CASE STUDY.

NEWCLIP-TECHNICS

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ACTIVMOTION S:
Optimizing Tibial Slope Correction with the Activmotion S System and Patient-Matched Cutting Guides

Physician profile.

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SFA, LSKS, SOFCOT

Patient history.

The patient is a male in his early twenties who maintains a high level of physical activity, regularly engaging in skiing, biking, trail running, and running. His surgical history includes an anterior cruciate ligament (ACL) reconstruction using a hamstring autograft, combined with an anterolateral ligament (ALL) reconstruction. He sustained a graft re-rupture in the absence of comorbidities or joint ankylosis. At the time of the new traumatic event, the knee exhibited a full range of motion (full extension to 140° flexion), no pain, and a SKV score of 100.

Surgical treatment.

Choice of intervention

Due to the patient's age, history of lateral tenodesis, and significant posterior tibial slope, the use of a patient-matched cutting guide was deemed appropriate. This approach was considered necessary to correct the anatomical abnormalities contributing to graft failure and to restore optimal alignment.

The collaboration with Newclip Technics enabled the definition of the postoperative correction targets. Two distinct osteotomy scenarios (supra-tubercle and infra-tubercle techniques) were planned using the ONE Portal, which provided an intuitive and effective platform for simulation and decision-making.

A slope-correction osteotomy was indicated given the recurrent rupture following ALL reconstruction. As the hamstring tendons had already been harvested, a patellar tendon autograft was selected according to the Kenneth-Jones technique, in combination with a deep Lemaire lateral tenodesis. The infra-tubercle osteotomy allowed correction of both the posterior tibial slope and a minor varus deviation, with stabilization achieved using a locking plate, thus enabling early postoperative weight-bearing. A supra-tubercle osteotomy, using either staples or a plate, was considered as an alternative but was ultimately not selected. The chosen implant configuration was a Newclip infra-tubercle slope plate.

Preoperative planning was conducted with 3D simulation, facilitating precise assessment of slope and frontal plane correction and allowing optimal implant positioning in relation to the tibial tunnel. The preoperative posterior tibial slope was 13°, with a target of 5°, corresponding to the lower range of physiological values. In the frontal plane, the mechanical medial proximal tibial angle (mMPTA) target was 90°.

Additional considerations included arthroscopic treatment of associated meniscal lesions. A ramp lesion of the posterior horn of the medial meniscus and a lesion of the posterior horn of the lateral meniscus were identified and scheduled for repair. A supplementary lateral tenodesis via a deep Lemaire procedure was also planned.

Pre-op X-rays

What about the surgical procedure.

Surgical intervention began with graft preparation, using the patellar tendon for ACL reconstruction and the fascia lata for lateral tenodesis. The osteotomy was performed using the Newclip PSI guide in accordance with the standard protocol. The tibial tunnel for ACL reconstruction was created using the guide, with positioning confirmed under arthroscopy.

Subsequent arthroscopy allowed for repair of the medial meniscus using a combination of a posterior hook technique and all-inside sutures, while the lateral meniscus lesion was addressed with an all-inside repair. The femoral tunnel was then prepared for ACL reconstruction.

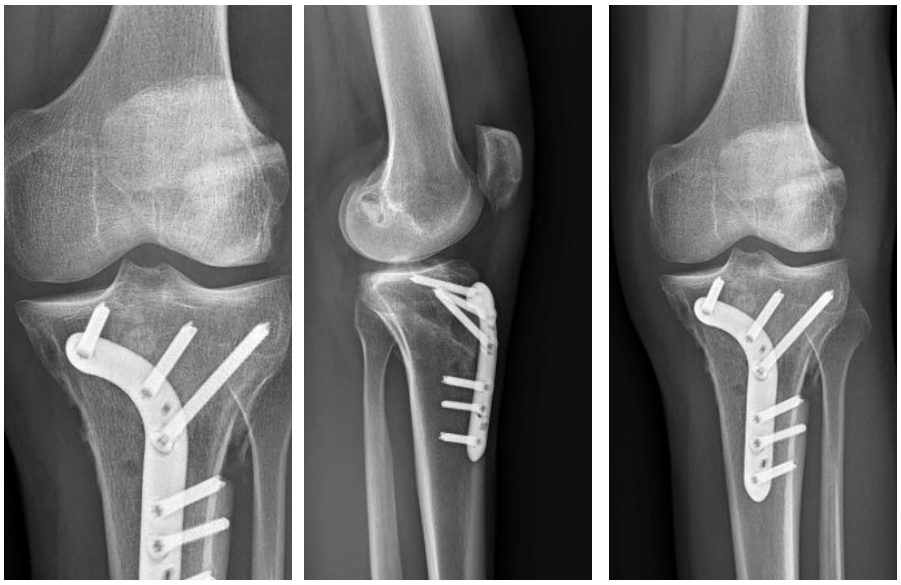
The patellar tendon autograft was fixed using the Kenneth-Jones technique. The lateral tenodesis was completed with the deep Lemaire method and anchored securely. This combined procedure addressed both anterior and rotational instability, while correcting the biomechanical risk factors for graft failure.

Per-op x-rays

Post-operative follow-up.

Post-operative management consisted of three weeks of non-weight-bearing. During this phase, recovery of full extension and active contraction of the vastus medialis was prioritized. From the third postoperative week, weight-bearing was gradually reintroduced, with the objective of full weight-bearing by one month. Flexion was initially limited to 90° for the first month, then unrestricted.

At one month, moderate swelling was present. Full extension had been regained without evidence of arthrogenic muscle inhibition, and flexion reached 100°. Discomfort was minimal and localized to the tenodesis site. Academic activity had been resumed. At three months, the knee was no longer swollen, walking was symmetrical and pain-free, and flexion reached 130°. At six months, no swelling was observed, and running had been resumed. Functional evaluation revealed the following outcomes: SKV score of 60, Tegner score of 4, IKDC score of 77, and ACL-RSI score of 66.



Post-op x-rays

Physician conclusions.

This case illustrates the importance of rigorous preoperative planning in slope-deflexion osteotomies. The Newclip ONE Portal provided a robust, reproducible planning interface, and efficient communication with the Newclip team facilitated timely surgical preparation. The PSI instrumentation ensured intraoperative precision and alignment with preoperative targets. Moreover, this process contributed to reducing the perceived complexity of the intervention from the patient's perspective, thereby enhancing the overall surgical experience.

Manufacturer : Newclip Technics - Case Study EN Dr Vincent MORIN - Activmotion S - ED1- 06/2025 - Medical device EC: class IIb – CE1639 SGS BE - US Class: II
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