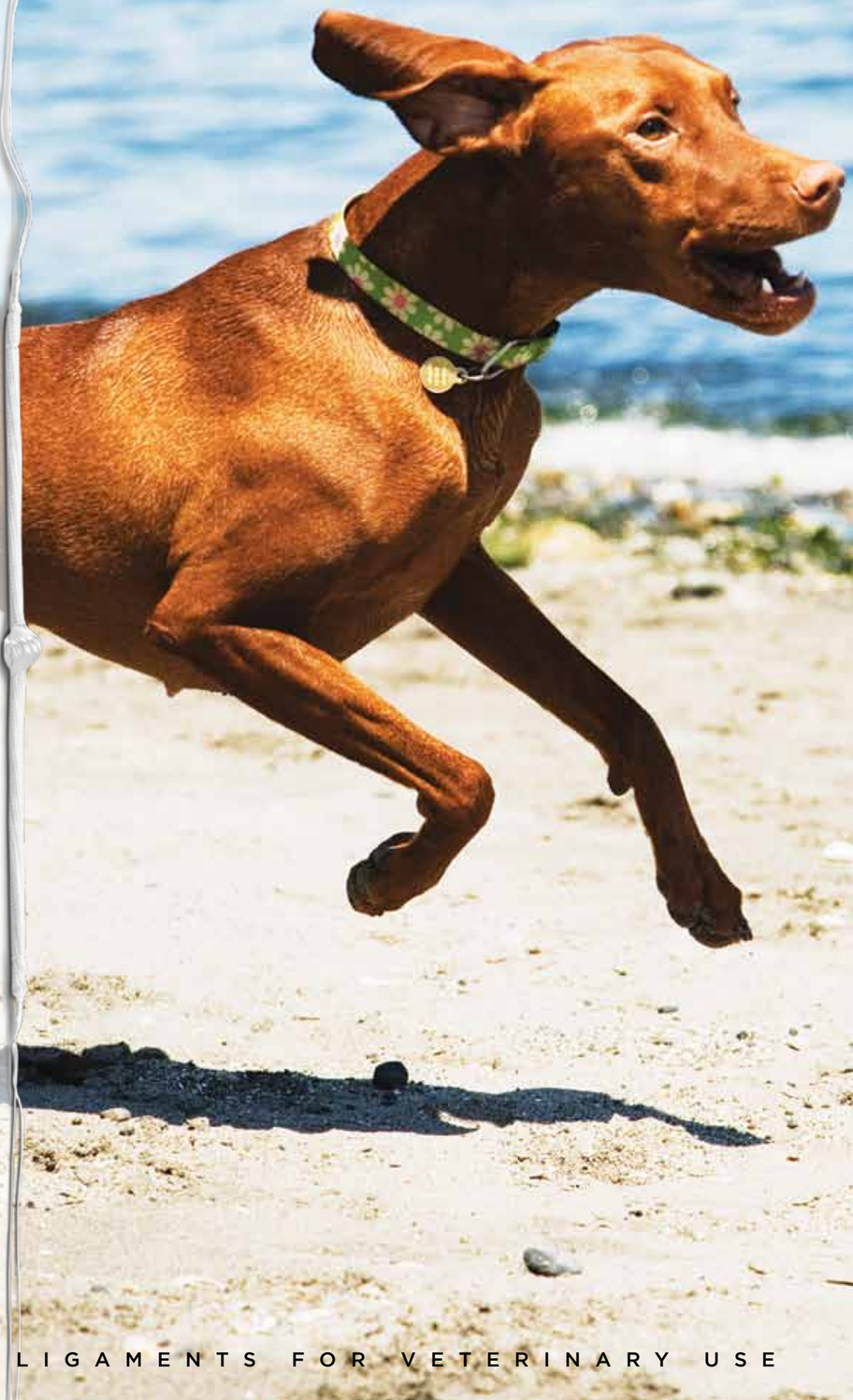
VETLIG

SOFT TISSUE
INTERNAL
FIXATION

WWW.VETLIG.COM

GASTROCNEMIUS TENDON REPAIR

USING THE STIF CAT 30



ARTIFICIAL LIGAMENTS FOR VETERINARY USE

VETLIG

MANAGEMENT OF CHRONIC GASTROCNEMIUS TENDON DISRUPTION IN CANINE PATIENTS USING THE STIF CAT 30 IMPLANT.

Mark Morton BVSc CertSAS MRCVS
Davies Veterinary Specialists, Higham Gobion, Hertfordshire SG5 3HR UK

ABOUT VETLIG

Soft tissue internal fixation (STIF)

•STIF ligaments are intended for intra or extra-articular reconstruction. STIF can be used to support remnants of the ruptured ligament, in an autogenous reconstruction, or independently to replace ligaments or tendons. STIF allows the original ligament tissues to heal in the absence of traction and provides an earlier return to normal function. STIF can be used for extra-articular reconstructions in tendon repair, such as achilles tendon, patella tendon, biceps tendon, etc. These ligaments must always be placed in the joint in an anatomical and isometric position. The diameter of the bony tunnels must correspond to the specific reference for each type of ligament and as a general rule should be as small as possible. The fixation of the ligament extremities must always be extra-articular.

•Biological and mechanical testing on resistance, fatigue and creep have shown that STIF ligaments are highly effective ligament reconstruction and augmentation devices.

•STIF aims to allow animals to regain quicker post operative mobility and increase quality of life when compared to conventional repairs.

INTRODUCTION

•Chronic degeneration and scar tissue formation at the calcaneal insertion of the gastrocnemius tendon is a common cause of disruption to the common calcaneal tendon mechanism. In order to restore a functional length, scar tissue must be excised and the gastrocnemius reattached to the calcaneus.

PATIENT POSITIONING

•The patient is positioned in sternal recumbency with the affected limb extended behind the patient. It is important to ensure the margin of the clip extends circumferentially, to the level of the proximal femur allowing adequate access for the implant to be sutured in place.

SURGICAL TECHNIQUE

The surgical technique is demonstrated in a normal cadaver, allowing clear identification of anatomical features.

STEP 1

•A caudo-lateral incision is made extending distally from the gastrocnemius muscle to the mid body of the calcaneus. Obvious scar tissue will be easily identifiable proximal to the calcaneus. (In the clinical case shown opposite, the thickened insertion of the common calcaneal tendon is visible at the base of the image.)

STEP 2

•The paratenon is incised; it is often difficult to differentiate between the insertions of the gastrocnemius and combined tendon of the gracilis, biceps femoris and semitendinosus. The lateral retinaculum of the superficial digital flexor tendon is incised along the lateral margin of the calcaneus and luxated medially. In this cadaver image, a defect has been created in the distal gastrocnemius tendon.

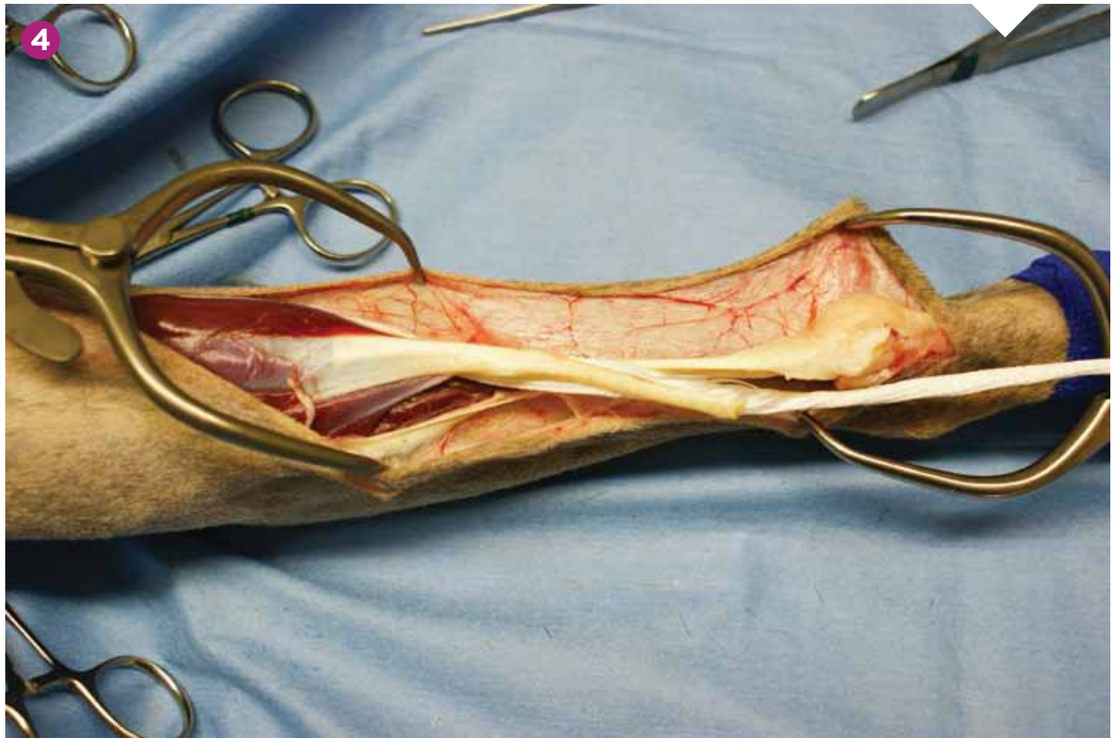
•In the majority of cases, the degenerate insertion of the gastrocnemius will be detached from the tuber calcanei. All abnormal scar tissue is excised to the level of normal tendon tissue proximally. The bridging function of the CAT 30 implant allows all abnormal tissue to be excised, even if this makes it impossible to appose the gastrocnemius and the calcaneus.

STEP 3

•The STIF CAT 30 is placed over the common calcaneal tendon mechanism to estimate optimal positioning. The proximal section is positioned so the free fibres are positioned in the area of tendon deficit, no free fibres should enter the calcaneal tunnel.

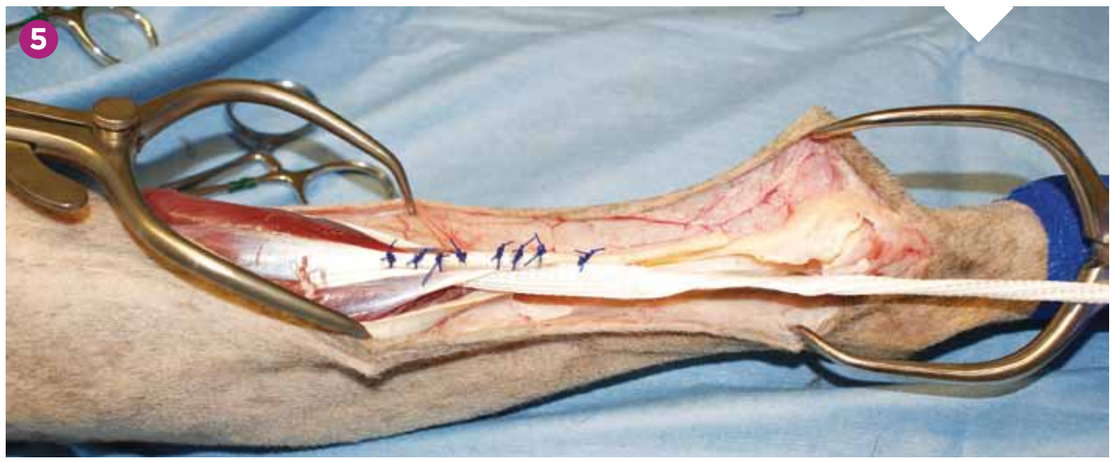
STEP 4

•The implant is positioned between the medial and lateral portions of the gastrocnemius and the myotendinous junction, sandwiched over the proximal portion as shown below. In larger patients it is possible to pull the implant through the middle of the tendon from proximal to distal. (It is important to remember that the implant and gastrocnemius will be pulled distally to the calcaneus to restore functional length, so the implant should be secured proximal enough to allow this, without free fibres entering the calcaneal tunnel.)



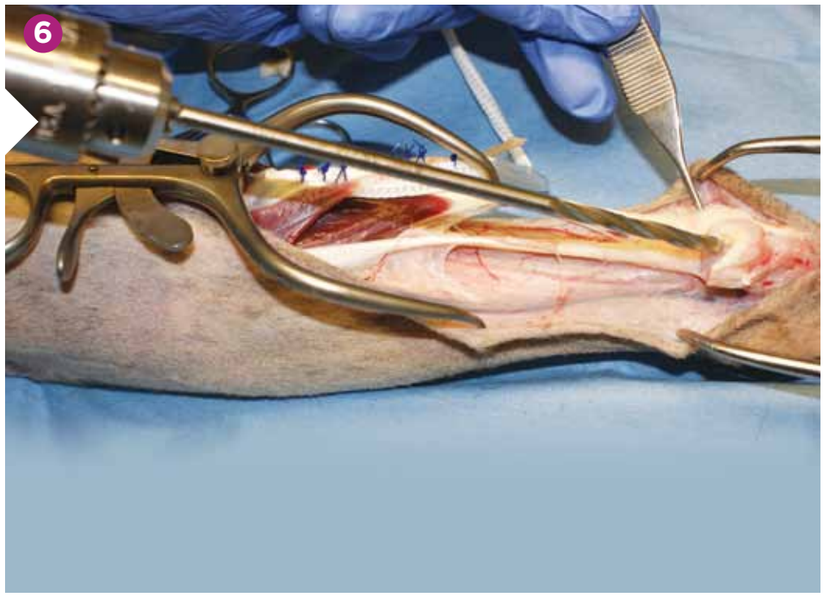
STEP 5

•The proximal section is trimmed to length and sutured at the myotendinous junction of the gastrocnemius, extending distally on the gastrocnemius tendon. Polydioxanone and polypropylene sutures, (3.5 metric) are used in a simple interrupted pattern.



STEP 6

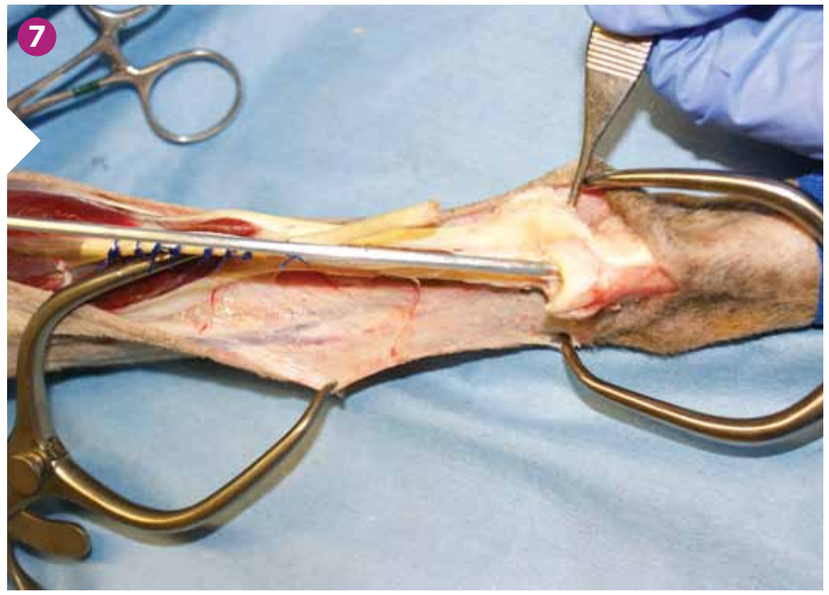
•A 4.5mm blind ended tunnel is then drilled into the calcaneus beginning at the tuber calcanei and entering the medullary cavity. It should be at least 30mm deep. To ensure optimal positioning in the centre of the tuber calcanei, it is advisable to drill a pilot hole with a smaller drill bit (2mm) or k-wire. The surface of the tuber calcanei has a slight angulation from lateral to medial. It is important to assess this on pre-operative radiographs to ensure the correct drilling angle, otherwise the drill may exit on the lateral or medial cortex of the calcaneus. The distal end of the implant is trimmed to a length of 25mm and inserted into the tunnel; the stifle can be flexed slightly to help insertion. A blunt ended guide pin can be used to introduce the distal end of the implant into the tunnel. With the stifle and hock extended, the tendon mechanism should be reasonably tight.



In chronic cases additional post-operative relaxation of the gastrocnemius muscle will increase the functional length slightly; this should be considered when evaluating tension. (The distal portion may be left longer if required.)

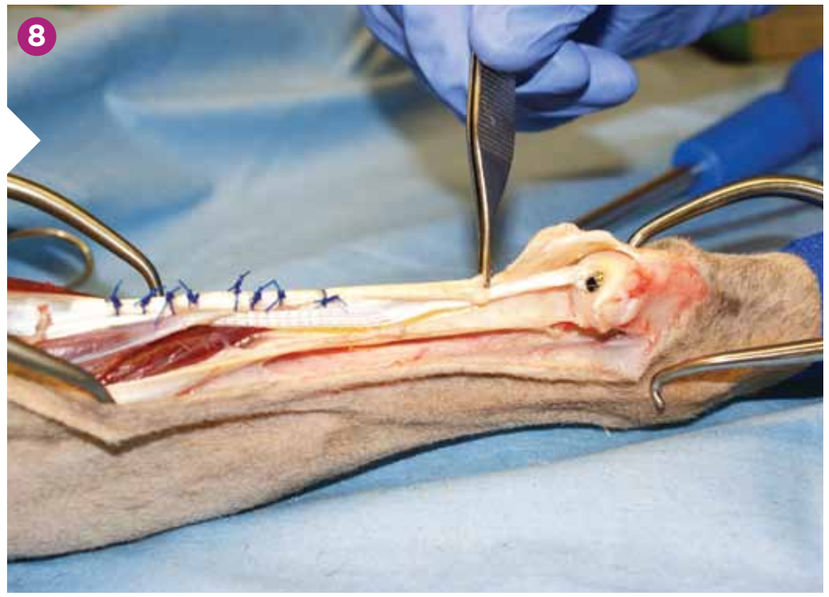
STEP 7

•A hexagonal k-wire is used to hold the implant, (under tension) in the tunnel, before it is secured in place with an interference screw. The interference screw is slid over the hexagonal k-wire and inserted using the female screw driver. The screw should be placed to the medial or lateral side of the implant, in order to reduce implant pull out. 5mm and 6mm screws are available depending on patient size - they can both be placed in a 4.5mm tunnel.



STEP 8

•Tension in the common calcaneal tendon mechanism is checked. It should not be possible to flex the hock with stifle in extension. If flexion of the hock is still possible with the stifle extended, it is possible to reposition the proximal section by removing the sutures and repositioning more proximally. (Flexion of the stifle makes this adjustment easier.) Additional appositional sutures can be placed between the calcaneus and the end of the gastrocnemius if possible. The superficial digital flexor tendon is reduced and the retinaculum, along with the paratenon is closed over the repair. The remaining soft tissues are then closed routinely.



POST-OPERATIVE CARE

•External coaptation is required to support the repair. For the first 48-72 hours a cranial splint, incorporated in a padded dressing is applied to reduce post-operative swelling. This can be replaced by a cast for a further 4-6 weeks. If more regular assessment of the soft tissues is required a splinted dressing can be maintained.

•Follow up radiographs are performed at six weeks to assess screw position.

•A further six weeks of short lead walking is advised prior to building up exercise levels.

•Physiotherapy and hydrotherapy are encouraged following cast removal.

•The CAT 30 has been used successfully in patients weighing up to 40KG. For larger patients please contact us for alternative products.

•Calcaneal size limits the use of the CAT 30 in smaller patients.

•Photographs taken by Mr Rob Adams BVM&S MRCVS

VETLIG DISTRIBUTORS