EXPLORING HAND THERAPY

Volume 4, Issue 2 www.exploringhandtherapy.com June 2004

From the Editors' Desk:

Greetings as we enter the summer months. Exploring Hand Therapy (EHT) has been busy creating new educational courses for your learning enjoyment.

EHT now offers excellent AOTA provider courses via three methods: CD-ROM, DVD, and Internet streaming. EHT adds new courses regularly so please visit us at our website www.exploringhandtherapy.com for up to date courses at fantastic prices.

In this issue we are discussing the forever challenging flexor tendon repair. Remember to always consult your clinical coordinator or referring physician before you implement any procedure. The material presented in this newsletter are the opinions of the contributors and not necessary that of EHT.

This newsletter is made possible from our advertisers. Click on the Ads to visit their websites.
Studying for the certified hand therapy exam... you MUST check out our 3.2 CEU AOTA approved course. Refer to page 6 for details.

In This Issue

Nancy and Susan are founders of Exploring Hand Therapy, Inc. visit them at www.exploringhandtherapy.com

Susan Weiss

Nancy Falkenstein

Teno Fix® Tendon Repair System

The Teno Fix® Tendon Repair System is a new surgical device that could forever change the way orthopaedic and plastic reconstructive surgeons repair severed or ruptured digital flexor tendons. Restoring digital function after flexor tendon injury is one of the greatest hand surgery challenges. The Teno Fix® Tendon Repair System, introduced by Orlando-based Ortheon Medical, represents the first use of a surgical anchor system in soft tissue repair. Utilizing a patented technology, a small anchoring coil/core is inserted into a damaged tendon, gathering collagen fibers as it turns and harnessing the intrinsic strength of the tendon.

The Teno Fix® system is designed to allow patients to begin active motion therapy potentially more quickly after surgery. This will ultimately lead to an earlier return to normal motion and greatly reducing the need for repeat surgeries caused by scarring and adhesions.

"Beginning active motion therapy - expansion and contraction of the tendon - as soon as possible is critical to a successful repair," said Dr. Melvin Rosenwasser, Department Chairman at the Columbia School of Medicine. "This new surgical system should allow such therapy to begin much sooner than ever before."
The Teno Fix system is currently indicated for repair of severed or lacerated digital flexor tendons of the hand (with multiple digits repaired); a procedure that is performed approximately 145,000 times annually in the U.S. alone.
Limitations of current suturing techniques, combined with the inherent delicate nature of tendon fibers, leads to an approximately 30 percent rate of failure, which is defined as the need for a repeat surgery.

Hand surgeons face a delicate Catch-22…beginning aggressive therapy too soon can lead to "creep," when sutures pull through tendon fibers and create a gap that affects the healing process; but immobilizing the repair can lead to scarring and adhesions that won't allow normal, fluid motion of the tendon. In Figures 1 and 2, the polymer sutures stretch, leading to repair creep and gapping until they reach their elastic limit at which they break -- yielding a rupture. The failure mode of the Teno Fix® is shown in Figure 3, where the stainless steel suture does not stretch and the

continue page 2

anchors actually rip out tendon contained in the anchor.
Ortheon expects the benefits of the Teno Fix® system to decrease the occurrence of such problems as gap and rupture, and increase the success of tendon repair.
Biomechanical testing of the peak load at 2mm of gap (2mm is the maximum amount of gap between ends of a tendon before deemed a clinical rupture) of the Teno Fix® repair was 55 Newtons compared to 46 Newtons for a 4/0 Cruciate (control) suture repair. Also, the energy absorbed by the repair up to 2mm of gap was 50% greater than the control (Cruciate) repair. (1) The strength (normal force) required for moderate active flexion has been measured to be 20 Newtons.(2)

William J. Christy, Ortheon President,

continued on page 3

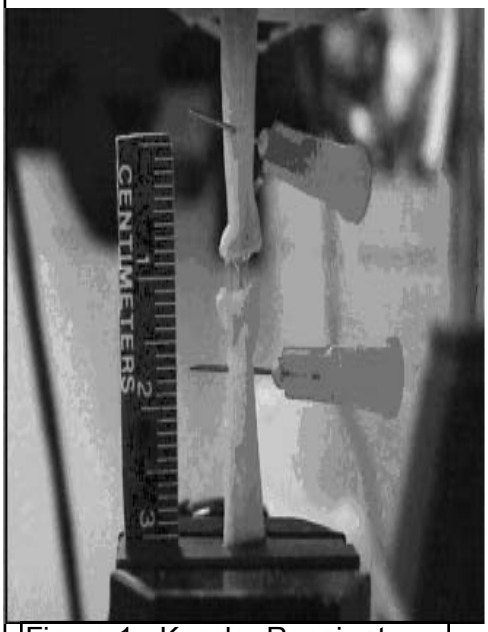


Figure 1. Kessler Repair at 2mm Gap

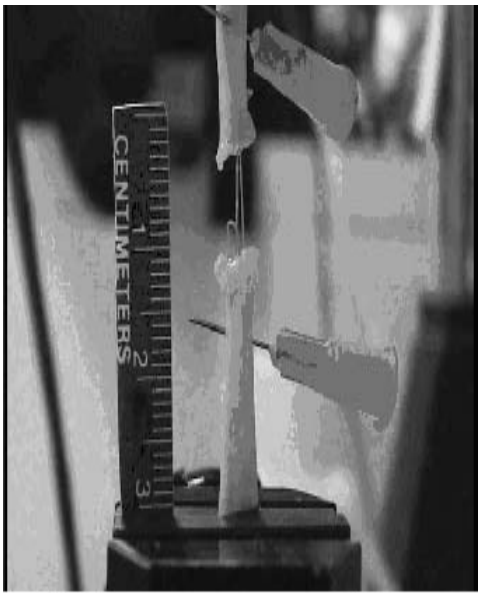


Figure 2. Kessler Repair at Elastic Limit, Suture Break

Figure 3. Teno Fix® Repair Failure Mode is Tendon Fibers Pulling Out with Anchor

said: "Our goal is two-fold: Ortheon wants to dramatically improve the standard of care for patients, and reduce the overall costs and re-operation rates associated with the current techniques. We believe the Teno Fix system will do both."
The system is already gaining attention in several worldwide markets, where Teno Fix has been available since May 2002. "Teno Fix® has shown great promise in allowing patients to return to normal function faster than we've seen with traditional suture repair," said Dr. M.W. Solomons, head of the Martin Singer Hand Unit at Groote Schuur Hospital's Department of Orthopedic Surgery in Cape Town, South Africa. "The increased strength of repair combined with earlier initiation of therapy is contributing to a much higher success rate."

GENERAL CONSIDERATION FOR OPERATIVE AND THERAPEUTIC TECHNIQUES

Multiple core suture designs have been described in literature. An epitendonous suture can also be used at the repair site and has been shown to increase the strength of the repair as well as to clean up the rough edges. It is clear that the number of strands that cross the repair site is directly proportional to the strength of the tendon repair. It is believed that at least a four-strand repair plus and epitendinous suture is required for early ACTIVE motion programs post-operatively.

The three generally recognized clinical post-operative approaches to tendon management are as follows:

Immobilization: In these programs the patient is immobilized for 3-4 weeks before beginning any passive motion (PROM) or active motion (AROM) exercises. Often used for patients that might be noncompliant or for children (age 10 or under). These suffer the least potential for rupture, but the most potential for debilitating adhesions and contractures.

Early Passive Mobilization: These protocols involve passively mobilizing the repair early (within 1 week) manually or by using traction. Patients may be allowed to actively extend and passively flex in the constraints of their splint. Commonly used programs include those developed by Kleinert, and Duran and Houser. The problem with these programs is that passive motion is like pushing a piece of spaghetti into a tube, whereas with active motion programs (described next) the spaghetti gets pulled

continued on page 9

Splinting Tips and Tricks

** When treating an extensor pollicis longus repair in zone IV or V using a dynamic splinting protocol, the wrist is splinted in extension with the CMCJ in neutral, the MPJ at 0, and the IPJ at 0 degrees -- The DIPJ is actively flexed to 60 degrees to produce a 5mm passive glide at the EPL.

** Digit exercise splints: Following an MPJ arthroplasty you can fabricate a PIPJ and DIPJ block to all fingers and encourage MPJ flexion. This finger pan splint will aid in directing the forces of flexion to the MPJ during active flexion.

**You can use a stockinette or tubigrip beneath the splint to reduce any irritation a splint may cause and it will help control perspiration.

**Preventing skin irritation for overlapped splint segments is easy. You can line the inside portion of circumferentially designed splints with moleskin or some type of thin padding may reduce the potential for irritation at the splint/skin interface. The key is to overlap the lining onto itself to form an extra 1" to 2" soft flap on the inside of the splint. (Jacobs & Austin)

**Demonstrate donning and doffing the splint multiple times and ensure your patient has 100% comprehension by having them donn and doff the splint in the clinic to avoid improper splint application.

Splinting Finishing Touches & Tips

+Check for mobility of uninvolved joints

+Smooth material borders and avoid too much rolling or flaring, which may irritate adjacent soft tissues and web spaces or may interfere with non-involved joints.

+ You want to trim strapping material to contour through the web spaces to prevent the strap borders from irritating these sensitive areas. (Jacobs/Asutin)

+Check the splint for compression of nerves, if applicable, especially at the cubital tunnel and the sensory branch of the radial nerve.

Test Your Knowledge - answers page 10

1. What is a new surgical device that could forever change the way orthopaedic and plastic reconstructive surgeons repair severed or ruptured digital flexor tendons?

2. Beginning aggressive therapy too soon can lead to what deformity?

3. What is the minimum repair requirements for early ACTIVE motion?

4. The Duran and Houser technique of therapy is what type of therapy regime?

5. According to this article what zone is treated after 24 hours of surgery rather than 2-3 days after surgery?

6. According to this article when is gentle resistive exercising started?

7. A nine year old that cuts his flexor tendons is best treated with what program?

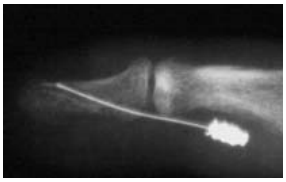
8. What type of suture can be used at the repair site and has been shown to increase the strength of the repair as well as to clean up the rough edges?

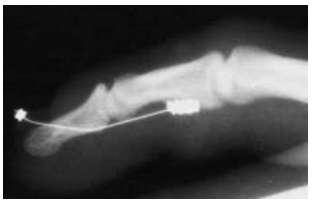
9. What is an early active motion therapy regimen that some surgeons use and is mentioned in this article?

10. Where can you learn up to date clinical treatment techniques for flexor tendons?

Pssst!! Did you Know

Surgeons have been utilizing the Teno Fix® to repair distal avulsions (jersey finger) and Zone 1 lacerations. Using the Lubbers Technique, a Teno Fix® anchor is placed in the proximal segment, and the suture is passed through the anchor and out the center of the tendon. Using a K Wire, a hole is placed through the distal phalanx and out the nail. The Teno Fix® suture is passed through the hole, out the nail, and through a button. The tendon is reapproximated to its insertion and the bead is crimped on top of the button. After healing, the surgeon pulls up on the bead, cutting the suture by the nail, and the remaining suture retracts back into the phalanx below the nail bed.





For mor information contact www.ortheon.com

down the tube and produces a better glide for the tendon.

Early Active Mobilization: These protocols have the patient performing specific active exercises (AROM) within a few days of surgery. These exercises must be performed within prescribed limits. You must REMEMBER if you pull your spaghetti too hard it will BREAK! The literature is growing rapidly with a diversity of postoperative approaches to early active mobilization.

TENO FIX POST OPERATIVE THERAPY

Currently, many surgeons and therapists are seeing excellent results using increased and earlier active therapy in conjunction with the Teno Fix® Tendon Repair System. Ortheon does not promote a specific protocol of post operative therapy, but has found many therapists gradually increase the active therapy of their regimens as they become comfortable with the expedited results of the Teno Fix® repairs. Therefore, a therapist who currently uses a passive (such as a modified Kleinert) protocol starts to move towards a controlled active (such as a. modified Duran Place and Hold) protocol as their confidence increases. Ortheon firmly believes there is an equal balance of surgeon, therapist, and patient when working towards obtaining exceptional outcomes. It is best to categorize your patient's repairs as fragile or strong repairs through communication with the surgeon in order to determine whether to back down your therapy plans or increase your regimen goals.

Keeping your therapy specific to each patient is difficult and takes time, but it best ensures the results you and especially the patient want to obtain. Examples of current pitfalls are patients who at three weeks feel that they can remove their dorsal blocking splints and use their hands for daily activity. It may be approprate to cast these patients so they can't remove the splint. Patients showing exceptional movement for their time increment (i.e. excellent range of motion [ROM] at initial weeks) may have their active motion exercises increased too significantly. This can lead to failure because the tendon still needs the biological healing time. Keep in mind, hand therapy goals should remain:

*Protect the repair
*Maintain max.

CONTINUED ON PAGE 11

Test Your Knowledge

Answers from questions page 6

1. TenoFix
2. Creep
3. Two strand repair with epitenon repair
4. Early passive mobilization
5. Zone 3
6. 8-12 weeks
7. Immobilization
8. An epitendonous suture
9. The Belfast protocol
10. www.liveconferences.com

Ergo Tips and Tricks

CTD's take years to fully develop, and almost as long to subside. Once your patients experience a CTD, they will always be at risk for further incidence.
Following are some common suggestons to help take control of CTD's.

Learn more about the identification, prevention, and treatment of CTD's. The more you and your patients know, the better all will be able to treat the condition. All good solutions start with knowledge.

"Microbreaks" from writing, keyboarding, and lab work every 30 minutes are essential. Stretching exercises a few times each hour are much more effective than a 15-minute break every 2 hours. Most people need to be reminded to take a break; timers and break-reminder software are very helpful. Longer rest periods are also recommended (e.g., 3-day weekends or some variation in tasks).

Aerobic exercise is critical for prevention of and recovery from CTD's. Even short exercise sessions every other day are enough to affect blood flow and help the body cope with stress. To avoid serious chronic pain, make time for exercise.

Stretching exercises for the upper body reduces risk and facilitates recovery. This includes upper- and mid-back, neck, shoulder, forearm, and wrist stretches.

Contrast therapy relieves symptoms in most cases by increasing circulation and decreasing swelling. It should be done 3-4 times a day for severe pain or 1-2 times daily for mild pain until symptoms subside. A contrast "bath" can be used for the forearms: Immerse forearm in warm water (100 degrees F) for one minute and then cold water (66 degrees F) for one minute. Continue alternating temperatures for a total of 10 - 15 minutes. Alternating hot and cold

continued page 12

ROM(per specific protocol)
*Facilitate tendon excursion
*Educate the patient

A passive Kleinert therapy protocol was used during the Teno Fix® clinical study for both control and test patients. The Teno Fix® patients returned a zero percent rupture rate. Another therapy regimen that some surgeons use is the Belfast protocol (an early active AROM program) or a modification thereof as presented here:

Post-operative Splint:
Maximum Wrist Flexion (minus 30 degrees) and MCP's at 50 degrees. The cast/splint extends 2 cm beyond the fingertips to inhibit use of the hand. A radial plaster "wing" wraps around the wrist just proximal to the thumb to prevent the cast from migrating distally. On initiation of therapy, the post-operative dressing is debulked to allow exercise.

Note: For zone 3 injuries, therapy is initiated 24 hours after repair, but zone 2 repairs are allowed to rest until 48 hours after surgery to allow postoperative inflammation to subside.

Early Stage (Up to 4-6 weeks):
Remember: Active motion exercises increased too significantly can lead to failure because the tendon still needs the biological healing time.

Every 4 hours:
1) Two Reps Active Flexion (PIP 30, DIP 10)
2) Two Reps Passive Flexion into Palm
3) Two Reps Active Extension through Splint

The first week's goal is full passive flexion, full active extension, and active flexion to 30 degrees at the PIP joint and 5 to 10 degrees at the DIP joint. Active flexion is expected to gradually increase over the following weeks, reaching 80 to 90 degrees at the PIP joint and 50 to 60 degrees at the DIP joint by the fourth week. In the presence of joint stiffness, passive exercises are increased to every 2 hours. A pen could be placed behind the proximal phalanx to block the MP in flexion for greater IP active extension if flexion contractures develop.

Intermediate Stage
(Beginning at 4-6 weeks):

Out of splint and 4 times daily -
1) Ten Reps Active Flexion each Joint
2) Ten Reps Active Extension each Joint
The splint is discontinued at 4 weeks if tendon glide is poor (not achieving expected goals as stated), at 5 weeks for most patients, or at 6 weeks for patients with unusually good tendon gliding (full fist developing within the first 2 weeks). Three weeks after splinting is discontinued, any residual flexion contractures are treated with finger-based dynamic extension splints.

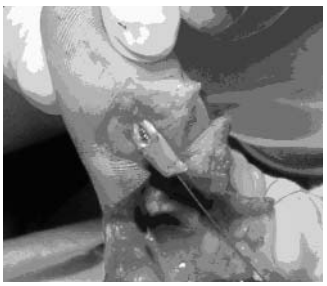
Late Stage
(Beginning at 8-12 weeks):

1) Start Gentle Resistive Exercises
2) Gradually Increase Resistance Over Next 4 Weeks
The only exercise specified for this period is protected passive IP extension (with the MP held in flexion) in the presence of flexion contractures. Presumably, patients continue active flexion and extension exercises, and the program progresses from this point as it would for any tendon protocol, adding light resistance first as warranted by difficulty attaining tendon glide, and then stepping up resistance (late stage) for strengthening.

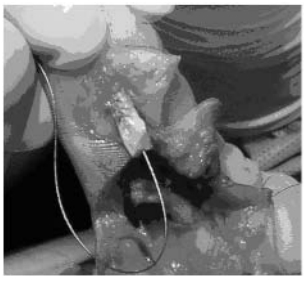
Again, the aforementioned protocol is one of many protocols that have been used for flexor tendon therapy, including Teno Fix® patients. In conclusion, patient results come down to compliance to whichever hand therapy regimen is chosen and understanding the advantages or limitations of each patient's tendon repair.

Procedure Images

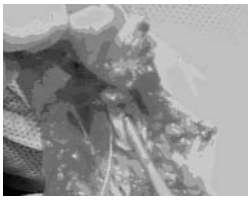
Make Tenotomy and Install Distal Anchor



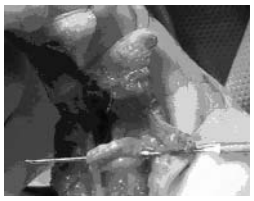
Pass 2/0 Stainless Suture



Close over Distal Anchor



Make tenotomy and Install Proximal Anchor



Insert 22 Ga. Needle as Guide

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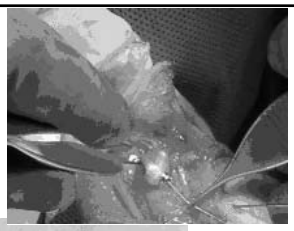
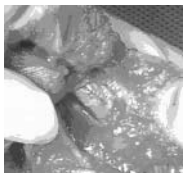


Re-approximate Repair

Crimp Bead after Approximated

Cut Suture Flush against Back of Bead



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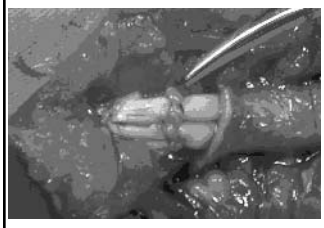

Complete Running Epitendonous Stitch

For more information about Ortheon or the Teno Fix® Tendon Repair System, contact the company at 1-866-TENOFIX, or visit the company's Web site at: http://www.ortheon.com.

(1) Data on file at Ortheon.
(2) Urbaniak AAOS Symposium 1975

For continued reading refer to "What's Up Doc" on pages 14 and 15

Ergo Tips and Tricks

packs for 15 minutes each can be applied to shoulders and elbows.

Ice therapy for 10 - 15 minutes twice during the day may help relieve symptoms. There are several ice options: reusable cold therapy packs, a plastic bag filled with three cups of water and one cup of rubbing alcohol, or frozen peas. Ice baths are also effective and require less time: Rest your forearm in water with ice cubes for 10 seconds; then, rest hand outside tub for 10 seconds. Continue for 1 1/2 minutes. Note: If after use, the area is pale or white, do not continue.

Vitamin and mineral supplements facilitate healing of soft tissue and improves function. Colloidal minerals and a stress-formula multivitamin are highly recommended. Supplements should always have a lot number and be properly sealed in a dark glass (e.g., Twin Labs).

Massage is a clinically-proven way to ease muscle tension, to promote circulation, and to manage pain-inducing stress. Self-massage of the forearm, hands, shoulders, upper back, neck, face, legs and feet is very effective, as are regular upper-body and full-body massages.

Over-the-counter anti-inflammatory agents may help if taken regularly for a period of time. These agents lose their anti-inflammatory properties and become only pain relievers if taken occasionally. Therefore, take as directed to attain a therapeutic blood level of medication. Acknowledge written precautions.

Be aware that non-work factors that increase CTD risk: poor physical condition, smoking, poor nutrition, personal stresses, previous injuries, aging, hobbies, ADLs, and certain diseases can reduce the body's tolerance to stress.

Information from the website of Working Well Ergonomics.... http://www.working-well.org

From: www.AOTA.org

Vision Statement

The contributions of occupational therapy to health, wellness, productivity, and the quality of life are widely used, understood, and valued by the society.

AOTA Certification Programs
The AOTA Specialties Board (AOTASB) continues its work to identify and develop a new Board Certification program for occupational therapists and a new Specialty Certification for occupational therapists and occupational therapy assistants.

Beginning January 1, 2007, occupational therapists will be credentialed at the postbaccalaureate degree level.

From: www.ASHT.org

Hand Therapy Awareness Week

Hand Therapy Awareness Week brings the benefits of the hand therapy profession to new audiences – demonstrating the advantages of preventative as well as treatment procedures for patients who may have been affected by an accident or trauma.

Hand Therapy Awareness Week is an integrated national program sponsored by the American Society of Hand Therapists. During the week of June 14-18, 2004, we encourage you to sponsor and organize events in your community, espousing the benefits of the profession and the services you provide. Its success, however, depends a great deal on you – your efforts at the local level, your knowledge of your audience, your creativity and, most importantly, your enthusiasm.

From: www.HTCC.org

Scope of Practice and Domains of Hand Therapy

The Scope of Practice of Hand Therapy may include one or more of the domains described below. Domains describe major areas of responsibility in hand therapy. The first three domains include assessment and treatment of hand patients in compliance with state and federal laws; treatment is based on the results of assessment and may be provided on a one-to-one basis, in a group, or by consultation. The fourth domain describes services designed for specific population groups. The final two domains describe activities associated with professional practice.

What's Up Doc?

Question: Is the Teno Fix® more technically challenging than the 4 or 6 strand repair technique?

MR: No, it is distinctly less difficult once you learn the nuances of the various laceration levels and pulley management – less bulk and less tendon touches in general as well as no slack in the core suture with better caoptation and tensioning possible.
LL: The Teno Fix® was intentionally designed to be easy to install and reliable in its purpose. It's been said that once one does Teno Fix® repairs, they will never want to go back to suture based repairs.
MQ: No, if anything it is simpler. It is also designed to be more reproducible.

Question: How do you manage to use the Teno Fix® under pulley repairs?

MR: That question is a whole lecture in itself and is best answered with pictures and diagrams not words. In essence, in a proximal zone 2 injury the pulleys are a no brainer because you can work on either side. In a distal zone 2 you either pull out the distal stump from below the A4 for a palmar approach or do a side tenotomy for the distal anchor by hyperflexing the DIP joint and then crimp near the proximal anchor last. The tenorahpy site will end up under the pulley but you can inspect the juncture by delivering the tendon repair juncture distal to the A4 pulley by fully extending the digit as well as narrowing the A4 pulley slightly.

LL: The same as before [with suture repairs] – it has been shown by Dr. Diao at the University of California San Francisco, that there is no significant increase in the work of flexion when the Teno Fix glides under the pulleys.
MQ: Because the Teno Fix anchors can be inserted into each end of the tendon without them being apposed, one has more flexibility around pulleys than with a suture repair.

Question: Do you recommend using Teno Fix® along with pulley reconstruction?

MR: Sure, the pulley reconstruction is independent of the tendon repair.
LL: This should not be a problems as long as the pulley reconstruction is not tighter that a normal pulley.
MQ: Pulley reconstruction is not a contraindication. If you would do it with a suture repair, you can do it with a Teno Fix.

Question: Do you use Teno Fix® for all flexor tendon zones?

LL: Yes, except for the thin portion of the sublimus tendon.
MQ: You certainly can. Its greatest advantages are in the zones were bulk needs to be minimized and strength is at a premium, namely zone II and zone I. It has worked very well for the zone I reinsertions, better than anything else I've done. It could certainly be used in more proximal zones as well.

Question: When would you feel a "standard" repair would be indicated instead of the Teno Fix®?

MR: Suture repair should be done whenever the tendon caliber is inadequate.
LL: Only in the cases where the flexor tendon is too small to accept the anchor (i.e. children and the small finger profundus in some women).
MQ: The only time a "standard" repair would be better is if the tendon is simply too small to accept the Teno Fix device.

Question: Do you recommend in zone 2 injuries that both tendons are repaired using the device?

MR: Yes, if the FDS laceration site is proximal enough to accommodate the anchor.
LL: In the decussation area, (the sublimus chiasm) I use a Teno Fix in the profundus tendon and resect one limb of the sublimus. Then, I perform a suture repair in the "strong limb." In Zone 3 and proximal Zone 2, a Teno Fix® in each tendon is preferable.
MQ: The Teno Fix does not fit in all FDS tendons – near their insertion, these tendons flatten considerably. If it fits, the answer is yes.

Question: Is the device recognized by insurance plans?

LL: The Teno Fix® is considered an implant. Many surgery centers and most hospitals have contract clauses with payers providing reimbursement for implants. With proper coding implants are usually covered.
MQ: Worker's compensation, No-Fault, and Blue Cross have paid well.

Question: Do you offer in-services to physicians and staff to learn how to use the device?

MR: Yes, I have been giving surgeon tutorial around the country and an instructional video is available.
LL: Yes, this can be usually arranged with Ortheon Medical.
MQ: Ortheon sets them up; faculty surgeons speak about the science and help train.

Question: How would you recommend therapists get their physicians to look at the Teno Fix® device?

MR: Read an article or monograph and see or hear surgeons that have successfully used the device.
LL: Quote the science! Especially the (South Africa) FDA approved blinded study where 17% of 4-strand controls ruptured and 0% of Teno Fix® repairs ruptured.
MQ: Ask them if they'd like their flexor tendon repair results to be better (in a diplomatic way). If the surgeon is totally satisfied with his/her results, this is may not be for him/her.

Question: Do you have any additional information you would like to share?

MR: Try it and you will like it.
LL: The Teno Fix® is felt to have enough strength for active motion therapy in flexor tendon applications. When you start having compliant cases, as I have recently, where near normal range of motion is restored at 6-7 weeks, it creates a great deal of excitement.

Biographies

Lawrence Lubbers, MD, Clinical Associate Professor of Orthopedic Surgery and Director of Hand and Upper Extremity Surgery at Department of Orthopedics, Ohio State University; Principal of Hand and Microsurgery Associates in Columbus, OH.

Melvin Rosenwasser, MD
Robert E. Carroll Professor of Orthopedic Surgery; Chief of Hand Surgery Service at Columbia University College of Physicians and Surgeons; Attending Orthopedic Surgeon at the New York Presbyterian Hospital; Director of Hand Surgery Fellowship at Department of Orthopedic Surgery of Columbia University, College of Physicians and Surgeons; Named in America's Top Doctors, (Castle Connolly Publishing, 2001).

Edward Diao, MD
Associate Professor of Surgery and Chief of Service, Hand, Upper Extremity, and Microvascular Surgery at University of California San Francisco; Medical Director at UCSF-Mt. Zion Ambulatory Orthopedics; Chaired Panel on Flexor Tendon Surgery, American Society for Surgery of the Hand Annual Meeting (2000, 2001, 2002); Named in America's Top Doctors, (Castle Connolly Publishing, 2001); Consulting Editor for Journal of the American Academy of Orthopedic Surgeons.

Michael Solomons, MD
Director at Groote Schuur Hospital Hand Unit, Department of Orthopedic Surgery in Cape Town, South Africa; Consultant to Conradie Hospital, Tetraplegic Upper Limb Clinic.

Matthew Quitkin, MD
Attending Orthopedic Surgeon at Manus Hand Center; Robert E. Carroll Hand Fellow; author of Biomechanical Behavior of the Teno Fix® and Histological Response of the Teno Fix®

Thank you TENOFIX!!
We look forward to hearing lots more from you in the near future.

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