Tenex Procedure: Everything You Need to Know

Minimally Invasive Procedure Can Help Relieve Chronic Joint Pain

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Key Takeaways

- The Tenex procedure is a quick, 20-minute outpatient treatment for chronic tendon pain with local anesthesia.
- Health insurance often covers the Tenex procedure if other treatments have been tried and failed.
- There is no need to stop eating or drinking before the Tenex procedure, but you would need to avoid NSAIDs like Advil and Aleve for a week before and after.

The Tenex procedure is a minimally invasive, trademarked procedure used to treat chronic pain associated with tendinitis (tendon inflammation). The procedure can reduce tendon pain by breaking down and removing damaged tissues with high-frequency ultrasound energy.[1]

Also known as percutaneous ultrasonic tenotomy and percutaneous ultrasonic fasciotomy, the Tenex procedure is commonly used to treat tendinitis of the elbow, hip, knee, shoulder, and ankle, as well as plantar fasciitis foot pain. The procedure may be a reasonable alternative to conventional surgery when conservative therapies fail to provide relief.

What Is the Tenex Procedure?

The Tenex procedure was developed by California-based Tenex Health in the mid-2010s to relieve chronic pain associated with tendinitis. It is a minimally invasive procedure performed on an outpatient basis under local anesthesia.

The Tenex procedure is typically performed as a single treatment. It involves making multiple tiny incisions through which a needle-like ultrasound transducer is inserted into or near a joint space to break up and remove damaged tissues. Most procedures can be performed within 20 minutes without the need for stitches.[2]

The Tenex procedure can be performed in a hospital, clinic, specialized surgical center, or a healthcare provider's office, usually with the accompaniment of a single nurse or medical technician.

Unlike tendon surgery, the Tenex procedure doesn't involve intravenous anesthesia or sedatives of any sort. This negates the need for an anesthesiologist, as well as an IV line, pulse oximeter, and other equipment typically used in surgery.

The Tenex procedure is neither used to replace first-line conservative treatments nor as a stopgap measure when conventional surgery is indicated (such as for a ruptured tendon).

When Is the Tenex Procedure Used?

The Tenex procedure is used to relieve refractory (treatment-resistant) pain associated with chronic tendinitis. This most commonly involves tendon pain caused by long-standing sports injuries, repetitive motion injuries, and progressive weight-bearing injuries of the tendons and joints.

Examples include:[5]

- Achilles tendonitis
- Lateral epicondylitis ("tennis elbow")
- Medial epicondylitis ("golfer's elbow")
- Patellar tendinitis ("jumper's knee")
- Plantar fasciitis
- Proximal biceps tendinitis
- Rotator cuff impingement ("swimmer's shoulder")
- Rotator cuff tendinitis

The Tenex procedure is covered by many health insurance plans, although the healthcare provider will need to establish that other standard treatments have been used—and have failed—to provide pain relief.

Are There Risks to the Tenex Procedure?

There are few notable side effects associated with the Tenex procedure. Other than mild bleeding and short-term pain, redness, and swelling, the Tenex procedure is considered safe with a low risk of infection.

On rare occasions, nerve damage has been reported, but the risk is considered low (less than 1%) as there are relatively few nerve fibers within tendon tissues.[4]

While there are no absolute contraindications for the Tenex procedure, it may be deferred if there is a local skin infection due to the risk of cellulitis.

The procedure should also be avoided if there is significant joint instability or recurrent dislocation, both of which indicate the need for more invasive treatment.[3]

How to Prepare

Prior to scheduling the procedure, you would undergo a preoperative evaluation by a specialist trained in the technique.

The evaluation would involve a physical exam, a review of your medical history, and, most importantly, the imaging of the joint—using an X-ray, computed tomography (CT) scan, or magnetic resonance imaging (MRI)—to determine the location and extent of the damaged tissue.[8]

Once scheduled, you would be advised to stop all nonsteroidal anti-inflammatory drugs (NSAIDs) at least one week before and after the procedure to reduce the risk of bleeding.[9]

These include over-the-counter and prescription NSAIDs like:

- Advil (ibuprofen)
- Aleve (naproxen)
- Aspirin (acetylsalicylic acid)
- Celebrex (celecoxib)
- Voltaren (diclofenac)

During this period, chronic pain can be managed with Tylenol (acetaminophen) or regular ice application.

There are no food and drink restrictions for the Tenex procedure.

What to Expect on the Day of the Procedure

Once you are checked in and have completed registration forms, you are escorted to the procedure room, where your weight, height, and vital signs (temperature, blood pressure, heart rate) are taken by a nurse. A hospital gown is provided, if needed.

You are then placed on a table or chair in a position that provides direct access to the treatment site.

Thereafter, the procedure is performed in the following steps:[10]

1. A handheld ultrasound maps the needle insertion point on the skin, which is marked with a pen.
2. A local anesthetic, like 1% lidocaine, is delivered under the skin to numb the general area. You may feel a little prick but generally little pain.
3. When sufficient numbing has occurred, the skin is swabbed with an antimicrobial wash.
4. The healthcare provider then makes a 3-millimeter (1/10th-inch) incision on the pre-marked location.
5. Using the ultrasound for guidance, the oscillating needle is inserted at a shallow angle into the damaged tendon. The high-frequency action scrapes away damaged tissue, while debris is cleared with a continuous stream of saline solution.
6. Once completed, the needle is extracted, and the incision is closed with an adhesive strip.

Depending on the treatment area, the provider may decide to temporarily immobilize the joint with a brace, splint, or a walking boot. Crutches may be needed if the foot, ankle, knee, or hip was treated.

You can usually go home after the procedure is complete. Even though the procedure involves only local anesthesia, it is still a good idea to have someone drive you home rather than doing to yourself.

What to Expect During Recovery

Upon your return home, you will need to relax for several days, placing minimal weight on the affected joint. Pain, if any, can be treated with Tylenol or a cold compress.

Although excessive movements are avoided, you will need to perform gentle range of motion exercises for the first 48 hours to prevent adhesions (the sticking together of tissues). Wound care instructions will also be provided.

After about a week, eccentric exercises (in which muscles are lengthened and contracted at the same time) would be incorporated into the treatment plan to build strength and restore joint mobility. A physical therapist can help design the appropriate program.

Most people are able to return to work within a week to 10 days. Although pain relief is often striking and immediate,[11] it can take anywhere from four to 12 weeks before you regain full function of a joint and a return to normal physical activity.[10]

The Tenex procedure is still relatively new, but early studies suggest that it has a success rate of around 84.6% when used appropriately.[12] If the procedure is not successful, it is often because more invasive treatments were needed in the first place.[8]

Citations

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