VETLIG GLOBAL

ACHILLES TENDON RECONSTRUCTION

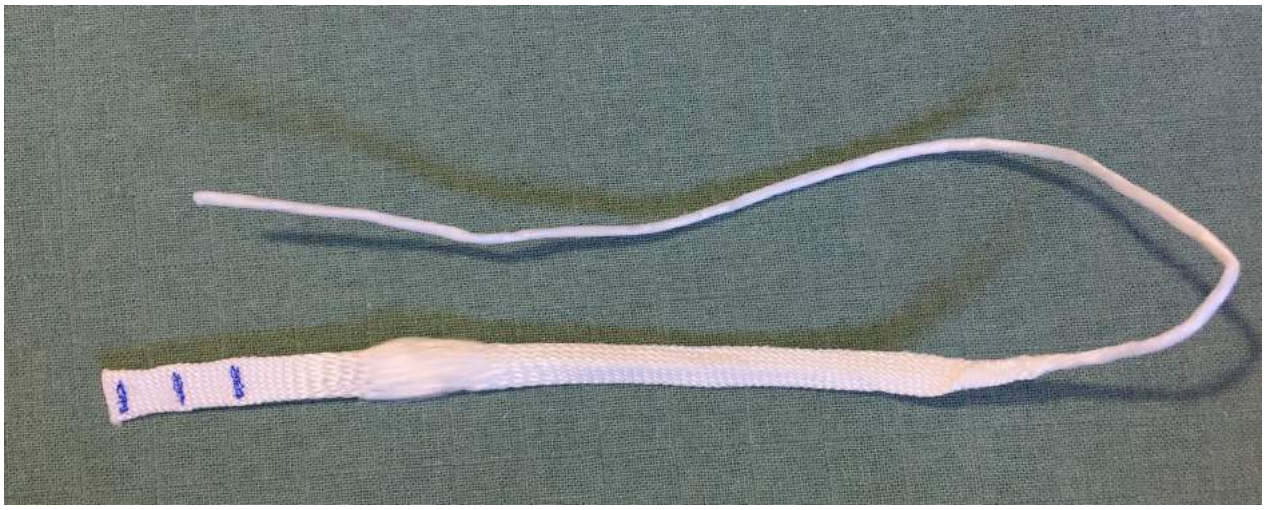
SURGICAL TECHNIQUE

from Dr. JP Laboureau

STIF SAS

SOFT TISSUE INTERNAL FIXATION

Implants



The CAT 48/25 tendon is composed of 48 fibers (6 000 N resistance) for animals above 20 kg. It requires a 4,2mm diameter calcaneal tunnel and a 4,5mm or 5 mm diameter interference screw according to the bone density for a solid grip of the screw.

The CAT 30/20 tendon is composed of 32 fibers (3 900 N resistance) for animals under 20 kg. It requires a calcaneal tunnel 3.6 mm in diameter and a 4.5 mm or 5mm diameter interference screw according to the bone density.

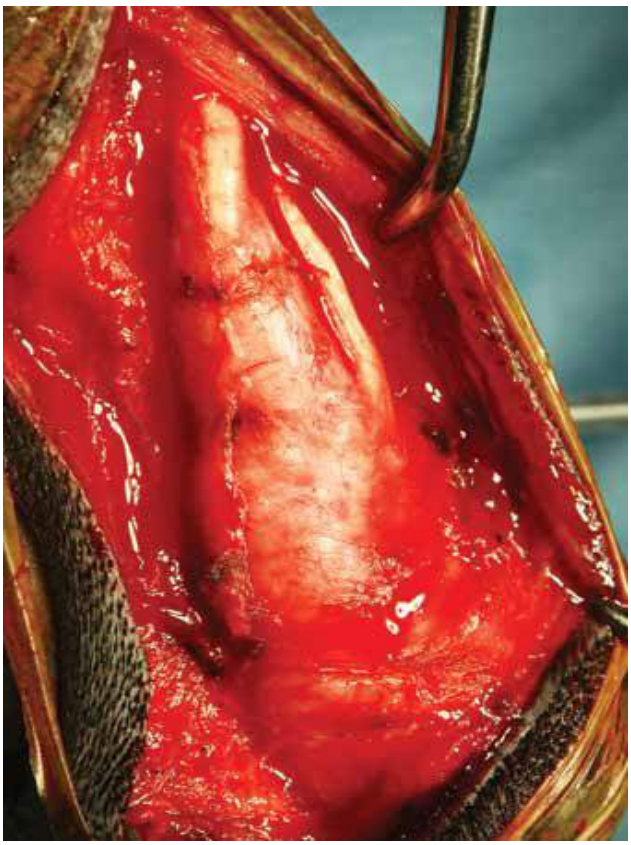
Note : the choice of the ligament and the diameter of the tunnel diameter and screws depends not only on the weight of the animal but on the size of the calcaneum to avoid risk of fracture.

Surgical technique

The surgical technique is applied here on a normal canine cadaver, allowing a clear identification of the anatomical characteristics.

STEP 1 :

A posterolateral incision is made, extending from the gastrocnemius muscle to the insertion of its tendon on the calcaneus. The recent or old break zone will be easily identifiable.
In the clinical case below, the thickened tendon insertion is visible at the base of the image.

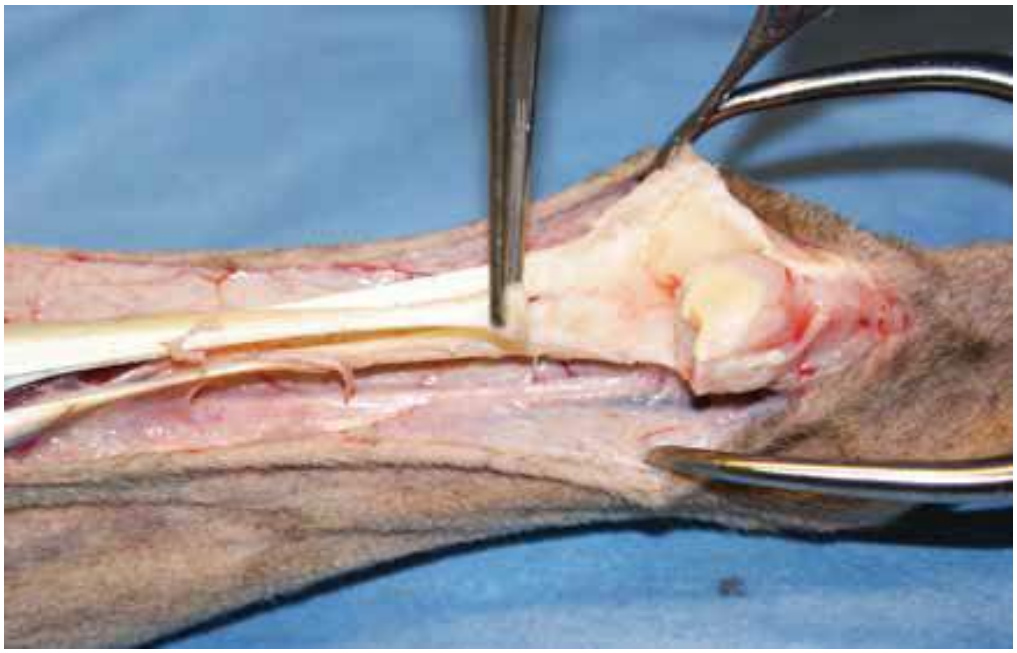


STEP 2 :

The paratendon is incised; it is often difficult to differentiate between the combined insertions of gastrocnemius and tendon of gracilis, femoral biceps and semitendinosus.

The lateral retinaculum of the superficial digital flexor tendon is incised along the lateral margin of the calcaneus and dislocated. In this image on a corpse, the tendon has been severed.

In the majority of cases, some of the hyperplastic scare tissue needs to be excised, but sufficient fibroblastic tissue is needed to cover the synthetic fibers.
In the case of chronic lesion with retraction of the proximal portion, it is necessary to make a tenolysis, dissect and cut the adhesions to restore the maximum length.

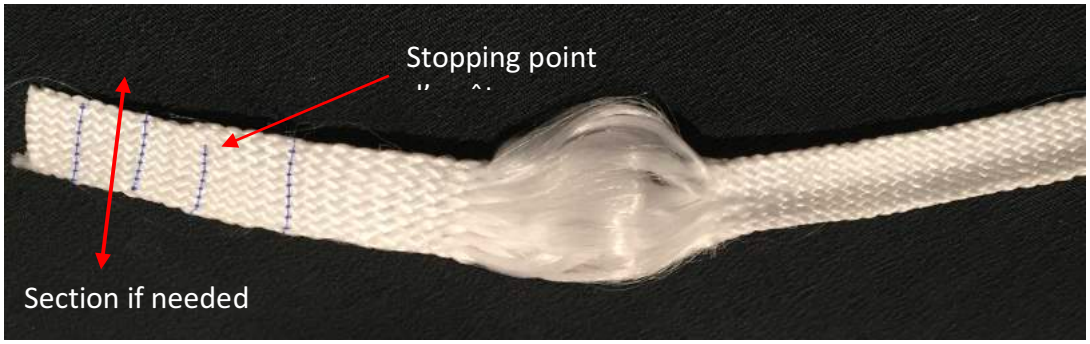


STEP 3 :

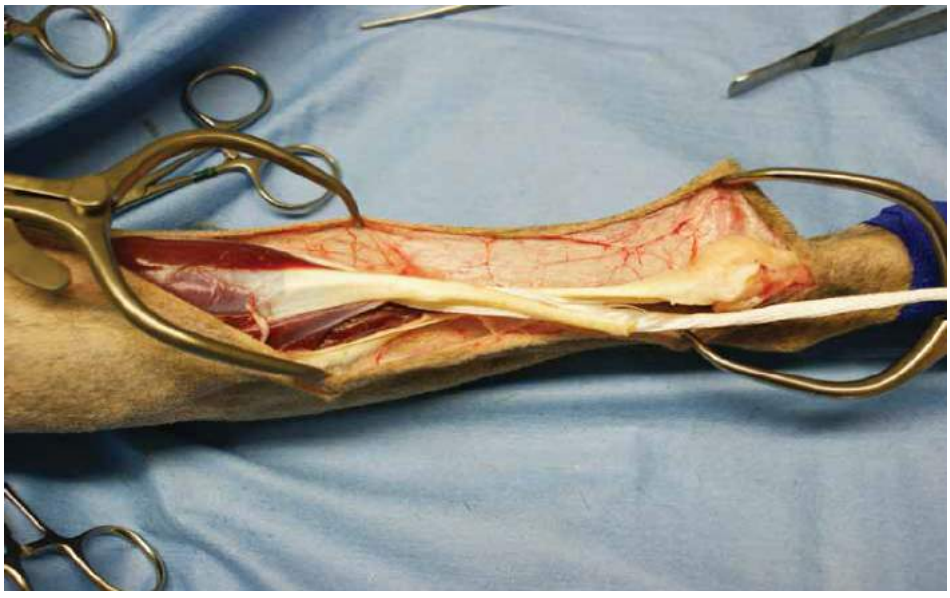
The STIF CAT 48/25 or 32/20 implant is placed on the common calcaneal tendon to estimate optimal positioning. The proximal flat portion of the synthetic tendon is positioned to adjust the free fibers in the area of the tendon rupture, no free fiber should enter the calcaneal tunnel.

The proximal portion of the fractured tendon is incised with the scalpel in a frontal plane, including up to the myotendinous junction. The proximal portion of the synthetic implant will be "in sandwich" in the space thus created and will be fixed by at least ten stitches of nonabsorbable thread taking the tendinous tissue and the synthetic one.

The proximal part of the synthetic tendon may be shortened as needed depending on the available tendon length (for this it is necessary to cut the synthetic fibers above the transverse stopping points.

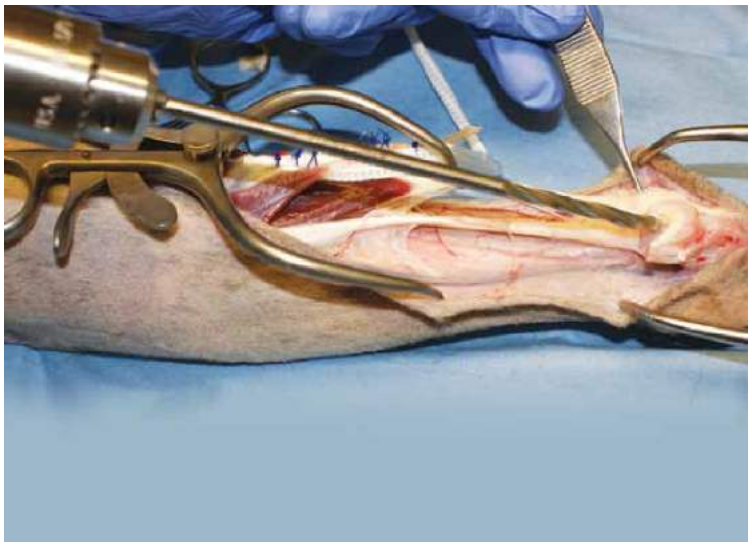


It is important to remember that the implant and gastrocnemius will be pulled distally to the calcaneus to restore functional length, so that the implant should be fixed proximally enough so that the free fibers do not enter the calcaneal tunnel.



The incision of the proximal tendon, through which the synthetic reinforcement has been slipped, is closed by a fine absorbable suture.

STEP 4 :



The distal portion of the fractured tendon is incised vertically in the middle to receive the distal portion of the implant and the center of the posterior tuberosity of the calcaneus is disengaged.

To ensure optimal positioning, it is advisable to drill a pilot tunnel with a 2 mm Kirchner pin. A blind tunnel of 3.6mm or 4.2 mm is then drilled with the cannulated wick from the center of the tuberosity in the axis of the calcaneus 25 to 30 mm deep.

The surface of the posterior tuberosity has a slight slope towards its internal edge. It is important to evaluate it on preoperative radiographs to ensure that the drilling angle is correct, otherwise the drill can exit to the lateral or medial calcaneal cortex.

The distal portion of the implant is folded longitudinally in two.

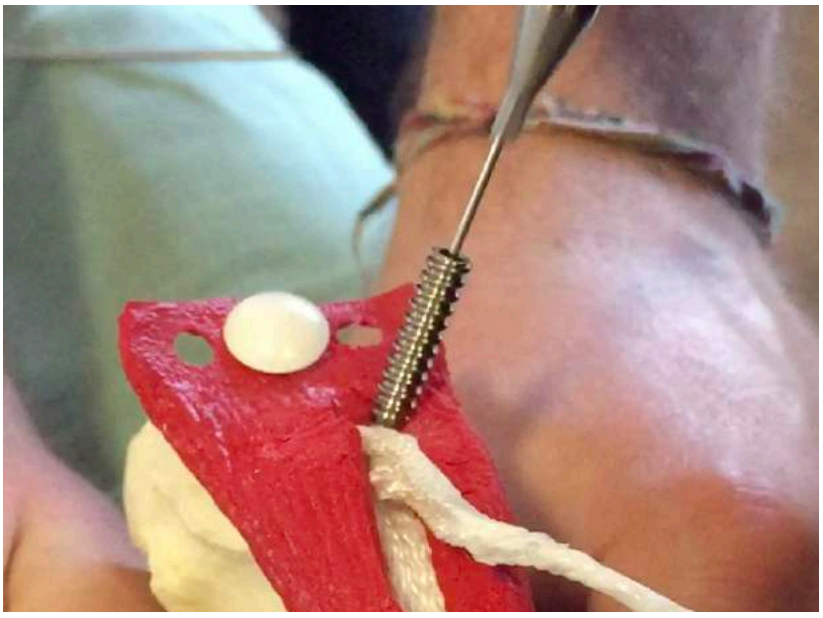
The stifle can be flexed to facilitate insertion. The distal part of the implant is pulled to bring the proximal and distal portions of the tendon as close as possible. The tension which allows for the dorsiflexion of the hock must be adjusted when the stifle is in flexion but must allow also a little dorsiflexion when the stifle is in extension.

The implant is then folded in half with the entrance of the tunnel and pushed to the bottom with a 2mm spindle with a straight end. The spindle is left in place and we check that the tension is the right one. Otherwise it is adjusted.

In chronic cases, additional postoperative relaxation of the gastrocnemius muscle slightly increases the functional length; this should be taken into account when evaluating the voltage.

STEP 5 :

The tension being determined, the Kirchner pin is replaced by a 2.5 mm hexagonal pin on which is lowered a screw of 5mm which is inserted through the female screwdriver until flush with the cortex.
For a 4mm or 4.5 mm screw, use the 1 mm guide pin and the cannulated screwdriver.



We complete the repair with 1 or 2 lacings in frame that allow to complete the confrontation of the banks of the break.

The superficial digital flexor tendon dislocated at the beginning of the procedure is reduced, the tendinous sheath is closed. The wound is closed plan by plane

Post operative care :

- During the first 48 to 72 hours, a back splint, incorporated into a padded dressing, is applied to reduce postoperative swelling.
- The same big bandage with back splint is maintained for 6 weeks and allows a partial support under control.
- Follow-up x-rays are performed at six weeks to evaluate the position of the screw.

NOTE

- The calcaneum bone determines the use of CAT 48/25 or CAT 32/20.
- In smaller patientsit is possible to use the ligament STIF CCL 24/15 which only requires a 3 mm tunnel, which is laced through the proximal tendon and fixed in the calcaneus by a 3,5mm or 4mm screw.

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