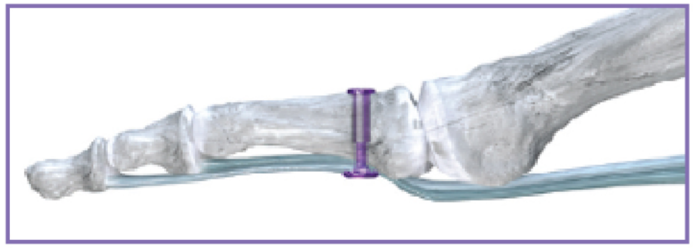


Figure 4: TenoTac – Distal insertion of the FDL and FDB is maintained, allowing balance to remain between the extensor tendons and flexor tendons distal to the implant

Surgical Technique

The first metatarsophalangeal joint was first addresed with an incision made from the distal metatarsal shaft to the proximal phalangeal head. Dissection exposed the capsule and periosteum which was incised following the skin incision. The screws from the previous surgery were removed from the metatarsal. Once the soft tissues were elevated, the hypertrophic bone was completely resected and reamers were used to prepare the metatarsal head at the base of the proximal phalanx. The plantar condyles were resected to prevent prominence of the sesamoids. Once all remaining cartilage was removed and healthy subchondral bone was exposed, the arthrodesis site was irrigated and the surfaces for arthrodesis were prepared via fenestration. The hallux was properly aligned with respect to the second toe and the weightbearing surface. It was temporarily pinned to maintain position. Fixation was achieved with a dorsal Paragon 28 Gorilla MTP Plate and associated 2.7 and 3.5 mm screws. A PRECISION Guided interfragmentary screw was placed from the base of the proximal phalanx to the distal lateral metatarsal head creating a stable, well aligned construct.

Toes 2, 3 and 4 were then addressed by plantar incisions extending distally from just distal to the weightbearing surface of the metatarsal head. The flexor tendons were identified after incising the flexor tendon sheath (Figure 5A). The tendons were retracted and the new insertion site determined in the plantar metaphysis of the proximal phalanx. The TenoTac guide wire was placed from plantar to dorsal and the skin incised dorsally for the wire to exit (Figure 5B). The cannulated drill/countersink was inserted from plantar to dorsal followed by removal of the guide wire. Since both the flexor digitorium longus and brevis tendons in this case were contracted, the plantar tack component of the TenoTac device was inserted using the Tack Inserter between the medial flexor brevis slip and the medial portion of the flexor digitorum longus.

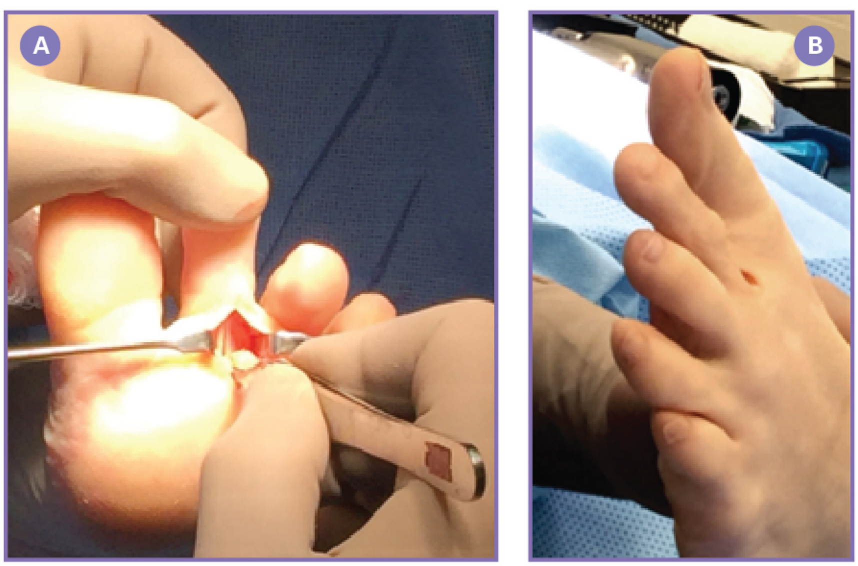


Figure 5: TenoTac incisional approach including: (**A**) Plantar incision – Distal to weight bearing surface, (**B**) Dorsal incision – Completed to allow placement of the dorsal tack

With the interphalangeal joints held reduced and the flexor tendons appropriately tensioned, the flexor tendons were compressed against the bone using the plantar (male tack) implant (**Figure 6A**). The wire from the insertion tool was measured from the dorsal (female) side and the appropriately sized cannulated dorsal sleeve engaged and secured with the plantar male tack (**Figures 6B, 6C**). Function of the transfer was evaluated by loading the forefoot. The wounds were closed in layered fashion (**Figure 6D**).

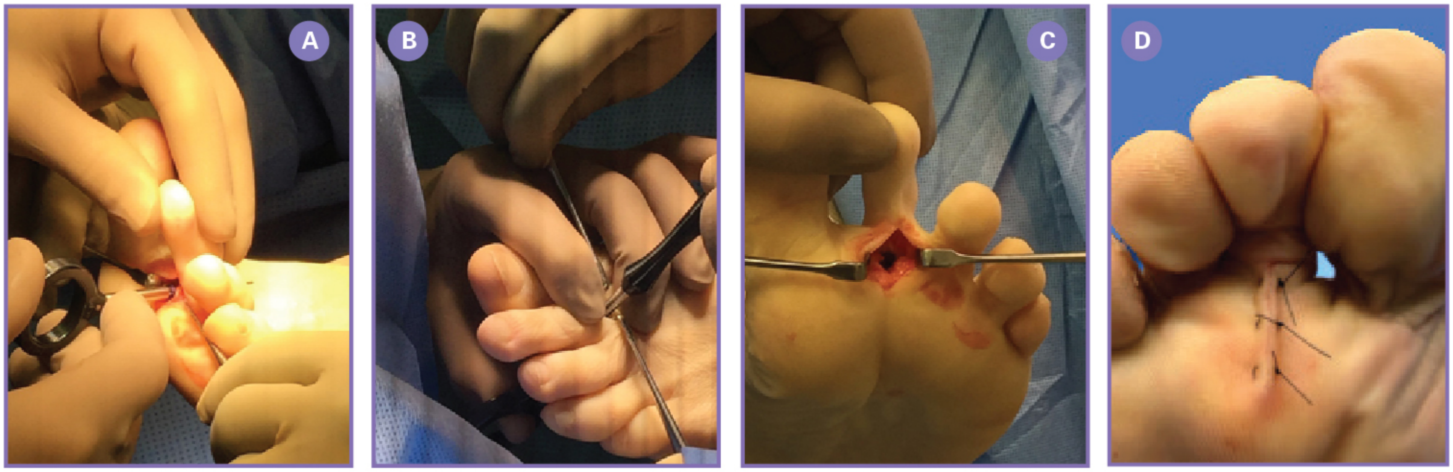
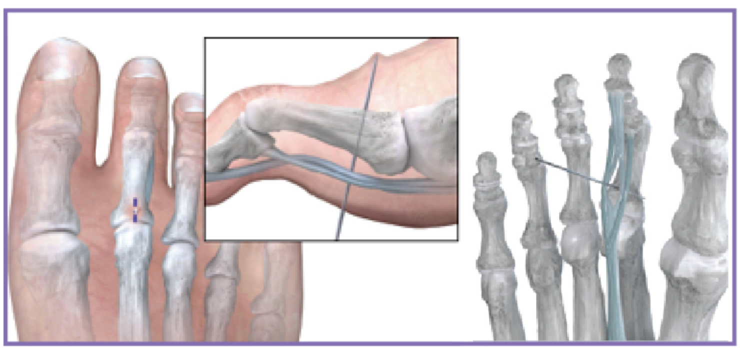
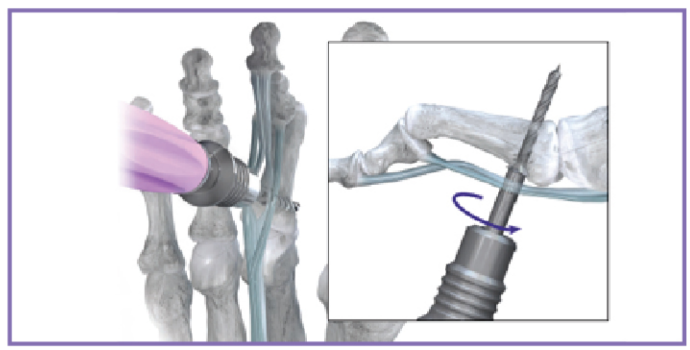


Figure 6: Surgical steps using the TenoTac System (**A**) Positioning and tensioning – one set of hands, one instrument, (**B**) Insertion of dorsal female sleeve locking in tension, (**C**) Plantar capture of the FDL and FDB tendons with the plantar male tack implant, and (**D**) Closure of plantar incision.

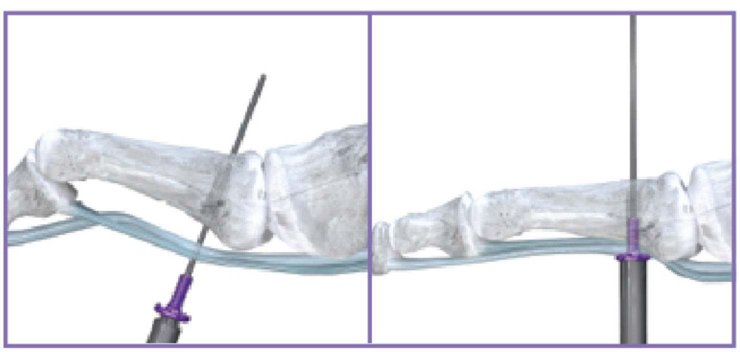
TenoTac Instructions



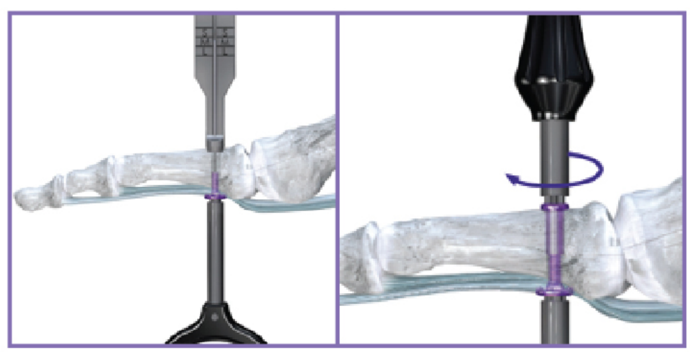
Step 1: Guidewire Placement



Step 2: Drill/Countersink



Step 3: Male Tack Insertion



Step 4: Female Sleeve Insertion

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Postoperative Protocol

The patient was allowed heel only weightbearing in a surgical shoe. Sutures were removed between 2-3 weeks postoperatively. Protection in a surgical shoe was for approximately two months due to the first metatarsophalangeal joint arthrodesis. If only the TenoTac® procedures were performed, regular shoes could be resumed at 4-6 weeks with avoidance of forced dorsiflexion of the toes for 6 weeks.

At the time of this report, the patient was presently 6 months postoperative and doing very well. She had resumed all normal activities with minimal residual swelling. She had a stable well aligned fusion of the first metatarsophalangeal joint that was pain-free. Her toes were well aligned at the interphalangeal joints and she had active plantarflexion strength of the metatarsophalangeal joints (Figures 7A, 7B).

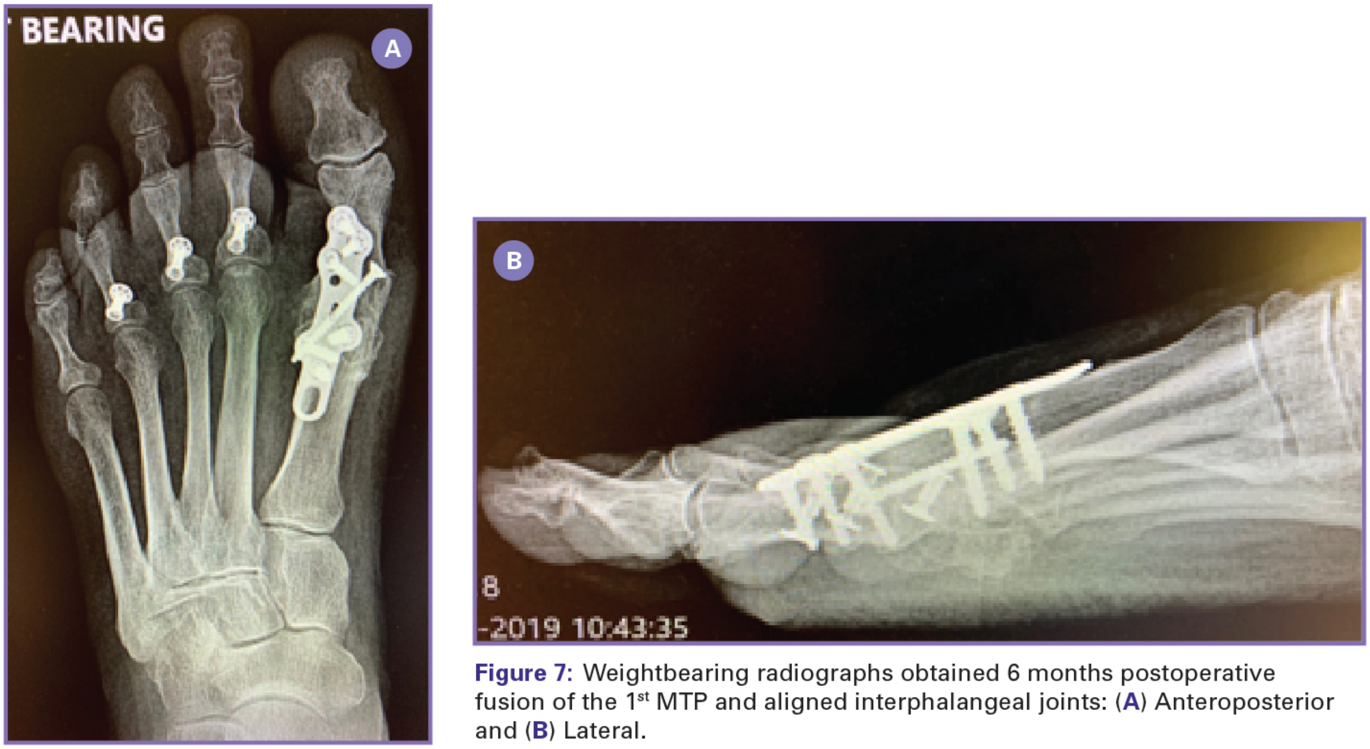

Figure 7: Weightbearing radiographs obtained 6 months postoperative fusion of the 1st MTP and aligned interphalangeal joints: (**A**) Anteroposterior and (**B**) Lateral.

Novel Fixation Solution to Address Plantar Plate Tear

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FEATURED PRODUCTS: TenoTac® Soft Tissue Fixation System and Phantom® Intramedullary Nail System

Presentation

A 59 year old female suffered from pain in her right foot associated with a long-term hallux valgus deformity and a progressive second toe contracture. The second toe deformity included an associated plantar plate tear. She tried accommodative shoes and a toe stabilizing strap which did not provide adequate relief. The pain was localized to the medial eminence of the first metatarsal and the first metatarsal was hypermobile. The second toe pain was most localized to the plantar lateral metatarsophalangeal joint and the proximal interphalangeal dorsally. Gastrocnemius equinus also contributed to the painful forefoot pathology.

Clinical Examination

Physical examination revealed palpable pedal pulses and intact sensorium. The hindfoot was mildly overpronated in stance but was asymptomatic. The Silverskold test revealed isolated gastrocnemius equinus. Ankle dorsiflexion was restricted with the knee extended more than flexed, indicating a gastrocnemius equinus. The medial column demonstrated some hypermobility with associated hallux valgus deformity. While the medial eminence was painful, motion of the metatarsophalangeal joint was not. The second toe had a reducible contracture with mild medially deviated crossover deformity. The second metatarsophalangeal joint was unstable with a positive drawer test and evidence of a plantar-lateral plantar plate tear.

Radiograph Examination

Weightbearing radiographs demonstrated a mildly overpronated hindfoot with large intermetatarsal angle hallux abducto valgus deformity. Contracture and mild crossover deformity of the second toe were also evident. Complete dislocation of the second toe was not present. (Figures 1A, 1B) Intraoperative sesamoid axial fluoroscopy demonstrated some valgus rotation of the metatarsal but the sesamoids remained in their grooves.

Figure 1: Weightbearing radiographs demonstrating a large IMA and contracture and crosover of the second toe: (**A**) Anteroposterior and (**B**) Lateral.

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Initial Management and Decision Making

Conservative remedies were attempted prior to proceeding with surgery. Aggressive gastrocnemius stretching was performed to address the equinus and associated forefoot loading. The patient tried accommodative shoes and a toe stabilizing strap. These modalities did not provide adequate relief, so surgical options were considered. The goal of the procedures was to remove the equinus force and correct the malaligned forefoot.

A gastrocnemius recession was proposed to decrease the plantar forefoot load. Reduction of the first ray deformity would best be achieved by realignment arthrodesis of the first metatarsocuneiform joint. The gastrocnemius recession and realignment with stabilization of the first metatarsal would decrease the load on the second metatarsophalangeal joint. The plantar plate for the second metatarsophalangeal joint would be repaired from a plantar approach. To reinforce the plantar plate repair and correct the interphalangeal joint contractures, the flexor digitorum tendons would be used. The TenoTac Soft Tissue Fixation System from Paragon 28 would facilitate the use of the flexor tendons to augment the plantar plate repair and correct the toe contracture.

Introduction

Plantar plate attenuation and tear result from overload of the metatarsophalangeal joint. When addressing plantar plate pathology, the factors contributing to the overload must also be addressed. In the presented case, both equinus and first metatarsophalangeal joint malalignment contributed to the plantar plate failure. Overload of the plantar forefoot was relieved with a gastrocnemius recession. First ray insufficiency and deformity was treated with a first metatarsal cuneiform joint arthrodesis. Addressing these associated deformities decreases future overload on the second metatarsophalangeal joint and increases the success of the repair.

The plantar plate and toe contracture were repaired utilizing the TenoTac System. This device provides the benefits of flexor tendon transfer while preventing potential distal interphalangeal joint extensor deformity. The TenoTac creates a new insertion for the flexor digitorum longus or brevis at the base of the proximal phalanx while preserving the original insertion at the base of the distal phlanax or intermediate phalanx. The desired tendon is appropriately tensioned by holding the interphalangeal joints in rectus alignment while the tack is inserted through the flexor tendon at the base of the proximal phalanx. This creates a new second insertion allowing correction of the deformity and stabilization of the metatarsophalangeal joint. The tacked tendon provides more effective plantar flexion force at the metatarsophalangeal joint.

Surgical Technique

GASTROCNEMIUS RECESSION

The gastrocnemius aponeurosis was addressed via a medial incision. The deep fascia was incised to expose the gastrocnemius, soleus and plantaris. The plantaris tendon was released first. The gastrocnemius and soleus muscles were seperated and the deep aponeurosis of the gastrocnemius was exposed and incised from lateral to medial. The wound was then irrigated and closed in layered fashion.

FIRST METATARSOCUNEIFORM ARTHRODESIS

An incision was made extending from the dorsomedial first naviculocuneiform joint to the dorsomedial base of the hallux. The capsule and periosteum were incised to expose the medial eminence. The metatarsocuneiform joint was then exposed with minimal periosteal stripping. The joint cartilage was removed via curettage. The lateral portion of the cuneiform was feathered to the desired correction of metatarsal alignment and apposition of the fusion site. The joint space was irrigated and then prepped with fenestration and cross-hatching of the joint surfaces. The metatarsal was reduced and temporarily fixated with a guide wire. Intraoperative fluoroscopy was used to demonstrate appropriate 1st metatarsal alignment. A 3 hole Paragon 28 Phantom Nail was inserted achieving stable, compressive fixation.

SECOND METATARSOPHALANGEAL JOINT

A longitudinal plantar incision was made from the plantar toe sulcus of the second toe extending proximally to the distal metatarsal shaft. The flexor tendon sheath was incised and the tendons retracted to expose the plantar plate. The plantar plate tear was identified and the defect excised to healthy margins. An adequate distal stump of the plantar plate remained, so a direct suture repair was performed. This repair aligned the toe at the metatarsophalangeal joint but a reducible contracture of the interphalangeal joints remained.

The flexor tendon was then transferred with the TenoTac. The guide wire was inserted just distal to the plantar plate repair in the proximal metaphysis of the proximal phalanx from plantar to dorsal. The skin was incised dorsally for the wire to exit. The drill/countersink was inserted from plantar to dorsal followed by removal of the guide wire. Since both the FDL and FDB tendons in this case were contracted, the plantar male tack component of the TenoTac device was inserted between the lateral flexor brevis slip and the lateral portion of the flexor digitorum longus using the Male Tack Inserter. With the interphalangeal joints held reduced and the flexor tendons appropriately tensioned, the flexor tendon slips were compressed against the bone. The wire from the insertion tool was measured from dorsal and the appropriately sized cannulated dorsal sleeve component engaged and secured with the plantar male tack (Figure 2). Intraoperative fluoroscopy was used to evaluate the reconstruction. The incisions were closed in layered fashion.

Figure 2: Combined TenoTac and Plantar plate repair

Postoperative Protocol

The initial dressing included a well padded posterior splint and the patient was to be nonweightbearing. Heel only weightbearing in a removable cast was allowed after the first dressing. The bandage included a spica taping for the second toe to protect the repair for 6 weeks (Figure 3). Sutures were removed between 2-3 weeks postoperatively. The patient was protected in a removable cast until 2 months postoperative.

At the time of this report, the patient was presently 7 months postoperative and doing very well. The plantar incision had healed without any problems (Figure 4).

Figure 3: Wrapping over surgical incision – Spica bandaging is recommended immediately postoperatively

Figure 4: Healing of plantar incision seven months post-operatively.

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The patient has resumed all normal activities with minimal residual swelling. She had a stable, well aligned fusion of the first metatarsocuneiform joint that was pain-free (Figures 5A, 5B). Her second toe was well aligned at the interphalangeal joints and she had full active dorsiflexion (Figure 6A) and plantarflexion (Figure 6B) of the metatarsophalangeal joint. The plantar plate is stable.

Figure 5: Weightbearing radiographs obtained seven months postoperative 1st TMT arthrodesis and alignment of the 2nd interphalangeal joint: (**A**) Anteroposterior and (**B**)Lateral.

Figure 6: Non-weightbearing images obtained seven months postoperatively demonstrating range of motion in: (**A**) Dorsiflexion and (**B**) Plantarflexion.

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Novel Fixation Solution to Address Hallux Malleus

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FEATURED PRODUCTS: TenoTac® Soft Tissue Fixation System, Gorilla® Universal Dogbone Plate, Gorilla® Universal T Plate, and Monster® 7.0 mm Screw

Presentation

A 42 year old female with Charcot Marie Tooth disease presented complaining of pain and instability associated with multiple deformities involving her foot and toes. She had a history of previous triple arthrodesis as a young teenager. Since this time, she felt her foot has been in varus with gradual progressive contractures of her toes becoming part of the problem. She tried a variety of foot orthoses and braces with minimal relief. She related some numbness in her feet but she was not insensate. She had pain along the lateral foot with weightbearing and instability of the lateral ankle. She also had pain in her contracted toes with weightbearing especially at the distal tips of all toes.

Clinical Examination

Physical examination revealed pedal pulses that were palpable and her sensorium being mildly decreased. She did not have significant weakness.

The foot had a rigid hindfoot varus deformity and chronic overload of the lateral column associated with weightbearing (Figures 1A, 1B). The lateral ankle demonstrated some instability with increased talar tilt and anterior drawer. The first metatarsal was plantarflexed and not reducible. The hallux was flexibly contracted while the lesser toes were rigidly contracted (Figure 1C)

Figure 1: Assessment of deformity with (**A-B**) simulated weightbearing and (**C**) flexibly contracted hallux.

Radiograph Examination

Weightbearing radiographs demonstrated a well aligned ankle joint. The subtalar joint and calcaneus appeared in varus while the midtarsal joint was supinated. The subtalar joint, talonavicular joint, and calcaneocuboid joints were all solidly fused maintaining a fixed position of medial peritalar subluxation/malalignment (Figures 2A, 2B, 2C) No remaining hardware was present. The toes had significant contracture and the first metatarsal was plantarflexed.

Figure 2: Weightbearing radiographs demonstrating: (**A-B**) Fusion of the hindfoot and (**C**) Contracture of the hallux.

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Initial Management and Decision Making

Discussions regarding surgical and nonsurgical options took place. The progressive nature of the disease was considered. The patient had no significant weakness and primarily structural problems at the time of evaluation. The surgical recommendation was to proceed with revision reconstruction of the hindfoot to correct the residual cavovarus deformity and lateral ankle stabilization. To address the forefoot, an elevating osteotomy of the first metatarsal was planned. The central toes would require proximal interphalangeal joint arthrodesis. Since the hallux contracture was reducible, a flexor tendon transfer was planned with the Paragon 28 TenoTac Soft Tissue Fixation System.

Introduction

There are a variety of treatment options addressing the hallux contracture (hallux malleus) and associated plantarflexed 1st metatarsal. If the plantarflexed 1st metatarsal is flexible and the hallux contracture is reducible, a common approach may be an extensor hallucis longus transfer to the 1st metatarsal (or tibialis anterior) with hallux interphalangeal joint arthrodesis, more commonly known as a Jones Procedure. An elevating metatarsal osteotomy or an elevating 1st metatarsocuneiform arthrodesis is more appropriate for a rigidly plantarflexed first ray. The contracture of the hallux interphalangeal joint does have a retrograde force contributing to plantarflexion of the 1st metatarsal. This contracture can be addressed by arthrodesis for a rigid deformity or flexor hallucis longus tendon transfer for a flexible deformity. Flexor hallucis longus tendon transfer is commonly performed via distal tenotomy of the tendon and transfer through a hole in the base of the proximal phalanx from plantar to dorsal. The tendon is sutured dorsally to the extensor tendon or periosteum. This procedure is very effective at correcting the hallux deformity and stabilizing the metatarsophalangeal joint. Distal flexor tenotomy can destabilize the hallux interphalangeal and result in an extensor deformity.

The Paragaon 28 TenoTac can provide the benefits of flexor tendon transfer while preventing the potential for hallux extensor deformity. The TenoTac creates a new insertion for the flexor hallucis longus at the base of the proximal phalanx while preserving the original insertion at the base of the distal phlanax. The tendon is appropriately tensioned by holding the hallux interphalangeal joint in rectus alignment while the tack is inserted through the tendon at the base of the proximal phalanx. This creates a new second insertion allowing correction of the deformity and stabilization of the metatarsophalangeal joint.

Surgical Technique

A small vertical incision was made to the plantar medial heel and dissection was carried down the the plantar fascia so that a transverse plantar fasciotomy could be performed to facilitate reduction of the cavus deformity. The calcaneus was then addressed through an incision posterior to the sural nerve. The soft tissues were elevated and retracted anteriorly so an oblique osteotomy could be made from the posterior aspect of the posterior facet extending anterior and distal. The posterior fragment was shifted laterally by approximately 1 cm to correct the hindfoot varus. This osteotomy incorporated removal of a laterally based wedge as well as the lateral shift. A second incision was then made from the anterolateral ankle extending distally over the lateral midfoot. Soft tissues were elevated to expose the previously fused midtarsal joint. A wedge osteotomy was then made through the talonavicular joint and the calcaneocuboid joint areas. The wedge allowed abduction of the forefoot to provide appropriate correction of the supinated position of the foot. After irrigating the surgical sites, the posterior calcaneus was shifted to its new appropriate position laterally, and the midtarsal osteotomy closed for its realignment. A guide wire was inserted from the posterior calcaneus for a 7.0 mm Monster® cannulated screw. The guide wire extended from the posterior calcaneus to the cuboid/lateral midfoot maintaining the realignment of both osteotomies. A Gorilla Dogbone plate and scews were inserted to further fixate the midtarsal osteotomy. This provided a well aligned and stable hindfoot and midfoot.

Through the same incision, a standard Brostrom lateral ankle stabilization was performed. The attenuated anterior talo-fibular ligament was repaired and reinforced with the local retinaculum. Attention was then directed to the plantarflexed 1st metatarsal. A longitudinal dorsomedial incision was made along the first metatarsal base. Soft tissues were elevated and a wedge osteotomy made to elevate the metatarsal appropriately to realign the forefoot. Once desired correction was achieved, a Gorilla Universal T-plate was applied to the first metatarsal.

The hallux was then addressed by a plantar incision from just distal to the sesamoids extending distally 1 cm. The flexor hallucis longus tendon was exposed and retracted. The insertion point for this tendon was determined in the proximal metaphysis of the phalanx and the TenoTac guide wire inserted from plantar to dorsal. A small incision was made for the guide wire dorsally. The cannulated drill/countersink was inserted over the guide wire and used to create a tunnel for the implant.

The guide wire and drill were removed and the male tack inserted from plantar to dorsal through the flexor hallucis longus tendon while maintaining the hallux interphalangeal joint alignment in appropriate tension. The plantar male tack was compressed into place and the measurement device placed over the dorsal exposed wire. The appropriate sized cannulated dorsal sleeve component was then inserted onto the dorsal pin and pushed into the dorsal hole in the bone. The dorsal female sleeve component was then twisted into position to maintain the plantar tendon compressed into its new insertion. The insertion instruments were removed and the alignment deemed appropriate.

The central toes were then addressed by dorsal incisions to expose the proximal interphalangeal joints. The joints were then resected in chevron fashion from medial to lateral. Internal 0.062" threaded guide wires were used to maintain alignment. The distal interphalangeal joints remained contracted, and therefore a percutaneous flexor tenotomy was performed plantar to the distal interphalangeal joints. A flexor tenotomy was performed for the 5th toe as well. Layered closure of all wounds was then performed followed by application of a compression dressing incorporating a posterior splint.

Postoperative Protocol

The patient followed up for a dressing change within the first week postoperatively. At that time a removable cast was applied. At 2 weeks, the sutures were removed and the patient was continued in the removable cast with compression and non-weightbearing. At approximately 6 weeks postoperative, weightbearing was allowed in the removable cast. At 8 weeks, the patient transitioned to a supportive shoe with continued edema control via compression stockings. Physical therapy was initiated at the time of weightbearing to facilitate strength and balance.

At the time of this report, the patient was approximately 9 months postoperative and doing very well with all procedures. She could bear weight more evenly through her entire foot, whereas, preoperatively all weight was loaded to the lateral column due to her fixed inverted hindfoot. Her toe alignment was much improved and she was able to plantarflex all digits at the metatarsophalangeal joints. (**Figures 3A, 3B, 3C**)

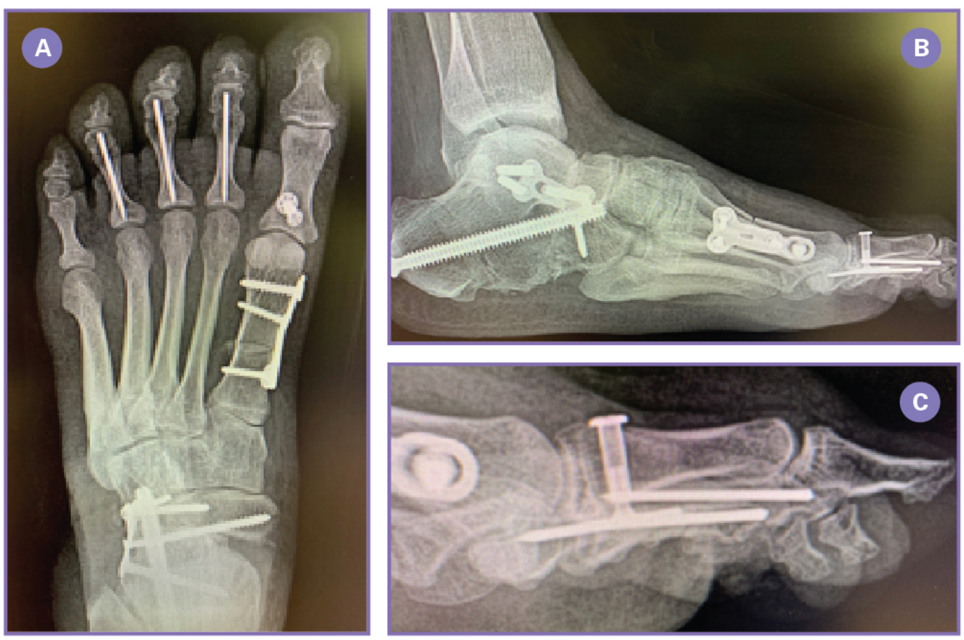

Figure 3: Weightbearing radiographs nine months posteroperatively demonstrating: (**A**) Fusion of the hindfoot, (**B**) Lesser rays, and (**C**) Alignment of the hallux.

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