Synimed

Synicem Clous
TIBIAL

SURGICAL TECHNIQUE

Synicem Clous TIBIAL

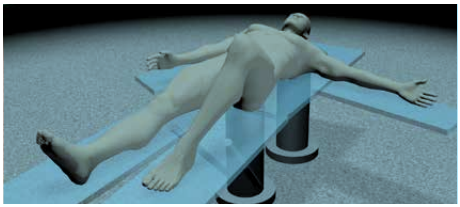
Indications
- Infected tibial diaphyseal fractures.
- Infected tibial diaphyseal pseudoarthrosis
- Open tibial diaphyseal fractures, Gustilo 1

Contraindications
- Fracture pattern inadequate for treatment with endomedullary nail.
- Fracture location inadequate for treatment with endomedullary nail.
- Hypersensitivity to aminoglucosyde ATB.
- Any situation where the use of an endomedullary nail is contraindicated.

Procedure
- Surgical approach (according to conventional insertion/implanting technique).
- Access to the medullar canal.
- Reaming of the medullar canal.
- Measurement of the nail diameter and length.
- Insertion of the corresponding nail.
- Verification of the reduction and the position of the bone fragments.
- Locking:
  Proximal:(2 holes in the lateromedial direction and 1 orifice in the anteroposterior direction).
  Distal: (2 holes in the lateromedial direction, and one hole in the anteroposterior direction).
- Introduction of the nail plug.
- Wound closure.

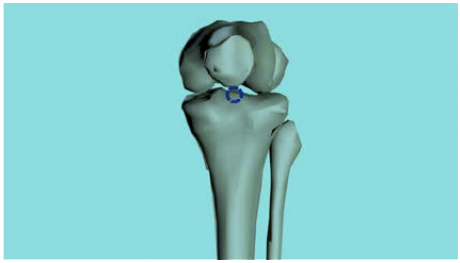
PATIENT POSITIONING

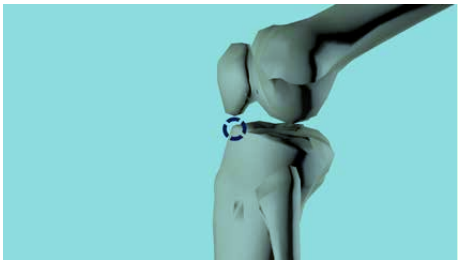
The positioning of the patient for the anterograde insertion of the tibial nail is determined by the surgeons preference and need, and by the type of fracture.
Reduction: The reduction of the fracture under radioscopy prior to the surgical approach is strongly recommended.
Antisepsis must be performed as well as the establishment of sterile fields following the corresponding technique.



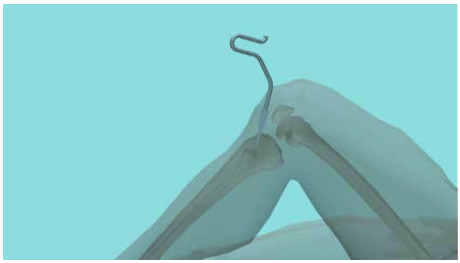
ACCESS POINT

Usual incision for regular tibial endomedullary nail insertion.

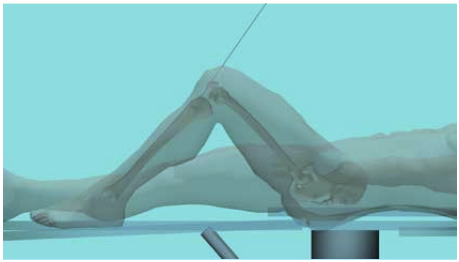




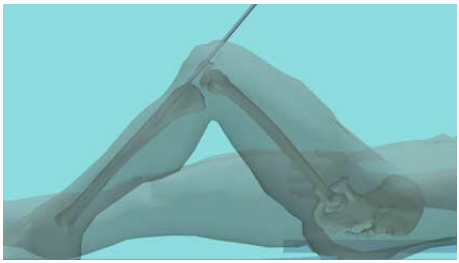
A para- patellar tendon or trans-patellar tendon approach may be used.

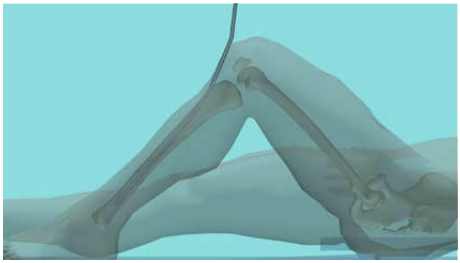


Once the access point is reached, a cavity is performed using the triangular tip AWL to allow the insertion of the guide wire.
The usual access site is a point between the angle



formed by the tibial plateau, and the metaphysis and the tibial tuberosity.
The guide wire is inserted using the T shaped handle





provided to this end. It will serve as a guide to the reaming heads.
The reaming is performed with interchangeable reamer heads (supplied with 0.5 mm increments), until the contact with the cortical bone is perceived.
It is suggested to ream 1 to 1.5 mm in excess of the diameter of the nail selected, so as to allow a smooth insertion.
It must be taken into account that the proximal diameter of the 8, 9 and 10mm nails is 11 mm, which means that the reaming must reach 12 mm before the nail is inserted. In the case of the 11, 12, and 13mm diameter nails, the proximal diameter is 13mm, which means that the reaming must reach 14 mm.

It is advised, in all cases, to perform a debridement and to eliminate all traces of necrotic, devitalized or infected tissue, following the conventional technique. An abundant rinsing with sterile solutions must be performed after reaming.

- At this point, after the reaming, the debriding and the rinsing of the tibial canal, it is recommended to change the basic surgical instruments and the sterile fields which were used until then, in order to prevent the contamination of the implant to be inserted.

INSERTION OF THE TIBIAL ENDOMEDULLARY NAIL

The chosen nail is attached to the Guide by means of the Coupling System.
Firmly tighten the coupling screw which holds the nail by means of the ratchet wrench to prevent it from loosening during the nail insertion. The sliding hammer may be used gently to facilitate the nail insertion.

The insertion must be controlled through radioscopy. The sides of the guide body are marked with the following text: (FEMORAL RIGHT/TIBIAL LEFT) or (FEMORAL LEFT/TIBIAL RIGHT). This text must be positioned so as to be visible during surgery and correspond to the bone being treated.
On the lateral face there are two orifices marked with the letters F (femoral) and T (tibial).

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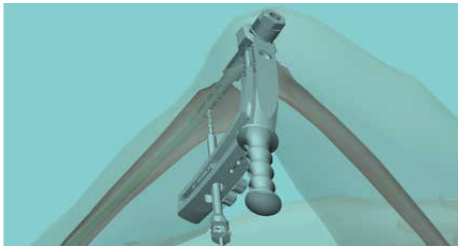
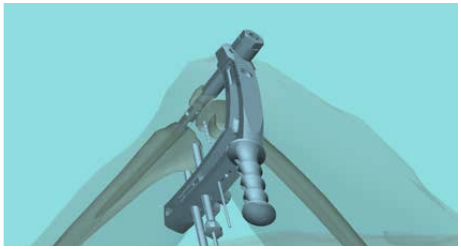
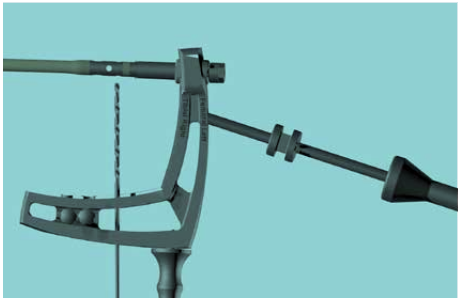


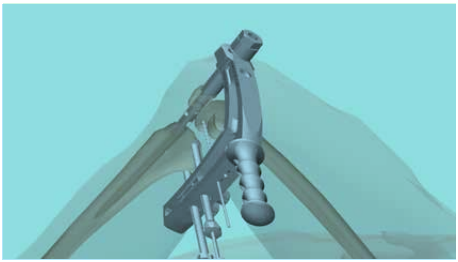
The one identified with the letter T permits the insertion of the corresponding drill bits supplied in the instrument box, which, when in place, will indicate the beginning of the tibial nail.



PROXIMAL LOCKING

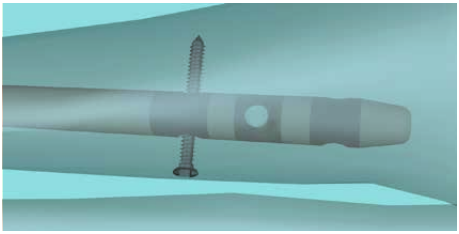
The drill bit guide and the locking screw sleeve, which are aligned with the orifices of the endomedullary nail in the guide, are used for proximal locking.
Before the insertion of the nail, it is recommended to verify that the orifices in the guide are properly centered with the nail coupled to the guide.
The drill bit guide is placed inside the sleeve which guides the screw. This sleeve is removed by means of the knobs on the Guide handle.





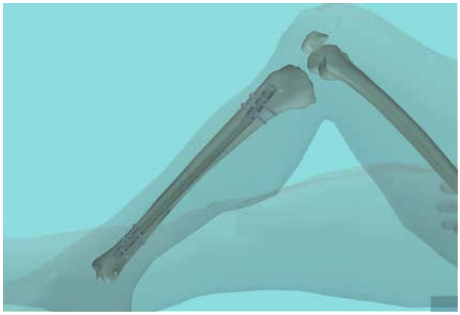
DISTAL LOCKING

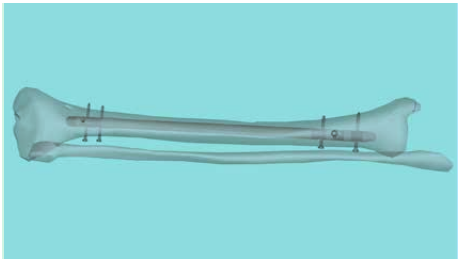
Locking must be done with the free hands technique, under radioscopy. The nail orifice must be seen completely round and concentric with the orifices for the locking screws. Both bone corticals must be drilled, the length of the screw must be measured and then it must be locked.

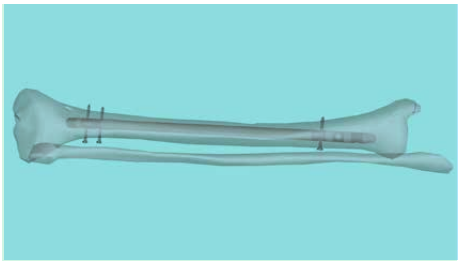


FIXATION
INSERTED AND LOCKED NAIL

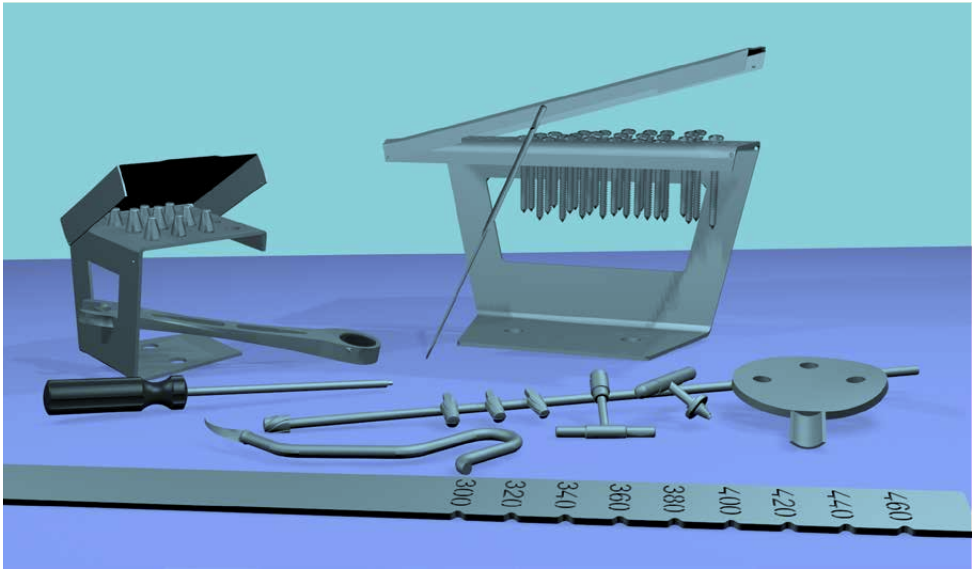
Once the locking is completed, there is still the option of inserting the nail plug in order to reduce the formation of scarring tissue in the opening of the endomedullary nail. This step will facilitate the ulterior removal of the implant.







INSTRUMENTAL



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Rev.01 / 14.09.2015 / 02B