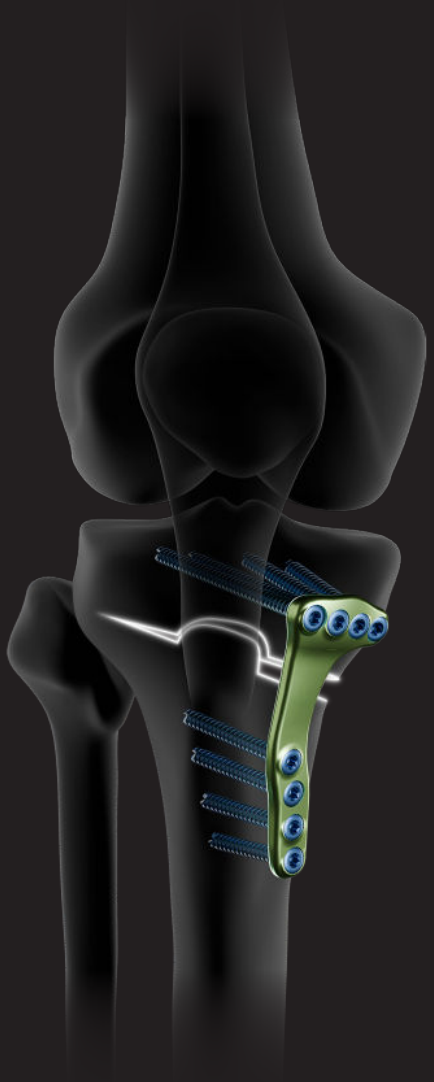
CASE STUDY.

NEWCLIP-TECHNICS



Dr Dean
WANG

ACTIVMOTION S:

Medial opening wedge high tibial osteotomy for malunion after ORIF tibial plateau

Physician profile.

Dr Dean WANG

Orthopaedic Surgeon, Sports Medicine and Joint Preservation Specialis

University of California, Irvine (UCI)

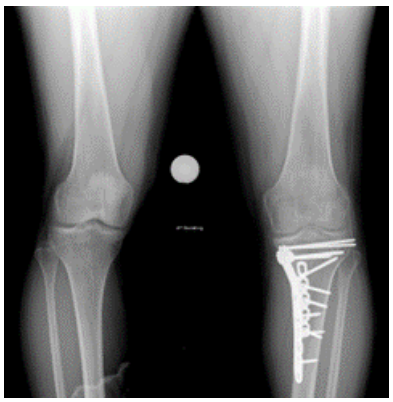
Residency : University of California, Los Angeles (UCLA)

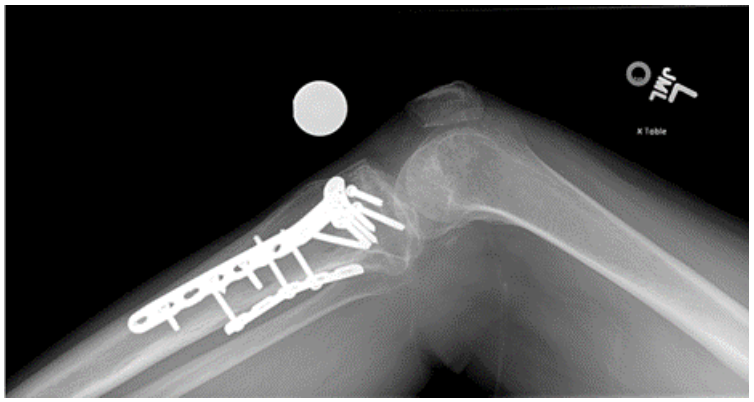
Active member of : AAOS, AOSSM, ISAKOS, ICRS, ORS

Patient history.

The patient is a woman in her forties with a BMI score of 29. She previously had surgery on the tibial plateau at another institution to reduce a fracture. Unfortunately, this resulted in a malunion of the plateau, leading to pain on the medial side of the knee when walking ; pain caused by varus deformity of the knee, due to malunion of the tibial plateau.

Thus, due to signs of tibial plateau malunion resulting in varus deformity of the tibia and persistent medial-sided knee pain refractory to non-operative treatments, revision surgery was agreed, consisting of hardware removal and medial opening wedge HTO.





Pre-op x-rays

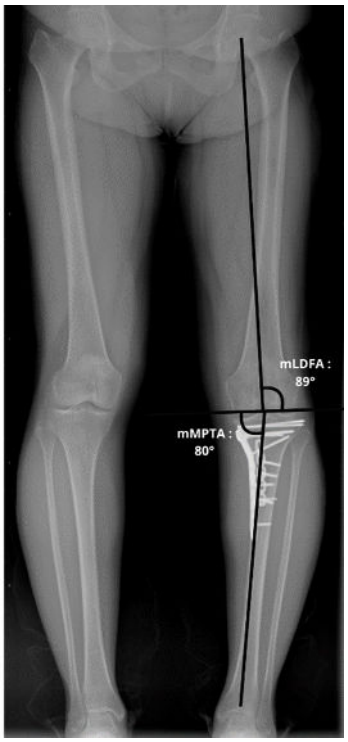
Surgical treatment.

The first planning step was to identify where the varus deformity was located. Thus, angles had to be calculated on pre-operative X-rays.

Several angle measurements were therefore taken during this planning stage :

• Calculation of the HKA angle determined a varus of 8 degrees
• Calculation of angles mMPTA (80 degrees), mLDFA (89 degrees), JLCA (0.6 degrees) determined the origin of the varus, in this case originating from the tibia.

A correction of 8 degrees was therefore applied to the tibia. Based on Hernigou's trigonometric table, a 10mm osteotomy was planned to obtain a good correction and a neutral HKA angle.

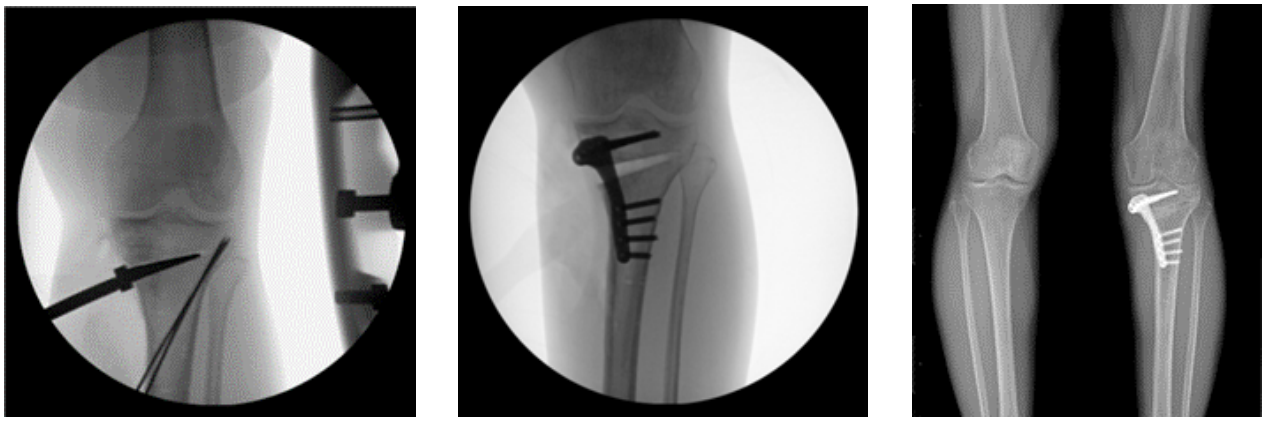


Pre-op angle measurement

The procedure was performed with the patient positioned in the supine position. A dose of intravenous antibiotics and TXA were given intravenously. A diagnostic arthroscopy was first performed, and all intra-articular pathologies were addressed. Attention was then turned to the hardware removal and HTO. From the prior ORIF of the tibial plateau, the incision was over the posteromedial tibia, making access to anterior tibia more difficult. The same incision was used, and large flaps were needed to gain access throughout the medial tibia. All hardware along the medial and posteromedial tibia was removed, and complete removal was confirmed under fluoroscopy.

As always in the setting of a prior fracture and ORIF surgery, there was significant scarring of the soft tissues, and therefore, care was taken to ensure the posterior neurovascular structures were released off the posterior tibia and protected throughout the case with a blunt retractor.
For the HTO, 2 K-wires were placed to mark the level of the osteotomy. Another 2 K-wires were placed under fluoroscopy to protect the lateral hinge. A biplanar osteotomy was performed with an oscillating saw, with the primary cut that was directly adjacent to the pins, and a steep second cut anteriorly that ended proximal to patellar tendon insertion on the tibial tubercle.

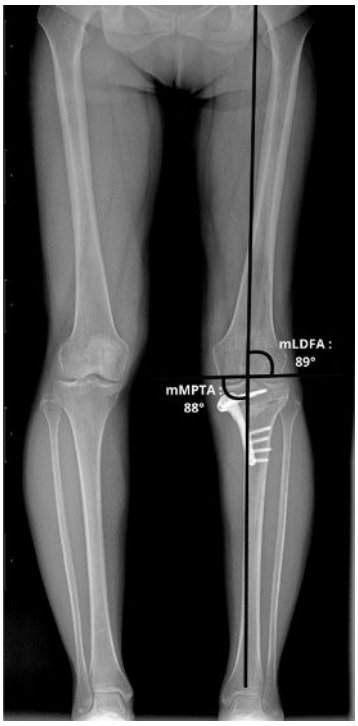
The osteotomy was progressively opened to 10 mm according to the preoperative plan and held in a place with a 10 mm cortical allograft bone wedge. A Newclip size 2 HTO plate was applied to the anteromedial tibia with locking screws.



Per-op x-rays

After the valgisation and position of all hardware was confirmed under fluoroscopy, the remainder of the osteotomy gap was filled with cancellous allograft bone chips. The MCL and pes tendons were repaired back to their original positions with suture anchors. Another dose of TXA was provided intravenously, and the patient was discharged home.

Post-operatively, the angles can be re-measured. Thus, the angles mLDFA (89 degrees) and mMPTA (88 degrees) are now standard values. In addition, the 180° HKA angle confirms correction of the tibia varus.



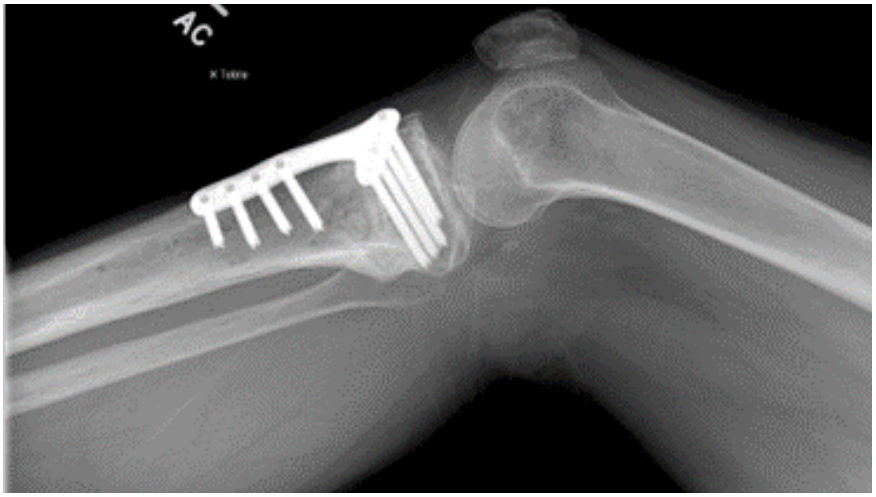
Post-op angle measurement

Post-operative follow-up.

After the operation, a full range of motion of the knee was immediately possible. The patient was kept foot-flat weightbearing for 2 weeks postoperatively.

After 2 weeks, the patient was allowed to progress her weightbearing 25% per week until full weightbearing by 6 weeks. The knee brace was discontinued when the patient had adequate quadriceps control when ambulating. After signs of good osseous healing, a strengthening program was advanced, followed by progressive return to full activities.

3 months after the surgery, the patient reported great relief of pain and was ambulating normally without assistive devices. By 6 months, she demonstrated good strength and was back to all activities of daily living without complaints.



Post-op x-rays

Physicians conclusion.

The Newclip Technics' Activmotion S range offers a wide variety of plates for all types of osteotomies around the knee. The plates are low-profile yet mechanically strong, which reduces the risk of lateral hinge fracture and can allow for accelerated rehabilitation and weightbearing. The instrumentation is elegant and intuitive, allowing for precise calibration of the osteotomy opening and correction.

Manufacturer : Newclip Technics - Case Study EN - Activmotion S - ED1- 05/2024 - Medical device EC: class IIb – CE1639 SGS BE
Results from any case studies reported in this presentation may not be predictive of results in other cases.
Read labelling and instructions before the use of Newclip Technics medical devices.These products must be handled and/or implanted by trained and qualified staff who have read the instructions before use.