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GROUPE FH ORTHO

Orthop Traumatol Surg Res. 2018 Jun 27.
pii: S1877-0568(18)30159-2. doi: 10.1016/j.otsr.2018.03.016.

2018

Anterior cruciate ligament reconstruction with the Tape Locking Screw (TLS) and a short hamstring graft: Clinical evaluation of 61 cases with a minimum 12 months' follow-up.

Orfeuvre B[1], Pailhé R[2], Sigwalt L[2], Rubens Duval B[2], Lateur G[2], Plaweski S[2], Saragaglia D[2]

INTRODUCTION: The TLS® technique for anterior cruciate ligament (ACL) reconstruction has the advantages of using only one hamstring tendon (semitendinosus) by preparing a short graft secured with screws and braided strips. The theoretical pitfall of this technique is that the graft length is determined arbitrarily. Thus, if the blind tunnels are not long enough, it will be impossible to tension the graft properly upon fixation. The primary objective of this study was to determine the postoperative side-to-side difference in knee laxity. We hypothesized that ACL reconstruction with the TLS system would result in 3mm or less side-to-side difference in knee laxity.

MATERIAL AND METHODS: This was a prospective single-center, single-surgeon study performed on patients operated between December 2014 and June 2016 who had a minimum 12 months' follow-up. The pre- and postoperative side-to-side difference in knee laxity was measured with a KT-1000 arthrometer. Secondary outcomes were the pre- and postoperative IKDC, Lysholm and Tegner functional scores.

RESULTS: Sixty-one patients were included: 49 men (80%) and 12 women (20%). The average age was 31.6±13.7 years. The average follow-up was 19.3±6.3 months. The average side-to-side difference in laxity went from 6.5mm (min 3; max 12) preoperatively to-0.1mm postoperatively (min-5, max 4) ($p < 0.01$). The average IKDC went from 39.7±12 preoperatively to 94.1±11.2 postoperatively ($p < 0.005$), the average Lysholm score went from 41±12.9 to 95.5±9.8 ($p < 0.005$), and the average Tegner score went from 6.3±1.5 to 4.3±1.4 ($p < 0.005$). Patients were able to return to sports an average of 6.1 months after surgery. In terms of complications, 4.9% of patients developed a cyclops lesion and required surgical revision.

DISCUSSION: This study found very good reduction in postoperative laxity after a minimum 12 months' follow-up when ACL reconstruction is performed with the TLS® technique.

LEVEL OF EVIDENCE: IV, prospective cohort study.

Orthop Traumatol Surg Res. 2017 Feb 23
TYPE OF STUDY: Experimental study Level 4.
PMID: 28238964 [PubMed - as supplied by publisher]

2017

Pullout Strength of a Novel Hybrid Fixation Technique (Tape Locking Screw ™) in Soft-Tissue ACL Reconstruction:A Biomechanical Study in Human and Porcine Bone.

Authors: Ayzenberg M, Arango D, Gershkovich GE, Samuel PS, Saing M

INTRODUCTION: A novel hybrid anterior cruciate ligament(ACL) reconstruction technique known as Tape Locking Screw™ (TLS)is gaining popularity. ……..We hypothesized that the pullout strength of this construct would be similar to or better than current fixation systems available.

MATERIALS AND METHODS: The Tape Locking Screwhybrid fixation system was implanted into twenty-two fresh frozen human distal femora (50 - 89 years old) randomized to 10x20mm titanium or polyether ether ketone (PEEK) screws by a single sports fellowship trained orthopedic surgeon.Given that the graft is secured to polyethylene terephthalate tape within the construct, the construct was implanted without any graft in order to isolate the device for biomechanical testing. After implantation, a tensile force was applied directly to the loop of tape at a loading rate of 5mm/min using an electromechanical testing system. The failure load was calculated from the resultant load-displacement curve. Specimens were then visually examined for mode of failure. Similar biomechanical tests were performed on sixteen porcine femora.

RESULTS: In the human model, the mean pullout strength was 523 ± 269N with the PEEK screw and 578 ± 245N with the titanium screw. In the porcine femur model, mean strength was 616 ± 177 N with PEEK, 584 ± 245N with titanium. There was no statistically significant difference in failure loads between these four groups. Tape slippage at the screw bone interface was the primary mode of failure in all the groups tested.

DISCUSSION: Our results demonstrate that the hybrid technique provides excellent pullout strength in comparison to other soft-tissue ACL fixation methods, with tape slippage being the mode of failure in all specimens tested. This data, in addition to the advantages of the TLS system, support its consideration in the armamentarium of constructs available for soft-tissue ACL reconstruction.

Eur J Orthop Surg Traumatol DOI 10.1007/s00590-016-1861-0

2016

Patient-based decision for resuming activity after ACL reconstruction: a single-centre experience

Jean-Yves Jenny[1] · Xavier Clement[1]

Methods This was a monocentric, retrospective study. Seventy-two patients requiring primary ACL reconstruction were included. All patients were followed up for a mean period of 4.3 years. Return to work and to sporting

patients. Four repeat ruptures (6 %) were observed, all of them following a significant knee injury.

[18]. 63–75 % of patients may return to pre-injury sports activity after ACL reconstruction, irrespective of the reconstruction technique used, and only 44 % of patients may be able to perform competitive sports activity, even though 90 % of patients presented normal or nearly normal knee function. The respective figures from the present study were 71 and 82 %. The rate of repeat rupture may vary between 5 and 13 % in the literature [2, 19]. The rate of repeat rupture in the present study was 6 %.

this study is that patient-based decision was possible without compromising . According to a recent meta-analysis

The main finding of this study is that patient-based decision to return to sport was possible without compromising functional outcome. According to a recent meta-analysis

Knee. 2016 Jan;23(1):111-5. doi: 10.1016/j.knee.2015.09.010. Epub 2016 Jan 8.

2015

Does retrograde tibial tunnel drilling decrease subchondral bone lesions during ACL reconstruction? A prospective trial comparing retrograde to antegrade technique☆

Ronny Lopes [a,*], Shahnaz Klouche [b], Guillaume Odri [a], Olivier Grimaud [b], Hubert Lanternier [c], Philippe Hardy [b,d]

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[b] Hôpitaux Universitaires Paris Ile-de-France Ouest, AP-HP, F-92100 Boulogne-Billancourt, France
[c] Europe Clinic, Department of Orthopaedic Surgery and Sports Traumatology, F-44600 Saint-Nazaire, France
[d] Université de Versailles Saint-Quentin-en-Yvelines, F-78035 Versailles, France

Conclusion: The present clinical study confirmed the benefit of retrograde tibial tunnel drilling for tibial subchondral bone lesions and showed a correlation between these lesions and early postoperative pain.
Level of evidence: II; therapeutic study – prospective cohort study

Early postoperative pain was significantly lower in the retrograde technique, specifically in the TLS® group ($p = 0.0001$) (Table 4). The first day after surgery, tramadol and oral morphine consumption was significantly higher in the retrograde group (<0.0001) but on the second day there was no significant difference in analgesic consumption among the groups ($p = 0.46$) (Table 4).

The mean diameter of the tibial tunnel was 7.5 ± 0.7 (six to nine) mm in the antegrade technique group, 9.2 ± 0.8 (eight to 11) mm in TLS® group and 9.2 ± 0.7 (eight to 10) mm in all-inside group. The hamstring group had a significantly smaller tibial

2015

Knee Surg Sports Traumatol Arthrosc
DOI 10.1007/s00167-015-3608-6

KNEE

Do graft diameter or patient age influence the results of ACL reconstruction?

Jean Baptiste Marchand[1] · Nicolas Ruiz[2] · Augustin Coupry[2] · Mark Bowen[3] · Henri Robert[2]

Methods This is a retrospective study of 88 patients

Laximetry 1.5 ± 1.3 mm at 26 months! TLS laximetric results are equivalent to BTB

in groups 2 and 3, respectively. No patient to our knowledge has had a revision. The average diameter of the graft

Int Orthop. 2015 Nov 5. [Epub ahead of print] Knee. 2014 Dec;21(6):1014-7. doi: 10.1016/j.knee.2014.07.010.

2015

Can the gracilis replace the anterior cruciate ligament in the knee? A biomechanical study.

Cavaignac E[1], Pailhé R[2], Reina N[2], Murgier J[2], Laffosse JM[2], Chiron P[2], Swider P[3].
Author information

PURPOSE:
The purpose of this study was to determine whether a four-strand gracilis-only construct possesses the biomechanical properties needed to act as an anterior cruciate ligament (ACL) reconstruction graft.

METHODS:
This was a pilot study with 32 cadaver specimens. The biomechanical properties of three types of grafts were determined using validated tensile testing methods: patellar tendon (BTB), both hamstring tendons together (GST4) and gracilis alone (G4).

RESULTS:
The maximum load at failure of the G4 was 416.4 N (±187.7). The GST4 and BTB had a maximum load at failure of 473.5 N (±176.9) and 413.3 N (±120.4), respectively. The three groups had similar mean maximum load and stiffness values. The patellar tendon had significantly less elongation at failure than the other two graft types.

CONCLUSIONS:
The biomechanical properties of a four-strand gracilis construct are comparable to the ones of standard grafts. This type of graft would be useful in the reconstruction of the anteromedial bundle in patients with partial ACL ruptures.

J Orthop Res. 2015 Aug;33(8):1188-96. doi: 10.1002/jor.22889. Epub 2015 May 21.

2015

Biomechanical study of ACL reconstruction grafts.

Pailhé R[1], Cavaignac E[2], Murgier J[2], Laffosse JM[2], Swider P[2].

Abstract

There are no published studies describing the strength quadrupled gracilis tendon alone and quadrupled semitendinosus tendon alone in the configuration used for anterior cruciate ligament (ACL) reconstruction. The primary objective was to compare the mechanical properties of grafts used for ACL reconstruction during a tensile failure test. The secondary objective was to evaluate the effect of uniform suturing on graft strength. Fifteen pairs of knees were used. The mechanical properties of five types of ACL grafts were evaluated: patellar tendon (PT), sutured patellar tendon (sPT), both hamstring tendons (GST4), quadrupled semitendinosus (ST4), and quadrupled gracilis (G4). Validated methods were used to perform the tensile tests to failure and to record the results. Student's t-test was used to compare the various samples. The maximum load to failure was 630.8N (± 239.1) for the ST4, 473.5N (± 176.9) for the GST4, 413.3N (± 120.4) for the sPT, and 416.4N (± 187.7) for the G4 construct. Only the ST4 had a significantly higher failure load than the other grafts. The sPT had a higher failure load than the PT. The ST4 construct had the highest maximum load to failure of all the ACL graft types in the testing performed here. Uniform suturing of the grafts improved their ability to withstand tensile loading.

Eur J Orthop Surg Traumatol
DOI 10.1007/s00590-014-1473-5

ORIGINAL ARTICLE

2014

A comparison of four tibial-fixation systems in hamstring-graft anterior ligament reconstruction

Henri Robert · Mark Bowen · Guillaume Odry · Michel Collette · Xavier Cassard · Hubert Lanternier · Thierry De Polignac

Received: 20 January 2014 / Accepted: 26 April 2014

Abstract The aim of this study was to evaluate at time-zero four tibial fixations on four major criteria: the elongation and cyclic stiffness of the hamstring graft construct under cyclic loading, the yield load and pullout stiffness under load at failure. Four fixation systems were tested: the Delta screw, the WasherLoc, the TightRope Reverse and the tape locking screw on 32 tibiae of adult pigs using 32 pairs of human semitendinosus and gracilis tendons. Two tests were performed: cyclic tests using loads at 70–220 N, to measure the elongation at the end of the cycles, followed by load-to-failure testing to measure the yield load and the cyclic stiffness. The mean elongation was 1.23 mm for the TLS, 3.81 mm for the Delta, 3.59 mm for the WasherLoc and 3.91 mm for the TightRope. The mean yield loads and SD were 1,015 ± 129 N for the TLS, 844 ± 394 N for the Delta, 511 ± 95 N for the WasherLoc and 567 ± 112 N for the TightRope. The results showed the significant superiority of TLS and Delta over WasherLoc and tibial TightRope in regard to yield load. The results showed the significant superiority of TLS over the other fixations in regard to slippage. The TLS system and the Delta screw provide a better quality of primary fixation to the tibia, but further in vitro studies are needed.

Demonstrates superior yield and stiffness of TLS compared to Tightrope, Washerlock and Delta Screw. Ultimate yield of 1015N (minimum of 864N across samples compared to 324N in other fixations) and elongation of mean 1.23mm compared to 3.59mm + in all other fixations.

2014

Orthopaedics & Traumatology: Surgery & Research 100 (2014) 521–526

ELSEVIER MASSON

Available online at ScienceDirect www.sciencedirect.com

Elsevier Masson France EM|consulte www.em-consulte.com/en

OTSR Orthopaedics & Traumatology Surgery & Research

Original article

Outpatient surgery feasibility in anterior cruciate ligament reconstruction: A prospective comparative assessment

N. Lefevre[a,b,c,*], Y. Bohu[a,b,c], O. de Pamphilis[a], S. Klouche[a,b], C. Devaux[c], S. Herman[a,b,c]

[a] Clinique du Sport Paris V, 75005 Paris, France
[b] Institut de l'Appareil Locomoteur Nollet, 75017 Paris, France
[c] Clinique Maussins-Nollet, 75019 Paris, France

Results: One patient in the OP group was hospitalized with localized bleeding and there were no rehospitalizations. Six early postoperative complications were noted in each group. The mean postoperative pain on D0–D4 and patient satisfaction were similar in the two groups.

Conclusion: This prospective study encountered no serious events after outpatient ACL reconstruction surgery. In a selected population, the risks are comparable to those in conventional hospitalization.

Level of evidence: Level III, comparative study.

2014

G Model
OTSR-932; No. of Pages 4
ARTICLE IN PRESS
Orthopaedics & Traumatology: Surgery & Research xxx (2014) xxx–xxx

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www.sciencedirect.com
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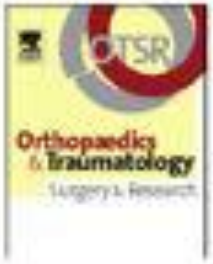
EM|consulte
www.em-consulte.com/en



Original article

Cryotherapy with dynamic intermittent compression for analgesia after anterior cruciate ligament reconstruction. Preliminary study

J. Murgier[a,*], X. Cassard[b]

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[b] Clinique des Cèdres, château d'Alliez, 31700 Cornebarrieu, France

Conclusion: Dynamic intermittent compression combined with cryotherapy decreases analgesic drug requirements after ACL reconstruction and improves the postoperative recovery of range of knee motion.
Level of evidence: Level III, case-control study.

ORIGINAL ARTICLE

2013

Anterior Cruciate Ligament Reconstruction in Children With A Quadrupled Semitendinosus Graft: Preliminary Results With Minimum 2 Years of Follow-up

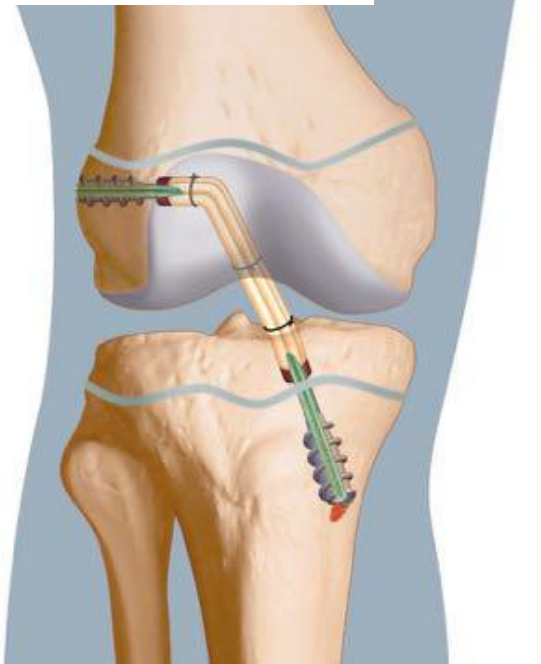
Xavier Cassard, MD, Etienne Cavaignac, MD,† Laurent Maubisson, MSc,‡ and Mark Bowen, MD, PhD§*

Study Design: Case series; level of evidence 4.

Key Words: ACL reconstruction, ST4, pediatrics

(*J Pediatr Orthop* 2013;00:000–000)

Conclusions: The preliminary results from this series ….demonstrating that intraepiphyseal **ACL reconstruction is a safe reliable alternative for the pediatric population.**



Knee Surg Sports Traumatol Arthrosc
DOI 10.1007/s00167-011-1833-1

KNEE

Effects of graft pretensioning in anterior cruciate ligament reconstruction

2012

Claude Guillard · Francois Lintz · Guillaume Anthony Odri · Denis Vogeli · Fabrice Colin · Sylvie Collon · Daniel Chappard · François Gouin · Henri Robert

Calculated optimal pre-tension load and time for the TLS technique

Received: 4 May 2011 / Accepted: 13 December 2011

Abstract

Purpose Graft pretensioning is used in anterior cruciate ligament (ACL) reconstruction to prevent secondary slackening. Its effects on collagen fibrillar ultrastructure are not known. In this study, we hypothesized that graft pretensioning in ACL reconstruction creates ultrastructural changes detectable in scanning electron microscopy (SEM).

Methods A prospective comparative study was carried out on 38 ACL reconstructions using a 4-strand semitendinosus graft. Samples were harvested intra-operatively before and after pretensioning for 30 s, 2 or 5 min. The images produced in SEM were analyzed using an original

Conclusion Pretensioning ACL grafts resulted in alteration of the collagen fibrillar ultrastructure, detectable using SEM. These results confirm the existence of collagen ultrastructural changes after pretensioning that may be related to its duration.

Level of evidence Prospective comparative study, Level II.

Keywords Pretensioning · Preconditioning · Hamstring tendons · Anterior cruciate ligament · Scanning electron microscopy · Knee

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Journal indépendant non référencé dans PUBMED

An innovative method of hamstring graft preparation and a new concept of intratunnel tendon fixation: biomechanical evaluation

2012

Collette, Michel

Current Orthopaedic Practice
November/December 2012
Vol. 23 - Issue 6: p 577–583

Bases biomécaniques de TLS: la résistance en traction de 1553N et une élongation de 1,2mm pour l'ensemble greffe + TLS démontrent des capacités supérieures aux systèmes actuels.

Pré conditionnement de la greffe obligatoire.

ABSTRACT

Background

Current anterior cruciate ligament (ACL) reconstruction using hamstrings (HS) grafts still entails difficulties for adequate graft fixation. A new technique for hamstring ACL graft fixation called the Tape locking screw (TLS, FH Orthopedics, Heimsbrunn, France) recently has been described.[1,2] We proposed to evaluate the mechanical properties of this new fixation method by performing a controlled laboratory study.

Methods

In a laboratory environment, we performed a series of three tests on 10 human semitendinosis grafts, assessing their load-to-failure before and after application of different cyclical loads. We also tested the new fixation device in isolation for its load-to-failure before and after cyclical loading as well as the complex graft-fixation (CGF) for both load-to-failure before and after application of cyclical loads.

Results

After 1500 cycles loading, the mean ultimate failure load (UFL) and stiffness were, respectively, 1916 N and 605 N/mm for the graft in isolation, 1535 N and 452 N/mm for the fixation device, 1568 N and 232 N/mm for the CGF, which remained similar after 33600 cycles (1553 N and 223 N/mm). After 1500 cycles loading, the mean fixation's lengthening was negligible (0.6 mm). The CGF lengthening was, respectively, 6 mm and 7.6 mm after 1500, and 33600 cycles, but only 1.2 mm and 2.6 mm after preconditioning.

Conclusions

The TLS system provides outstanding mechanical characteristics:

Revue de chirurgie orthopédique et traumatologique (2011) 97S, S40–S45

chirurgie orthopédique et traumatologique

2011

TRAVAUX DE LA SOCIÉTÉ D'ORTHOPÉDIE ET DE TRAUMATOLOGIE DE L'OUEST. RÉUNION DE LA ROCHELLE, JUIN 2010. COMMUNICATIONS

Reconstruction mono-faisceau en quatre brins de semi tendinosus du ligament croisé antérieur selon la technique TLS. Résultats cliniques d'une série de 74 genoux à 18 mois de recul minimum

Single-bundle reconstruction in quadruple Semi tendinosus graft of the ACL according to the TLS technique. Clinical results of a series of 74 knees with minimum 18 months follow-up

H. Robert[a,*], R. Limozin[b], T. de Polignac[c]

[a] *Service d'orthopédie-traumatologie, centre hospitalier Nord Mayenne, 229, boulevard Paul-Lintier, 53100 Mayenne, France*
[b] *Cabinet médical, 4 boulevard d'Estournel, 12000 Rodez, France*
[c] *Clinique, service de chirurgie orthopédique, 4, chemin de la Tour-la-Reine, 74000 Annecy, France*

2011

Orthopaedics & Traumatology: Surgery & Research (2011) xxx, xxx–xxx

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TECHNICAL NOTE

The Tape Locking Screw technique (TLS): A new ACL reconstruction method using a short hamstring graft

M. Collette[a,*], X. Cassard[b]

[a] 97, rue Jean-Benaets, 1180 Brussels, Belgium
[b] Clinique des Cèdres, 31700 Cornebarrieu, France

Accepted: 7 March 2011

Introduction to technique and follow-up of 134 patients up to 36 months. Demonstrated only 6 clinical failures (3 infections, 2 thrombophlebitis, 1 significant hematoma) and Zero revisions. Failures deemed to have more than 3mm side-side laxity.

2011

Modèle +
JTS-229; No. of Pages 6
ARTICLE IN PRESS

ELSEVIER MASSON

Disponible en ligne sur ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com

Journal de Traumatologie du Sport xxx (2011) xxx–xxx

JOURNAL DE TRAUMATOLOGIE DU SPORT

Mémoire

Ligamentoplastie du LCA aux ischiojambiers sous arthroscopie avec fixation de l'implant par le système TLS. Principes et résultats de 38 cas

ACL reconstruction with hamstrings with arthroscopic fixation of the implant by the tape locking screw. Principles and results of 38 cases

N. Alidrissi [a,*], M. Elyaacoubi [a], M.S. Berrada [a], A. Elbardouni [a], M. Mahfoud [a], O. Dahmani [b], M. Eljamri [b]

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1 Bad article….

2011

Orthopaedics & Traumatology: Surgery & Research (2012) 98, 363–365

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CASE REPORT

Aseptic arthritis after ACL reconstruction by Tape Locking Screw (TLS®): Report of two cases

F. Colin[a,*], F. Lintz[a], K. Bargoin[a], C. Guillard[a], G. Venet[b], A. Tesson[b], F. Gouin[a]

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[b] Orthopedics department, Roche-sur-Yon hospital center, boulevard Stéphane-Moreau, 85925 La Roche-sur-Yon, France

Accepted: 23 August 2011

but…after Lavage of the KNEE, tapes are still in place with no troubles!!

…Surgeons from the case report are still using TLS with now a careful cleaning of the knee for bone debris

Knee Surg Sports Traumatol Arthrosc
DOI 10.1007/s00167-011-1833-1

KNEE

Effects of graft pretensioning in anterior cruciate ligament reconstruction

Claude Guillard · Francois Lintz · Guillaume Anthony Odri · Denis Vogeli · Fabrice Colin · Sylvie Collon · Daniel Chappard · François Gouin · Henri Robert

2012

Received: 4 May 2011 / Accepted: 13 December 2011

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