



PATIENT INFORMATION FILE:

ACHILLES TENDON TEAR

Your surgeon has suggested surgical treatment for your ankle instability.

He or she has explained the general points about this treatment: alternatives, procedure, postoperative course, expected results, and also the main possible complications. This file is a supplement provided as a reminder of the key points regarding your pathology, enabling you to check out the important aspects of the coming operation.

Your surgeon is also available before the operation to answer any further questions you may have.

File produced by the medico-legal commission of the French Foot and Ankle Surgery Association (AFCP)

File available on-line at the following websites:
AFCP (<https://www.afcp.com.fr/infos-publiques/infos-patients/>)
SOFOT (<http://www.sofcot.fr/Infos-public-Patients>)
ORTHORISQ (<http://www.orthorisq.fr>)



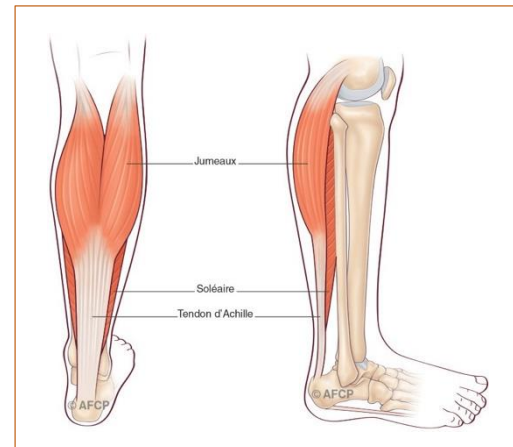
ANATOMY

The Achilles tendon, or “calcaneal tendon”, is the terminus of the calf muscles (triceps surae). It is superficial, easy to palpate at the bottom of the lower leg, and ends at the calcaneus (heel bone).

It is encased in a synovial tissue sheath enabling it to slide between skin and bone in flexion/extension movements of the ankle.

It has a part with few blood vessels, a few centimeters above its insertion on the calcaneal bone.

When the calf muscles contract, the Achilles tendon induces plantar flexion of the foot. This provides propulsion in walking, rising on tiptoes, and running with long strides. It is the largest and most resistant tendon in the body, due to the strong forces it has to transmit.



PATHOLOGY

The Achilles tendon may tear under a strain exceeding its resistance. This usually occurs in a healthy tendon, although a pathologic tendon may tear when tendinopathy reduces resistance. Such tendinitis may be revealed by pain, but the tendon may also tear despite there being no prior symptoms.

Tendon fragility may be caused by certain diseases, such as inflammatory rheumatism, diabetes or kidney failure, or by certain antibiotics of the quinolone family.



The violence of the mechanism leading to tear varies according to tendon resistance: propulsion during a jump or running, or heavy landing after a jump in some sports. The effort in question may be a quite moderate everyday activity if the tendon is fragile: climbing stairs, more or less quickly, taking long steps to catch a bus, etc.

The tear is usually in the distal third of the lower leg, behind the ankle, in the tendinous region, but can also occur at the junction between tendon and muscle, in the mid-third, or at the insertion onto the calcaneus.

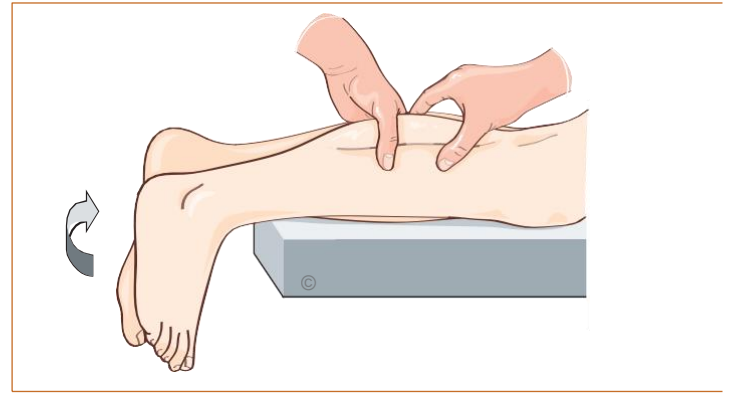
CLINICAL ASPECTS

Achilles tendon tear manifests as a violent acute pain behind the ankle under a more or less intense effort. It is often described as a “crack”, followed by immediate functional impotence.

Subsequently the pain and the loss of function improve, so that consultation and diagnosis are often delayed. Walking is possible, with the foot flat on the ground, without a proper step: there is more or less severe limping, and walking is slowed. The most troublesome feature is being unable to rise up on tiptoes or to run.

DIAGNOSIS

Diagnosis is mainly based on clinical examination. The interview establishes pain, with a whiplash or crack in the lower calf during an effort, followed by functional impotence. Palpation, with the patient lying prone, finds pain in the Achilles tendon, and sometimes a depression where the tendon is torn. The most reliable examination is the Thompson maneuver: transverse compression of the calf fails to induce plantar flexion in the foot.



Complementary examinations such as ultrasound or MRI may be used to confirm diagnosis.

In neglected tear, the tendon may seem to recover continuity by poor-quality scar tissue or lengthening of the tendon scar. The discomfort is variable: swollen ankle, limping, difficulty with stairs, lack of propulsion in gait, inability to run, etc. Palpation and Thompson maneuver are sometimes less demonstrative, and complementary ultrasound or MRI help diagnosis.

NON-SURGICAL TREATMENT

Without treatment, an Achilles tear can heal, but with poor-quality scar tissue, liable to tear again, and a lengthened tendon, which reduces calf-muscle strength. In other cases, no scar develops, leaving a “gap” at the tear site.

The aim of treatment, whether surgical or not, is for the tendon to heal, by bringing together the two torn ends.

“Orthopedic” treatment, without surgery, is feasible, consisting in immobilization of the ankle in equinus position (i.e., plantar flexion, bringing the two torn ends together) for 3 or 4 weeks, before gradually returning to a 90° position with respect to the leg. This orthopedic treatment is usually for elderly, fragile and unathletic patients.

SURGICAL TREATMENT

Surgical repair can be performed under general, spinal, locoregional or sometimes simply local anesthesia.

> ANESTHESIA

There is always a preoperative consultation with an anesthesiologist, who will explain the types of anesthesia adapted to your operation and your state of health.

In this consultation, he or she will also ask about any medication you are taking. New treatments may be started, either before or after surgery. The most frequent are anticoagulants, antibiotics, analgesics and anti-inflammatories; each, of course, has its own specific risks.

>HOSPITAL ADMISSION – SURGERY

You may be admitted on an outpatient basis (just for the day) or for a few days, depending on your situation.

This surgery usually requires no blood transfusion.

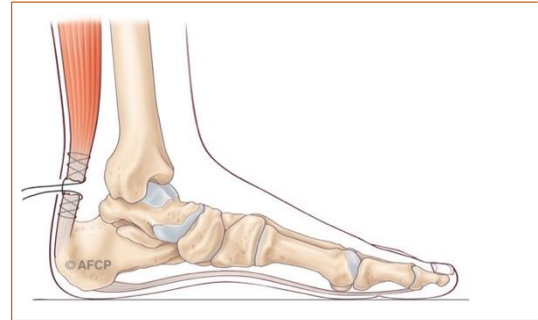
You will usually be positioned prone, on your stomach. **When you go to the operating room, do not be surprised if you are asked more than once for your identity, and the side to be operated on (on arrival, and again when you are being positioned on the table): this “security check-list” is mandatory, under French Health Authority regulations, for all patients.**

Operating time depends on the technique and the tendon lesions, but ranges between 20 minutes and sometimes more than 1 hour.

During surgery, a tourniquet may be used to interrupt blood flow into the operative area. It is usually applied to the thigh.

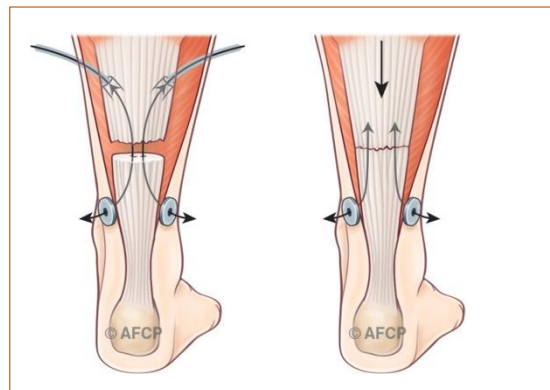
In “acute” tear, a direct (end-to-end) suture brings the torn ends together. The operation can be “open” (classical), “minimally invasive” or “percutaneous”, depending on the anatomic damage, the interval between tear and surgery, your general state of health and risk factors, and your surgeon’s habits.

For “open” repair, an incision of about 10 cm (4 inches) is made over the tear, which is sutured under visual control.



“Minimally invasive” repair uses a classical suture with instruments that allow the incision to be kept to just a few centimeters. In “percutaneous” repair, the torn ends are brought together by external maneuver and held in place by a “harpoon” system introduced via an incision of just a centimeter. The extremities of the “harpoon” system are visible and fixed on the skin. The system is later removed once the tendon has healed.

If the Achilles tendon insertion onto the calcaneus is has been torn away, the tendon can be reinserted. Surgical hardware, such as pins, screws, anchors or bands, is often used to maintain the repair.



In longstanding tear, it is rarely possible to bring the two ends together, as they will have become retracted. Specific “open” techniques are then used, requiring a longer incision, of 10 to 30 cm (4 to 12 inches), depending on the lesion and the technique.

In case of fibrous scar and tendon lengthening, the tendon may be shortened, with direct suture of the ends.

In case of persistent tear leaving a defect, the ends may sometimes be directly sutured, but a tendon graft (transplant) is often needed to fill the gap and repair the tear. Nearby or more distant material may be used for grafting:

- nearby, there is the fibrous sheath of the triceps muscle (the calf muscle that terminates in the Achilles tendon), which can be lowered, turned down or even harvested to fill the defect;

- harvesting further away, in the ankle, calf or even more remotely (in the knee, for example) usually means another incision, with possibly perceptible functional impact, depending on the transplant.

During the operation, your surgeon may run up against an unexpected or unusual situation or event requiring procedures complementary to or different from those originally planned. Once the operation is over and you have come round from the anesthesia, anything like this will be explained to you.



POSTOPERATIVE COURSE

Surgery for acute tear is usually on an outpatient basis. Neglected tear usually requires a few days' conventional admission.

>PAIN

Although strong analgesics may be used immediately after the operation (especially for secondary repair), you can usually be discharged home with simple painkillers.

In some operations, to avoid hematoma, drainage may be fitted to evacuate the postoperative bleeding, and withdrawn after a few days.

>LEAVING BED

It is usually possible, depending on your state of health and the type of surgery, to get up from bed soon – even the same day, in case of outpatient surgery. But you should raise your foot when you are not actually standing, to prevent edema.

>IMMOBILIZATION

Postoperatively, immobilization is usually prescribed, with a plaster cast, split or boot. Ankle position may initially be in equinus (planar flexion), then adapted according to progression. A period of non-weight-bearing may be needed, depending on the type of surgery, the quality of the repair, the lesions discovered and the quality of the tendon.

> PREVENTING PHLEBITIS

Anticoagulation treatment is usually prescribed by your surgeon and anesthetist, to reduce the risk of phlebitis and/or pulmonary embolism.

It is usually continued until you can resume weight-bearing, or until the end of the immobilization.

>DRESSING

The dressing is carefully performed at the end of surgery, according to the surgeon's habits, and usually is not to be changed. If, however, you are having treatment at home, it is important to ensure the hygiene of the surgical scar while the sutures are still there and the scar is not yet completely dry. Hand hygiene is vital, and you must never touch the scar without first washing your hands. Make sure you always have a place nearby to wash or else a hydroalcoholic solution or gel for the nurse who comes to look after you.

>POSTOPERATIVE EDEMA

Edema (swelling of the foot and toes) is normal after foot and ankle surgery, and is not always a complication. Treatment is important, not just to relieve pain but also to improve healing. A period of rest may be needed, with the foot raised and venous contention using a contention sock or stocking. The edema can last several weeks or even months, without any real consequences, although you may have to adapt your footwear in the meantime.

WHAT TO EXPECT FROM THE OPERATION

The aim of repair is to achieve good-quality tendon healing, reducing the risk of repeat tear, and transmitting forces from the calf to the



ankle as normally as possible.

On the healed tendon, there is usually thickened scar tissue that is definitive. Recovery is slow, over several months, generally guided by a strict rehabilitation protocol. Everyday activities can be resumed after a few weeks, and sports activities after a few months (5 or 6 for land-based sports).

There may sometimes be persistent pain on effort, due to residual alterations in the tendon, pre-existing the tear in the case of underlying tendon pathology, or scar adhesions.

In repair of neglected tear, recovery tends to be longer, and sports activities may be restricted.

FOLLOW-UP

Your surgeon will make regular clinical, radiological and biological check-ups, and the results will go in your medical file.

The (anonymized) data from your file may be used by your surgeon in scientific studies, presentations or publications, in line with the "Jardé" law of March 2012 (Decree 2016-1537). In this case, you will be asked for your specific consent, which will be included in your file.

The first postoperative consultations are to monitor local status. They screen for cicatrization problems, which are frequent due to the fragility of the skin over the Achilles tendon. In case of immobilization, depending on the type of operation, ankle position may be altered after a few weeks.

At the end of immobilization, or immediately if immobilization is not required, a progressively lower heel may be used to protect the tendon repair by relieving traction.

Subsequent consultations monitor and intensify the rehabilitation program, depending on the type of operation. Rehabilitation comprises predefined stages that must imperatively be respected (work against resistance, rising on tiptoes, running, etc.) to ensure optimal recovery and avoid repeat tearing due to imposing premature strain.

Control consultations check on the progression of ankle range of motion, residual tendon pain, the advisability of producing special insoles or modifying footwear to relieve the Achilles tendon during everyday or sports activities.

RISKS

Surgery is NEVER entirely risk-free. However much care is taken, "zero risk" does not exist. When you decide to undergo surgery, you need to be aware of this, and weigh the risks against the expected benefit; this is known as the "risk/benefit ratio".

However skillful your surgeon and the team, any treatment can sometimes unfortunately result in failure: recurrence or worsening of symptoms, or other even more serious risks. This may be pure chance or bad luck, but may also implicate your own particular health issues, whether these are known or not, local or general. There is no way of listing every conceivable complication, but we shall present below the most common or the most serious cases sometimes found with your pathology.

> RETEAR

Despite good quality tendon healing, there is still a 10% risk of a new tear. The risk is higher in non-surgical treatment. It also depends on age, sports activities and the level of such activities.

> CHRONIC PAIN AND COMPLEX REGIONAL PAIN SYNDROME

In painful pathologies, any medical or surgical treatment may unpredictably leave persistent pain or even worsen existing pain. Chronic pain may set in over the long term, as complex regional pain lasting several months and sometimes leaving trophic or



joint sequelae.

> INFECTION

Despite all precautions in disinfection and skin preparation, any surgical incision is open to a risk of microbial contamination that may lead to infection. Infection may occur early, or much later. It often requires antibiotics and sometimes revision surgery, and may leave pain or functional sequelae.

Certain factors such as diabetes, smoking or use of immunosuppressants (corticosteroids, etc.) can increase this risk.

> SCAR DISORDER

Despite all the precautions your surgeon takes with the operative wound and all the nursing care, there may be cicatrization problems, sometimes induced by general or local health issues such as diabetes or circulation disorder.

An initial scar due to the fracture can lead to healing disorder, with delay involving a blemish, non-healing or even skin necrosis. Scar disorder can also lead to infection.

> SMOKING

Smoking is an important risk factor in foot and ankle surgery, notably leading to scar disorder, infection and thromboembolic complications and problems of bone consolidation.

It is recommended to cease smoking completely 6 weeks before surgery and for 6 weeks after. If you need help, do not hesitate to call on your family doctor.

> HARDWARE DISASSEMBLY OR BREAKAGE

Your operation may involve mobilizing bone segments and may need some surgical hardware, such as a plate, screws, pins or sutures, to correct a deformity. Like any material, these implants may lead to complications, due either to their intrinsic fragility (breakage) or to displacement of the assembly due to excessive mechanical stress on the structures in which they are implanted, leading to correction loss. The implants may thus sometimes require repeat surgery in case of postoperative displacement or specific complications.

Finally, at a later stage, well after the immediate postoperative period, when your pathology is fully cured, the hardware may be removed in a scheduled operation, depending on the location, or if it is causing discomfort or local impingement.

> THROMBOEMBOLIC COMPLICATIONS

Any surgery, especially in the lower limbs, can lead to a blood clot obstructing the veins and causing phlebitis. The clot may reach the lung vessels, causing embolism, which can have serious or even life-threatening consequences. Prevention may involve anticoagulation therapy, depending on the type of surgery and your general health status.

> "NEIGHBORING" COMPLICATIONS

There are nerves, vessels, tendons, muscles and bones situated close to the operative area. They may be affected directly or indirectly by surgery, with hemorrhage, hematoma, paresis, paralysis desensitization, loss of motion, joint stiffness, etc. In some cases, surgical revision may be required, to drain a hematoma, decompress a nerve, release a tendon, etc.

> DRUG-RELATED COMPLICATIONS

After surgery, you may be prescribed specific medication. This most often comprises anticoagulants, antibiotics, analgesics or



anti-inflammatory drugs. Obviously, each has its own risks, which may be serious and sometimes unpredictable.

> POSTPONEMENT OF SURGERY

Finally, your operation may have to be postponed, to ensure maximum safety:

- An illness just before admission
- A recent change in your usual treatment
- A wound or infection near the surgery site
- Forgetting or failing to adhere to the instructions given by your surgeon or anesthesiologist
- Unexpected unavailability of some necessary equipment, or some problem arising with the operative room, liable to interrupt the procedure, even after you have been anesthetized.

Frequently asked questions:

Can both ankles be operated on at once?

Tearing both Achilles tendons at the same time is exceptional.

How am I going to manage at home? Will I be able to drive?

Depending on the type of operation, you may or may not be able to put your foot on the ground without crutches.

In Achilles tendon surgery, immediate weight-bearing is not always authorized, and you may need either a removable boot or some more rigid type of immobilization, such as a plaster or resin cast, with different ankle positions, so as to achieve healing with the right tendon length. During the immobilization period, it is not possible and would indeed be dangerous to drive. Your surgeon will explain how you can start driving again, depending on your progression.

What do I do if my foot or ankle hurts or swells (edema)?

Edema is frequent, and usually not pathological.

In some cases, if it is associated with severe pain, this may be the sign of something abnormal in wound healing, the repaired tendon or the bone (e.g., a displacement of hardware).

What do I do in case of fever or a problem with the scar?

If you run a temperature (fever), that may be a sign of infection.

If, on dressing, you find that the scar has reddened, is inflamed or shows effusion, consult your surgeon as quickly as possible: he or she will be able to advise you and set up suitable local or general treatment, such as antibiotics.

What do I do if I have pain in the calf, or difficulty breathing?

These signs may be related to a blood clot in a vein (phlebitis) or to migration of a clot to the lung (pulmonary embolism), which may have serious consequences.

The risk is all the greater if, because of the type of operation you have had, you are not authorized to put your foot down on the ground. In that case, you will have been prescribed preventive anticoagulants; but even so, there remains a risk, and these signs should alert you to that.

In general, onset of any new symptom is a reason for consulting your family doctor or your surgeon or, in case of emergency, the center in which you were operated on.

If you cannot manage to contact any of these, do not hesitate to phone 15 (the French emergency ambulance number), where you will be referred.