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B0010

Arthroscopic treatment for chronic Achilles tendon rupture on high demand patients

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Background: Chronic Achilles Tendon Rupture (CATR) results in symptomatic insufficiency of the Achilles tendon with evident impairment in ankle function.

Surgery is required and an open procedure is usually performed. There is some experience with arthroscopic transfer of Flexor Hallucis Longus (ATFHL) but most authors recommended this technique only on low demanding patients.

The purpose of this paper is to present our early experience using ATFHL on athletic patients.

Material and Methods: We did ATFHL on five non-professional athletes (three runners, one recreational footballer and one surfer), one neglected ruptures and four re-ruptures. All patients were male and the main age was 31 years old (range 23 to 40 years old). The patients were evaluated after a mean follow-up of 21 months (range 8 to 34 months) using the AOFAS score for hindfoot/ankle.

Results: The mean pre-operative AOFAS score was 63 (range 49 to 79) and a mean post-operative AOFAS score was 99 (range 97 to 100). All patients were able to do single foot heel rise and return to sports at the same level.

One patient had transient hypoesthesia of tibial nerve. No other complications were registered.

Discussion: CATR can be solved with ATFHL. However, most authors only recommend this type of procedure for low demanding patients. For the athletic population, the usual solution is an extensive approach with some kind of plasty of the remnant tendon or other aggressive techniques with the inherent morbidity and risk of soft tissue complications.

We present a small group of recreational athletes in which the ATFHL had a good result, avoiding the risk of a more extensive surgery, with a remarkable functional rehabilitation.

Conclusion: Our experience, although relatively short in term and in numbers, made us believe that the ATFHL may play a role in a treatment of CATR, not only on low demand patients but also in the athletic population, with overall advantage comparing with the open procedures.

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B0011

A study of Tibial Osseous Tunnel intersection when reconstruct PCL and POL simultaneously

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Background: When simultaneous reconstruction of the Posterior Cruciate Ligament (PCL) and Posterior Oblique Ligament (POL) is necessary, tibial tunnel intersection is a serious concern and its avoidance can be a technically challenging endeavor.

Material: A three-dimensional image from a single cadaveric limb was created.

Methods: A transtibial PCL reconstruction was simulated with two tibial tunnel entry points; one with the PCL tunnel centered directly within the native fovea, the second with the tibial tunnel placed in the posterior half of the fovea. Both tunnels were set to be 10mm in diameter and 50° of the joint line in the sagittal plane. Two different geometries of POL tunnels were then simulated within each of these PCL models; one utilizing a continuous “cylindrical” tunnel, and one utilizing a differentially reamed “grenade” shaped tunnel. Utilizing a coronal plane along the posterior tibial condyles as a reference, we then noted the degree of angle(s) at which the POL tunnel would intersect the PCL tunnel. We also noted the POL tunnel relationship with respect to Gerdy’s tubercle and the tibial tubercle.

Results: With the PCL tunnel centered directly in the fovea, PCL tunnel intersection occurred at angles $\leq 26^\circ$, and tibial tubercle violation occurred at angles $\geq 28^\circ$ with a “cylindrical” shaped POL tunnel. With a “grenade” shaped tunnel these values were $\leq 24^\circ$ and $\geq 29^\circ$ respectively. When the PCL tunnel was placed in the posterior half of the fovea these values were $\leq 18^\circ$ and $\geq 29^\circ$ with a “cylindrical” shaped POL tunnel; and $\leq 17^\circ$ and $\geq 28^\circ$ with a “grenade” shaped tunnel.

Discussion: Our study indicated that when reconstructing the PCL and POL simultaneously, utilizing a transtibial technique, there is an extremely small margin of error when drilling the POL tunnel. The reconstructive technique that provided the largest margin of error to prevent PCL tunnel intersection and tibial tubercle violation was use of a PCL tunnel centered in the posterior

half of the fovea and either geometry of POL tunnel. This combination provided a safe zone of approximately 11° . Given the difficulty of referencing tunnel direction off of the posterior tibial condyles intraoperatively, we recommend that the POL tunnel start just off of the medial edge of Gerdy’s Tubercle and be aimed towards the lateral edge of the tibial tubercle. Our model suggests that utilizing these easily identifiable landmarks would likely keep the trajectory of the POL tunnel within the above-described safe zone.

Conclusions: Drilling the PCL tibial tunnel in the posterior half of the fovea and utilizing a POL tunnel starting off of the medial edge of Gerdy’s tubercle and exiting anteriorly just lateral to the tibial tubercle is the most effective reconstruction technique to minimize tunnel intersection.

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B0013

Effectiveness of full-length laterally wedged insoles for posterior medial meniscus root tears

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Background: Posterior medial meniscus root tears (PMMRTs), which mainly occur among middle-aged women, disrupt hoop tension and cause medial extrusion of the medial meniscus. Therefore, PMMRTs are considered an important risk factor for osteoarthritis and osteonecrosis. We treated the PMMRT knees in our study with full-length laterally wedged insoles (FLLWs), with satisfactory results. We report on the effectiveness of this conservative treatment.

Materials and Methods: From January 2011 to October 2013, magnetic resonance images (MRI) were used to diagnose 122 knees (28 men and 94 women) with PMMRTs. Consequently, they were treated with FLLWs. The average age was 65.0 years. All cases were followed up for at least 1 year.

Results: In twelve cases (10%), the knee pain was almost completely relieved (excellent cases). In 103 cases (84%), the knee pain was reduced by more than 50% of pre-treatment discomfort (Good cases). In only 5 cases (4%), the pain did not improve, so surgery was performed.

Discussion: Recently, the number of reports on suture repair for PMMRTs has increased. However, MRI has shown that, in the majority of these cases, the medial meniscus underwent relatively extensive degenerative change. Therefore, we think that the indications for suture repair are limited and that the priority when treating PMMRT is to reduce the load stress to the medial compartment of the knee.

Conclusion: We believe that FLLW is the first-choice treatment for PMMRT.

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B0014

Effects of remnant tissue preservation on the tendon autograft in anterior cruciate ligament reconstruction: Biomechanical and histological study with a sheep model

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Background: No studies using an ACL reconstruction model with large animals have been conducted to clarify the effect of remnant tissue preservation on outcome after ACL reconstruction. We have hypothesized that, remnant preservation may accelerate revascularization and reinnervation in the graft, and significantly improve the anterior translation of the knee at 12 weeks after surgery. The purpose of this study was to test these hypotheses.

Methods: Forty-two sheep were randomly divided into 2 groups of 21 animals each. In group I, the ACL was completely removed. In group II, the ACL was transected at the midsubstance. Then, ACL reconstruction was performed using a semitendinosus tendon autograft in each group. Histological changes of the grafted tendon and the preserved remnant tissue were observed at 4 and 12 weeks after surgery. Biomechanically, the anterior translation and the