

Combined Anterolateral and Posterolateral Knee Reconstruction Using a Single Continuous Iliotibial-Band Graft

A Cadaveric Feasibility Study

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In 61% of multiligament knee injuries (MLKIs), the posterolateral corner (PLC) is involved. These patients frequently require anterior cruciate ligament (ACL) and/or posterior cruciate ligament (PCL) reconstruction in addition to lateral stabilization. Consequently, two or more tendon grafts are often necessary to achieve adequate knee reconstruction. The aim of this study was to describe a surgical technique for combined anterolateral and posterolateral reconstruction without the need for additional autologous tendon harvesting. This technique utilizes a continuous iliotibial band (ITB) autograft. The novel surgical technique was performed on eight cadaveric specimens that had not undergone any previous knee surgery. A long, continuous ITB graft is harvested using a double-bladed scalpel. Distally, it remains attached to Gerdy's tubercle. It is then routed through the periarticular tissue and secured dorsocranially to the lateral femoral epicondyle, creating a lateral extra-articular tenodesis. The remaining graft is then shuttled towards the anterior fibular head and passed through a previously drilled fibular tunnel. After exiting the fibular tunnel dorsally, the graft is shuttled towards the femoral insertion of the popliteal tendon and secured. This cadaveric study illustrates that a continuous iliotibial band autograft can be utilized to perform a combined anterolateral and posterolateral reconstruction, with the graft sequentially following the trajectory of a Lemaire's lateral extra-articular tenodesis and Arciero's posterolateral reconstruction technique. This technique may present a useful alternative in cases of complex lateral multiligament knee injuries.

Keywords: Multiligament knee injury, Knee dislocation, Anterolateral ligament, Posterolateral reconstruction, Arciero, Lemaire, Iliotibial band

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Introduction

The posterolateral structures of the knee play a critical role in restraining tibial external rotation [1]. Consequently, research on the management of chronic knee instability and multiligament knee injuries (MLKIs) has increasingly focused on posterolateral structures, including the lateral collateral ligament (LCL), the popliteal tendon (PT), and the popliteofibular ligament (PFL) [2]. In up to 61% of MLKIs, one or more posterolateral structures are involved [3]. Conversely, in 70% of cases with posterolateral injuries, the anterior cruciate ligament (ACL) is also ruptured [4]. Overall, posterolateral injuries are present in approximately 16% of all ligamentous knee injuries, and in 56% of these cases, multiple posterolateral structures are affected [4][5].

In addition to the posterolateral corner, the anterolateral ligament (ALL) plays a big part in maintaining rotational knee

stability [6]. ALL injury has been identified as a major contributor to anterolateral rotational instability and pathological pivot shifting [7]. In apparently isolated ACL tears, the prevalence of concomitant injury to the anterolateral capsular or ligamentous complex ranges from 19% to 90%, with most studies reporting an average of approximately 40% [8][9][10][11]. Patients with combined ACL and LCL injuries show a significantly higher prevalence of anterolateral injury [11], possibly reflecting the mechanism of trauma, as forces affecting the anterior and lateral pillars of the knee also compromise the anterolateral structures. These findings explain why multiple studies demonstrate that adding an anterolateral procedure to ACL reconstruction, either ALL reconstruction or lateral extra-articular tenodesis, improves pivot-shift grades and reduces graft failure rates [12][13][14][15]. Nevertheless, the definitive indications for anterolateral surgery remain under debate.

Numerous surgical techniques have been developed for lateral and posterolateral knee reconstruction. Anatomical techniques, such as those described by Arciero and LaPrade, provide superior rotational and varus stability compared with non-anatomical approaches, such as the Larson technique [16][17][18]. In terms of functional or biomechanical outcomes, no significant differences have been demonstrated among the various anatomical techniques [19][20][21][22]. These techniques generally require one, or, in the case of the LaPrade method, two autologous or allogeneic tendon grafts. One challenge in reconstructing MLKIs is selecting the appropriate graft. Gracilis and semitendinosus tendons are most commonly used for lateral reconstruction, although the peroneus longus tendon has recently emerged as an alternative autologous option [23][24]. Importantly, approximately 87% of (postero-)lateral knee injuries are accompanied by ACL or PCL rupture [4], often necessitating multiple tendon grafts. In the presence of concomitant ACL injury, quadriceps tendon or bone–patellar tendon–bone (BPTB) grafts provide functional outcomes comparable to hamstring grafts but may be associated with increased donor-site morbidity and postoperative pain [23]. Consequently, the semitendinosus autograft remains the most frequently used graft for ACL or PCL reconstruction in the setting of MLKIs [25]. Additionally, revision surgery is required in roughly 7–10% of MLKI cases [26][27][28], further increasing graft demand. Thus, treatment of these complex injuries often necessitates harvesting multiple tendons, sometimes even from the contralateral limb. While allogeneic tendon grafts are a potential alternative, their biomechanical equivalence and failure rates remain controversial [29][30][31][32]. Moreover, allografts are infrequently used in Europe due to regulatory and financial constraints.

The purpose of this study was to describe a combined anterolateral and posterolateral reconstruction technique using a continuous iliotibial band (ITB) autograft. We hypothesize that, in the setting of MLKIs, it is feasible to reconstruct the posterolateral corner while simultaneously augmenting the anterolateral corner without harvesting hamstring or other tendon grafts.

Materials and Methods

A total of eight knees (three left, five right) were obtained from six body donors (1 ♂, 5 ♀; mean age 74.2 years $\pm$ 9.13 years; mean weight 72.1 kg $\pm$ 17.69 kg; mean height 1.69 m $\pm$ 0.10 m). The study was conducted in accordance with the Declaration of Helsinki (2008). All donors had previously provided informed consent for the use of their bodies for scientific research at the Institute of Anatomy, University of Leipzig. Ethical approval was granted by the Ethical Committee of the University of Leipzig (129/21). Exclusion criteria included a known or visible history of knee surgery, visible signs of tissue necrosis and forms of regional tissue damage and extensive hematoma in the knee region. During the recruitment period, however, none of the body donors had to be excluded from this study.

The surgical technique included several key steps, including subcutaneous harvesting of the continuous ITB graft, optimal femoral fixation of the anterolateral limb, and closure of the harvest site. For graft harvesting, a double-bladed 10 mm scalpel (10 mm Tendon Knife, Karl Storz SE & Co. KG, Tuttlingen, Germany) was primarily used. As an alternative, an open-end hamstring tendon stripper (Pigtail Hamstring Tendon Stripper, 7 mm, Arthrex, Naples, FL, USA) was tested. The graft was then separated from the underlying muscle tissue using a tendon separator and extracted using a tendon cutter. Finally, the graft was fixed in the desired positions with biointerference screws. The harvest site was closed using a barbed surgical suture.

Surgical technique

- Skin Incisions (**Figure 1**)
- ITB Graft Harvesting (**Figure 2**)
- Anterolateral Extra-articular Tenodesis and First Femoral Fixation Point (**Figure 3**)
- Fibular Tunnel Drilling (**Figure 4**)
- Reconstruction of LCL Limb (**Figure 5**)
- Second Femoral Fixation Point (**Figure 6**)
- Reconstruction of Popliteal Limb and End of Surgical Procedure (**Figure 7**)

Skin Incisions

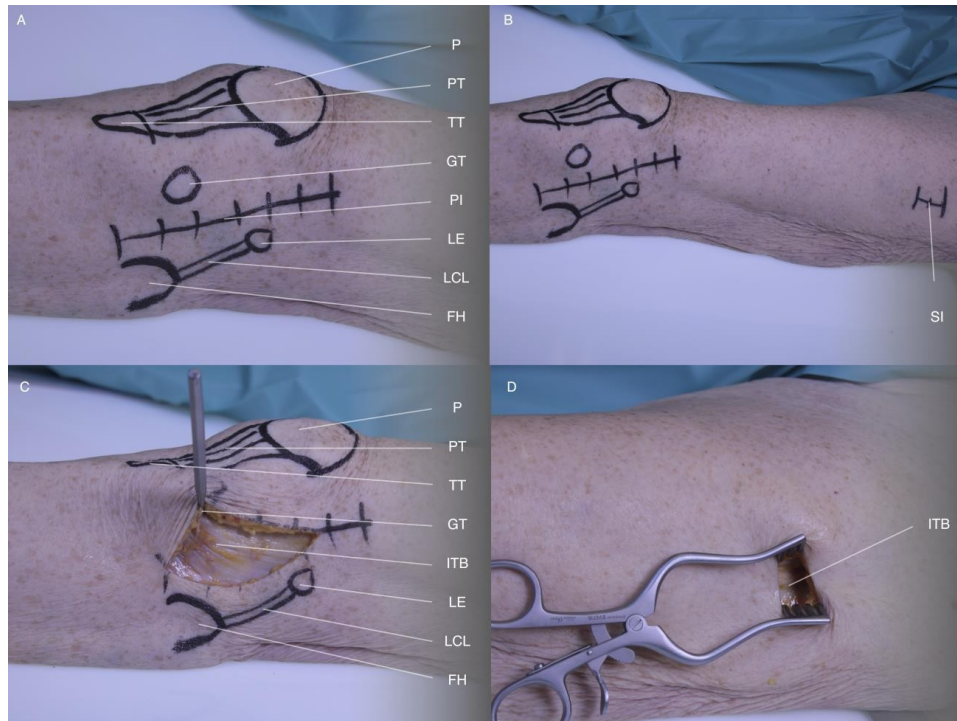


Figure 1. The procedure begins with identification and marking of relevant anatomical landmarks, including the patella (P), patellar tendon (PT), tibial tuberosity (TT), Gerdy's tubercle (GT), fibular head (FH), lateral epicondyle (LE), and lateral collateral ligament (LCL). The primary incision (PI) is then marked between GT and FH. Using a ruler, a point 23– 25 cm proximal to GT, depending on patient height, is identified along the course of the iliotibial band (ITB) to define the secondary incision (SI). It is important to note that the proximal ITB lies more dorsally than might be expected based on the position of GT; the greater trochanter can serve as a useful landmark for orientation. The primary incision is made to expose the ITB and GT, followed by the secondary incision to identify the proximal end of the ITB.

ITB Graft Harvesting



Figure 2. Following the incisions, subcutaneous fat is partially removed, and retractors are used to visualize the orientation of the ITB fibers. A double-bladed scalpel (tendon cutter) is positioned longitudinally along the middle third of the ITB at the level of GT and directed towards the previously identified proximal end. Alternatively, an open-end tendon stripper may be used. The leg should be brought into adduction to properly tension the ITB. The ITB is then stripped, partially subcutaneously, until the proximal incision is reached. In some cases, blunt separation of the subcutaneous fat from the ITB using a finger may be necessary to facilitate smooth subcutaneous passage of the tendon cutter. Afterwards, a tendon separator is used to release the graft from residual subcutaneous fat and underlying muscle. The graft is detached at its proximal end using a tendon cutter, surgical scissors, or a scalpel, and the proximal end is reinforced with a high-tensile suture to enable shuttling without direct handling of the graft. The graft may be soaked in vancomycin prior to fixation.

Anterolateral Extra-articular Tenodesis and First Femoral Fixation Point

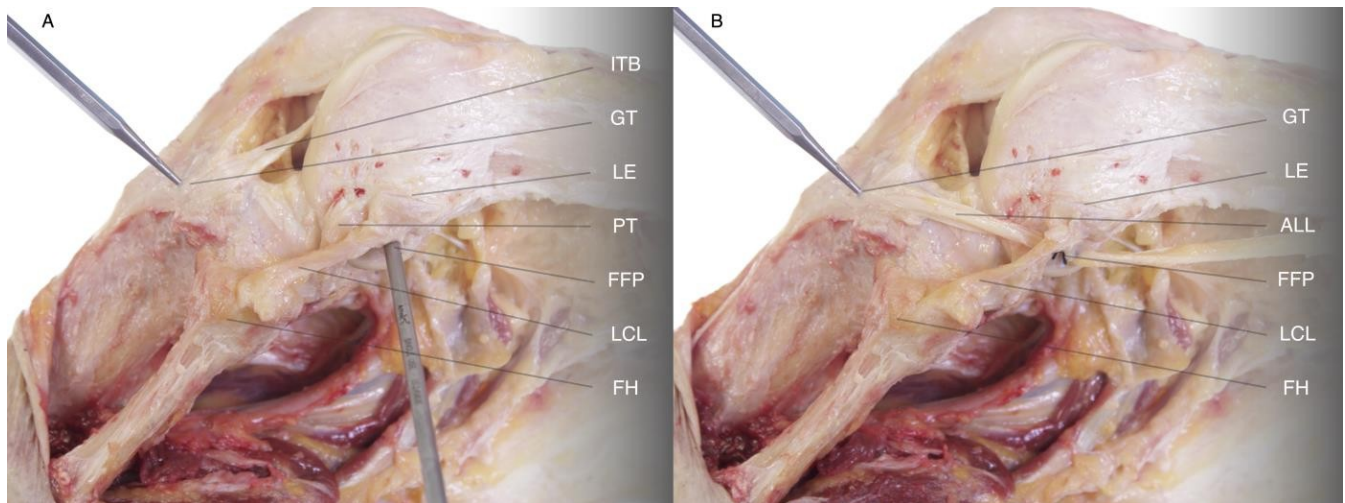


Figure 3. Following ITB graft harvesting, the lateral capsule and underlying femoral condyle are partially exposed. The femoral insertion of the LCL is identified whenever possible; if not, the lateral epicondyle (LE) serves as an anatomical landmark. Small anterior and posterior periarticular incisions are made along the LCL or its remnants. An Overholt clamp is introduced through the posterior incision, without piercing the knee joint synovium, and advanced through the periarticular tissue toward the anterior incision, thereby creating a corridor deep to the LCL remnants. The reinforced ITB graft is then shuttled through this corridor toward the LE. Posterior and superior to the LE, the first femoral fixation point (FFP) is identified. This corresponds to the femoral attachment of Lemaire's lateral extraarticular tenodesis and represents the dorsal fixation site for the Arciero reconstruction. A 3.4-mm hole is drilled to create the femoral socket for graft fixation. The ITB graft is secured at the FFP, effectively constituting a lateral extra-articular tenodesis. Several fixation methods may be used; in this technique, a suture is loosely placed around the graft near the insertion site and threaded into a screw. As the screw anchor is advanced into the drilled bone socket, it compresses the graft at the level of the suture, providing stable fixation and guidance. With appropriate graft tensioning, the first screw is inserted at 30° of knee flexion. An onlay fixation may be chosen alternatively, though it may allow gradual tension loss due to the continuous course of the graft. Transosseous fixation techniques are not recommended for the first femoral fixation point because of the continuous graft configuration and the risk of tunnel conflict during concomitant ACL or PCL reconstruction. This completes the first part of the procedure.

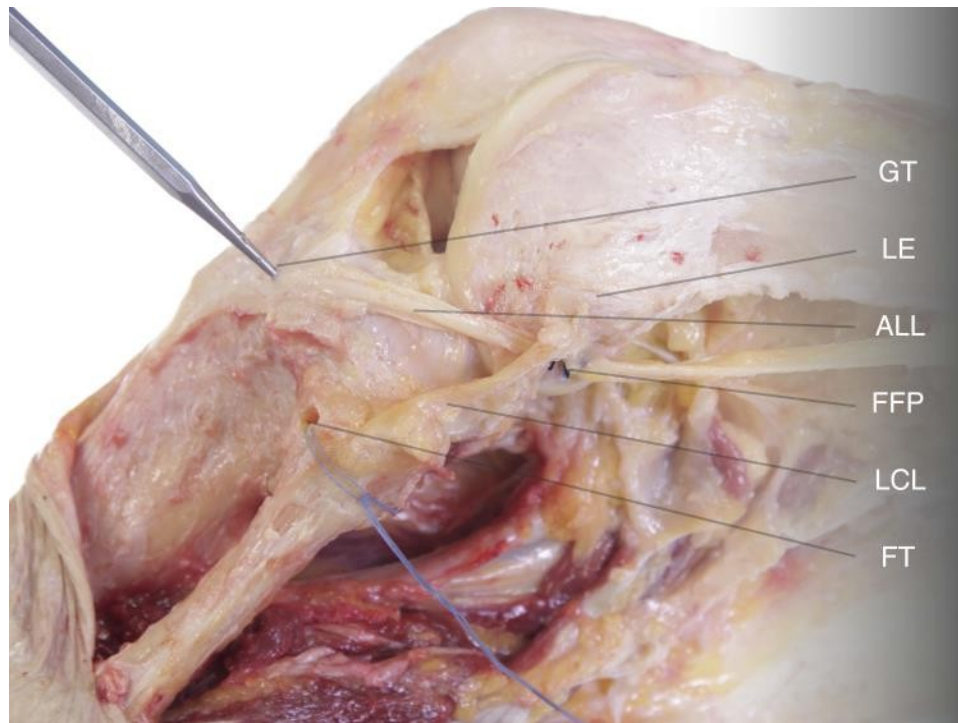


Figure 4. Now the second part of the procedure, representing Arciero's posterolateral reconstruction, begins. First, the fibular head (FH) is identified at the dorsal border of the ITB, just below the knee joint line. The biceps femoris muscle inserts onto the FH and may serve as an anatomical landmark. A small fascial incision is made posterior to the biceps femoris to expose the dorsal border of the FH. In cases of extensive soft-tissue injury requiring a more invasive approach, or when peroneal nerve neurolysis is indicated, the peroneal nerve is identified, looped with an elastic vessel loop, and protected throughout all subsequent steps. If the peroneal nerve is found to be injured, plastic surgery may be required to restore continuity. A second small fascial incision is then made at the anterior border of the FH, through which the fibular tunnel (FT) is drilled. The correct drilling trajectory, anterolateral to posteromedial with slight cranial angulation, is first established using a K-wire, followed by drilling of the FT along the same trajectory. If the surgeon chooses to secure the graft within the fibular canal, the tunnel diameter should correspond to the screw size. Regardless, the tunnel must be wide enough to allow passage of the ITB graft. A suture-passing wire is used to introduce a shuttle thread through the FT. The looped end of the shuttle thread should exit the FT anteriorly to facilitate later graft passage.

Reconstruction of LCL Limb

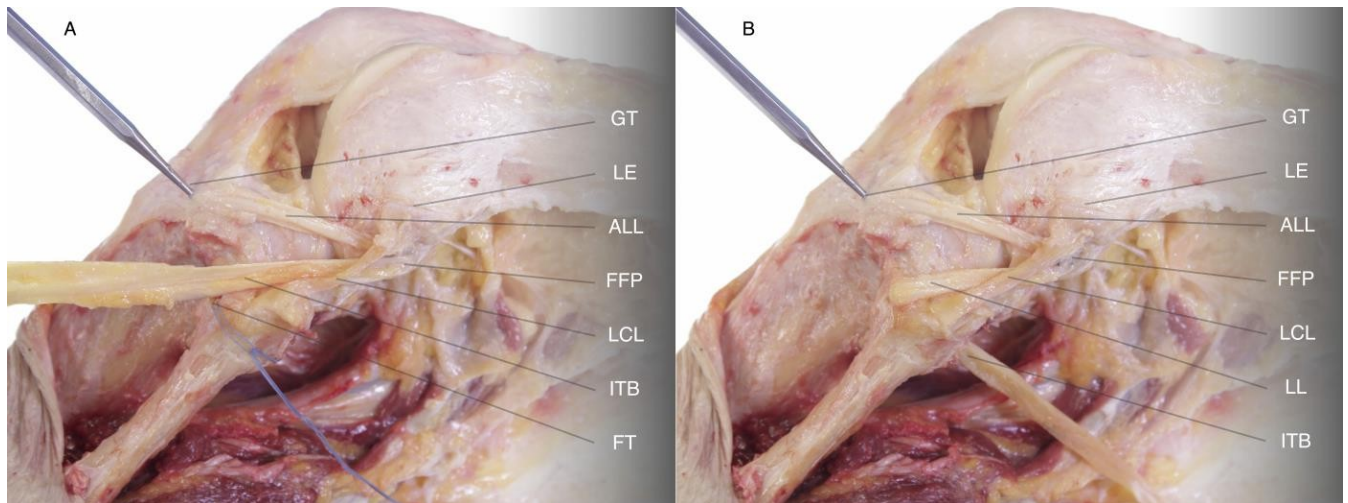


Figure 5. Next, the ITB graft is shuttled toward the anterior aspect of the FH. An Overholt clamp is inserted through the anterior FH incision and advanced through the periarticular tissue toward the femoral fixation point of the lateral extra-articular tenodesis, i.e., the first femoral fixation point (FFP). The graft is then guided toward the anterior FH. Using the previously placed shuttle thread, the graft is passed through the FT. At this stage, the graft may be secured within the fibula using a biocomposite interference screw. We chose not to do so, because only one graft end is available, and the LCL limb (LL) of the Arciero reconstruction is already secured proximally at the FFP. If a fibular interference screw is used, the leg should be positioned at 30° of flexion, with slight internal rotation and slight valgus, before tensioning [33].

Second Femoral Fixation Point

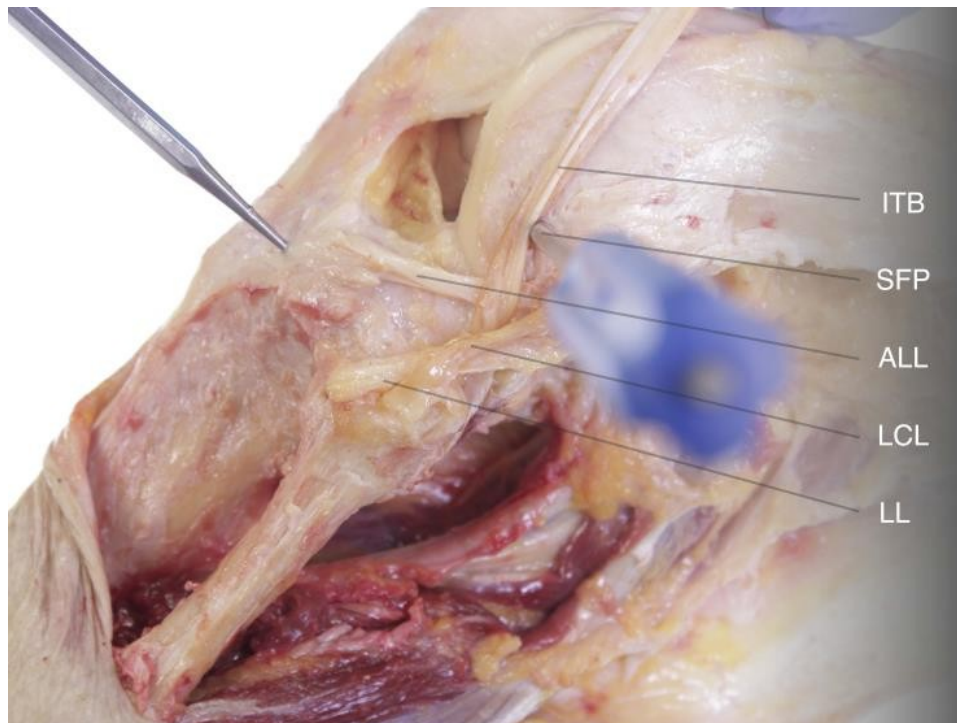


Figure 6. The femoral insertion of the popliteus tendon, corresponding to the second femoral fixation point (SFP), is then identified. This can be done by palpating the popliteus tendon, or alternatively, by selecting a point at least 18 mm anterior to the first femoral fixation point. A small incision is made at this location. An Overholt clamp is used again to establish a corridor between the SFP and the dorsal FH, through which the graft is shuttled. For an anatomical reconstruction, the ascending Arciero graft, which replicates the popliteus tendon, should pass deep to the descending LCL limb (LL) of the graft. However, to replicate Lemaire's lateral extra-articular tenodesis technique accurately, the ascending graft must pass superficial to the extra-articular tenodesis graft. In this configuration, the reconstructed LCL functions as a hypomochlion for the extra-articular tenodesis in knee extension. This is achieved by exiting the periarticular tissue after passing deep to the LL-graft and then re-entering superficial to the extraarticular tenodesis graft.

Reconstruction of Popliteal Limb and End of Surgical Procedure

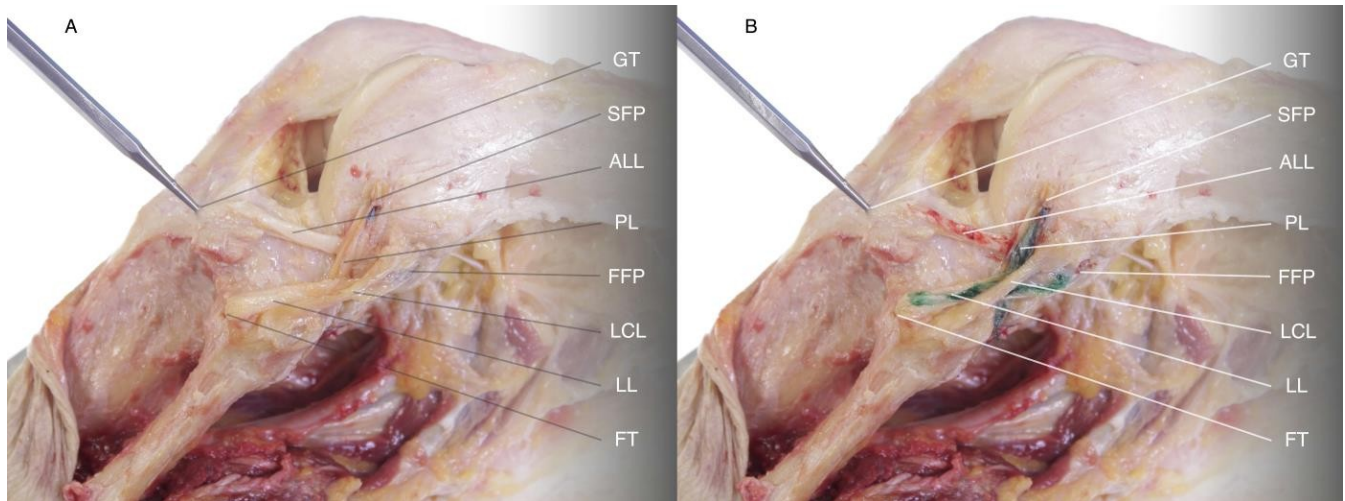


Figure 7. The ascending Arciero graft is then secured at the second femoral fixation point using the same technique and implants described previously. Now, a transosseous fixation method may be employed if preferred. At this stage, the extraarticular tenodesis (ALL, red), Arciero's LCL limb (LL, green), and Arciero's popliteal limb (PL, green) are fully reconstructed. Ultimately, the ITB is closed with a barbed surgical suture to restore subcutaneous integrity.

Discussion

This cadaveric demonstration shows that reconstruction of the anterolateral and posterolateral structures of the knee using a single continuous iliotibial band graft represents a potentially viable alternative to existing techniques for lateral knee stabilization, offering the advantage of addressing multiple stabilizing structures with a single graft. Technically, this reconstruction can be achieved by routing the graft along the anatomical course described in Lemaire's modified lateral extra-articular tenodesis [34] and Arciero's posterolateral reconstruction [33], thus combining two surgical procedures.

Posterolateral reconstruction techniques have evolved over time. In 2001, Larson first described a fibular-based technique using a single femoral socket [35]. This approach was later modified by adding a second femoral fixation point; however, the insertion sites were still considered "non-anatomic" [36]. In 2005, Arciero introduced a revised reconstruction technique, adjusting the fibular drill angle and relocating the femoral fixation points to the anatomic insertion sites of the LCL and popliteus tendon [33]. More recently, LaPrade et al. proposed a tibiofibular-based technique, which has been shown to be equivalent to Arciero's anatomic reconstruction [20][21][22]. All of these techniques require tendon graft harvesting. Our proposed technique allows reconstruction of the PLC without the need for autologous tendon grafts, utilizing the central portion of the ITB instead. Generally, the ITB functions well as a graft, particularly due to its favorable load-bearing properties [37].

Although stiffness and ultimate load to failure of the ITB are lower than those of hamstring grafts, they are comparable to the stiffness and ultimate load to failure of the native LCL and PFL [38][39][40][41]. Therefore, the ITB may present a promising graft option for lateral knee reconstruction. However, ITB integrity must be confirmed before proceeding. If the ITB is found to be ruptured, an alternative posterolateral reconstruction technique should be selected.

Admittedly, there is no definitive evidence that harvesting hamstring tendons negatively affects knee stability. However, compared with other graft options, hamstring harvest, particularly combined semitendinosus and gracilis harvest, may result in slightly increased anterior knee laxity on a biomechanical level [42][43]. In isolated ACL injuries, this does not appear to compromise clinical outcomes. However, in the setting of concomitant MCL injury, the hamstring muscles play a significant role in maintaining knee stability; therefore, preservation of these tendons should be considered [44]. Furthermore, no studies have specifically investigated the effects of hamstring harvesting in the context of preexisting complex MLKIs. Accordingly, we propose that in cases of MLKIs, avoiding gracilis harvesting for lateral reconstruction and using the ITB instead may represent a viable option. It should be emphasized, however, that this approach is not intended to replace hamstring harvesting in general, and ITB utilization is only feasible if the ITB itself is intact; a question that is currently under investigation.

Finally, we want to address the additional lateral extra-articular tenodesis in our technique. The anterolateral ligament has recently been rediscovered and has received considerable attention [45]. Its role in constraining internal tibial rotation remains controversial, with studies supporting both sides of the argument [6][46]. Nonetheless, clinical randomized controlled trials have demonstrated reduced revision rates and improved stability when ACL reconstruction is combined with lateral extra-articular tenodesis [12][13][14][15]. Admittedly, there is no evidence for favorable outcomes in lateral MLKIs when additionally addressing the anterolateral corner. However, we believe it is reasonable to hypothesize that, if a benefit exists for isolated ACL reconstruction, similar advantages may be observed in cases of combined ACL and lateral (and MCL) multiligament injuries. Consequently, in MLKIs classified as Schenck III-L or higher, with a pathological pivot-shift test, additional anterolateral stabilization may be considered.

Limitations

Our study has several limitations. Firstly, tensioning the graft through the procedure is a key aspect of this technique and may be challenging. Future studies will also aim to define the precise graft length required, which may allow for a reduction in the distance between the skin incisions and facilitate easier subcutaneous closure of the ITB. With the currently described incision strategy, ITB closure is possible, but technically challenging, and we intend to address this issue in subsequent work. The required skin incisions are inherently associated with potential risks, including postoperative pain, wound-healing complications, and scarring. Accordingly, meticulous and atraumatic soft-tissue handling is strongly recommended to minimize these complications. As with any anchor-based technique, precise tunnel placement and appropriate hardware selection are critical determinants of procedural success. Inadequate implant quality or fixation strength may result in loss of graft tension, construct instability, persistent or recurrent rotatory instability, and, in the worst case, graft failure. Furthermore, femoral and tibial tunnel positioning must be carefully planned and executed to minimize the risk of tunnel convergence, hardware interference, and postoperative overconstraint of the joint.

Ultimately, even if these limitations are resolved, the proposed technique is likely to remain reserved for select cases of complex lateral MLKIs and patients with fitting anatomy. Variations in anatomy, such as very high BMI, visibly short thighs, or any history of lateral knee surgery may limit the possibility of harvesting a continuous ITB graft.

Conclusion

This cadaveric study illustrates that a continuous iliotibial band autograft can be utilized to perform a combined anterolateral and posterolateral reconstruction, with the graft sequentially following the trajectory of a Lemaire's lateral extra-articular tenodesis and Arciero's posterolateral reconstruction technique. This technique may present a useful alternative in cases of complex lateral multiligament knee injuries.

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Conflicts of interests

The authors declare no conflicts of interest or competing interests.

Author contributions

C.H. and R.H. conceptualized the technique. P.H. and H.S. gave critical feedback and highlighted important pitfalls. C.H. and R.H. collected the anatomical data and captured the images. C.H. and R.H. drafted the manuscript. H.S., P.H., J.H. and F.S. provided writing support and contributed to the critical revision of the manuscript. R.H. supervised the investigation. All authors have read and agreed upon the submitted version.

References

1. Levitt SJ, Zazulak B, Green JS, et al. The Active External Rotation Sign: A Physical Exam Technique for Detecting Posterolateral Corner Injury in Chronic Multiligament Knee Injuries. *Video J Sports Med* 2024;4(4):26350254241241082.
2. Murray IR, Makaram NS, Geeslin AG, et al. Multiligament knee injury (MLKI): an expert consensus statement on nomenclature, diagnosis, treatment and rehabilitation. *Br J Sports Med* 2024;58(23):1385–1400.
3. Pinheiro IN, Pedrinha ISM, Maia PAV, et al. Epidemiological Study on Multiligament Knee Injuries. *Rev Bras Ortop (Sao Paulo)* 2022;57(4):675–681.

4. A prospective magnetic resonance imaging study of the incidence of posterolateral and multiple ligament injuries in acute knee injuries presenting with a hemarthrosis. *Arthroscopy* 2007;23(12):1341–1347.
5. Weiler A, Frosch K-H, Gwinner C, et al. The Posterolateral Instability Score (PoLIS) of the knee joint: a guideline for standardized documentation, classification, and surgical decision-making. *Knee Surg Sports Traumatol Arthrosc* 2021;29(3):889–899.
6. Sonnery-Cottet B, Lutz C, Daggett M, et al. The Involvement of the Anterolateral Ligament in Rotational Control of the Knee. *Am J Sports Med* 2016;44(5):1209–1214.
7. Park Y-B, Lee H-J, Ro D-H, et al. Anterolateral ligament injury has a synergic impact on the anterolateral rotatory laxity in acute anterior cruciate ligament-injured knees. *Knee Surg Sports Traumatol Arthrosc* 2019;27(10):3334–3344.
8. D'Ambrosi R, Sconfienza LM, Albano D, et al. High incidence of RAMP lesions and a nonnegligible incidence of anterolateral ligament and posterior oblique ligament rupture in acute ACL injury. *Knee Surg Sports Traumatol Arthrosc* 2024;32(8):1992–2002.
9. Ferretti A, Monaco E, Fabbri M, et al. Prevalence and Classification of Injuries of Anterolateral Complex in Acute Anterior Cruciate Ligament Tears. *Arthroscopy* 2017;33(1):147–154.
10. Faruch Bilfeld M, Cavaignac E, Wytrykowski K, et al. Anterolateral ligament injuries in knees with an anterior cruciate ligament tear: Contribution of ultrasonography and MRI. *Eur Radiol* 2018;28(1):58–65.
11. van Dyck P, Clockaerts S, Vanhoenacker FM, et al. Anterolateral ligament abnormalities in patients with acute anterior cruciate ligament rupture are associated with lateral meniscal and osseous injuries. *Eur Radiol* 2016;26(10):3383–3391.
12. Castoldi M, Magnussen RA, Gunst S, et al. A Randomized Controlled Trial of Bone-Patellar Tendon-Bone Anterior Cruciate Ligament Reconstruction With and Without Lateral Extra-articular Tenodesis: 19-Year Clinical and Radiological Follow-up. *Am J Sports Med* 2020;48(7):1665–1672.
13. Boksh K, Sheikh N, Chong HH, et al. The Role of Anterolateral Ligament Reconstruction or Lateral Extra-articular Tenodesis for Revision Anterior Cruciate Ligament Reconstruction: A Systematic Review and Meta-analysis of Comparative Clinical Studies. *Am J Sports Med* 2024;52(1):269–285.
14. Rezansoff A, Firth AD, Bryant DM, et al. Anterior Cruciate Ligament Reconstruction Plus Lateral Extra-articular Tenodesis Has a Similar Return-to-Sport Rate to Anterior Cruciate Ligament Reconstruction Alone but a Lower Failure Rate. *Arthroscopy* 2024;40(2):384-396.e1.
15. Getgood AMJ, Bryant DM, Litchfield R, et al. Lateral Extra-articular Tenodesis Reduces Failure of Hamstring Tendon Autograft Anterior Cruciate Ligament Reconstruction: 2-Year Outcomes From the STABILITY Study Randomized Clinical Trial. *Am J Sports Med* 2020;48(2):285–297.
16. Coppola C, Sigloch M, Hoermann R, et al. Posterolateral Knee Ligament Reconstruction Using the Arciero Technique Provides Greater Rotational Stability Than the Modified Larson Technique: A Biomechanical Study. *Am J Sports Med* 2025;53(1):147–153.
17. Feeley BT, Muller MS, Sherman S, et al. Comparison of posterolateral corner reconstructions using computer-assisted navigation. *Arthroscopy* 2010;26(8):1088–1095.
18. Ho EP-Y, Lam M-H, Chung MM-L, et al. Comparison of 2 surgical techniques for reconstructing posterolateral corner of the knee: a cadaveric study evaluated by navigation system. *Arthroscopy* 2011;27(1):89–96.
19. Nau T, Chevalier Y, Hagemester N, et al. Comparison of 2 surgical techniques of posterolateral corner reconstruction of the knee. *Am J Sports Med* 2005;33(12):1838–1845.
20. Apsingi S, Nguyen T, Bull AMJ, et al. A comparison of modified Larson and 'anatomic' posterolateral corner reconstructions in knees with combined PCL and posterolateral corner deficiency. *Knee Surg Sports Traumatol Arthrosc* 2009;17(3):305–312.
21. Treme GP, Salas C, Ortiz G, et al. A Biomechanical Comparison of the Arciero and LaPrade Reconstruction for Posterolateral Corner Knee Injuries. *Orthop J Sports Med* 2019;7(4):2325967119838251.
22. Weiss S, Krause M, Frosch K-H. Clinical results after arthroscopic reconstruction of the posterolateral corner of the knee: A prospective randomized trial comparing two different surgical techniques. *Arch Orthop Trauma Surg* 2023;143(2):967–975.
23. Sleem B, Nassar JE, Tollefson LV, et al. Management and reconstruction strategies for multiligament knee injuries: Advances in diagnosis, surgical techniques, and rehabilitation. *JASSM* 2025;6:112–124.
24. Tapasvi SR, Shekhar A, Patil SS. Anatomic Posterolateral Corner Reconstruction With Autogenous Peroneus Longus Y Graft Construct. *Arthrosc Tech* 2019;8(12):e1501-e1509.
25. Amit J, Subhash R, Pranodan P, et al. Graft Options for the Reconstruction of Multi-ligament Knee Injury: A Systematic Review. *Indian J Orthop* 2025;59(4):453–463.
26. Mussell EA, Crawford AE, Ithurburn MP, et al. Outcomes of Surgical Treatment for Multiligament Knee Injuries in a Cohort Including Competitive Athletes With Long-Term Follow-Up. *Orthop J Sports Med* 2024;12(9):23259671241266619.
27. Schneebeil V, Philippe V, Laurent A, et al. Prognostic Factors for Multiligament Knee Injury Treated With Multiligament Reconstruction: Functional and Radiological Outcomes at 2 to 8 Years Postoperatively. *Orthop J Sports Med* 2024;12(8):23259671241261103.
28. Worley JR, Brimmo O, Nuelle CW, et al. Revision Anterior Cruciate Ligament Reconstruction after Surgical Management of Multiligament Knee Injury. *J Knee Surg* 2022;35(1):72–77.
29. Kern K, Sanii R, Peterson JC, et al. Autograft Versus Allograft in Posterolateral Corner Reconstruction: A Systematic Review and Meta-analysis. *Orthop J Sports Med* 2024;12(6):23259671241247542.
30. Zeng C, Gao S, Li H, et al. Autograft Versus Allograft in Anterior Cruciate Ligament Reconstruction: A Meta-analysis of Randomized Controlled Trials and Systematic Review of Overlapping Systematic Reviews. *Arthroscopy* 2016;32(1):153-63.e18.
31. Akrivos VS, Gkekas N, Chantes I, et al. Allograft Use in Peripheral Knee Ligament Injuries (MCL and LCL): A Systematic Review. *Sports Med Arthrosc Rev* 2025;33(3):93–104.
32. Prodromos C, Joyce B, Shi K. A meta-analysis of stability of autografts compared to allografts after anterior cruciate ligament reconstruction. *Knee Surg Sports Traumatol Arthrosc* 2007;15(7):851–856.
33. Arciero RA. Anatomic posterolateral corner knee reconstruction. *Arthroscopy* 2005;21(9):1147.

34. Jesani S, Getgood A. Modified Lemaire Lateral Extra-Articular Tenodesis Augmentation of Anterior Cruciate Ligament Reconstruction. *JBJS Essent Surg Tech* 2019;9(4).
35. Larson RV. Isometry of the lateral collateral and popliteofibular ligaments and techniques for reconstruction using a free semitendinosus tendon graft. *Operative Techniques in Sports Medicine* 2001;9(2):84–90.
36. Zantop T, Petersen W. Posterolaterale Rekonstruktion des Kniegelenks nach Larson. *Oper Orthop Traumatol* 2010;22(4):373–386.
37. Steinke H, Lingslebe U, Böhme J, et al. Deformation behavior of the iliotibial tract under different states of fixation. *Med Eng Phys* 2012;34(9):1221–1227.
38. Seeber GH, Wilhelm MP, Sizer Jr* PS, et al. THE TENSILE BEHAVIORS OF THE ILIOTIBIAL BAND – A CADAVERIC INVESTIGATION. *Intl J Sports Phys Ther* 2020;15(3):451–459.
39. LaPrade RF, Bollom TS, Wentorf FA, et al. Mechanical properties of the posterolateral structures of the knee. *Am J Sports Med* 2005;33(9):1386–1391.
40. Wilson WT, Deakin AH, Payne AP, et al. Comparative analysis of the structural properties of the collateral ligaments of the human knee. *J Orthop Sports Phys Ther* 2012;42(4):345–351.
41. Wytrykowski K, Swider P, Reina N, et al. Cadaveric Study Comparing the Biomechanical Properties of Grafts Used for Knee Anterolateral Ligament Reconstruction. *Arthroscopy* 2016;32(11):2288–2294.
42. Cristiani R, Essen C von, Hamrin Senorski E, et al. Comparable Outcomes Across 4 Hamstring Tendon Graft Configurations in ACL Reconstruction, Despite Increased Knee Laxity With Gracilis Tendon Harvesting. *Orthop J Sports Med* 2025;13(8):23259671251363585.
43. Cristiani R, Sarakatsianos V, Engström B, et al. Increased knee laxity with hamstring tendon autograft compared to patellar tendon autograft: a cohort study of 5462 patients with primary anterior cruciate ligament reconstruction. *Knee Surg Sports Traumatol Arthrosc* 2019;27(2):381–388.
44. Herbolt M, Michel P, Raschke MJ, et al. Should the Ipsilateral Hamstrings Be Used for Anterior Cruciate Ligament Reconstruction in the Case of Medial Collateral Ligament Insufficiency? Biomechanical Investigation Regarding Dynamic Stabilization of the Medial Compartment by the Hamstring Muscles. *Am J Sports Med* 2017;45(4):819–825.
45. Claes S, Vereecke E, Maes M, et al. Anatomy of the anterolateral ligament of the knee. *J Anat* 2013;223(4):321–328.
46. Hohmann E, Keough N, Molepo M, et al. The Anterolateral Ligament Complex Has Limited Impact on Anterior Tibial Translation or Internal Rotational Stability in Anterior Cruciate Ligament-Deficient and Anterior Cruciate Ligament-Reconstructed Knees: A Systematic Review of Biomechanical Cadaver Studies. *Arthroscopy* 2025;41(11):4882-4899.e15.