

# Medial tibial opening wedge osteotomies

## 1 Before you start

Read the surgical planning report prepared for the case. Ideally, this should be made available within the operating theatre for checking purposes.

Test the fitting of the surgical guide<sup>1</sup> on the bone model. This is a patient specific position and will differ from case to case (although always in the area of the implant position). The guide should stably fit onto the bone model within the region marked on the bone as shown by the guide outline. If you are not comfortable with the fit of the guide on the bone model, do not use the guide in surgery.

All instruments used for the surgery must correspond to the dimensions/reference numbers indicated in the surgical planning report. If the parts<sup>2</sup> do not fit into the guide, do not use the guide during surgery.

The guides (and bone models) must be cleaned and sterilized. Please follow the recommendations in the instructions for use document, that is provided with the guides.

## 2 Ensure good guide exposure

With the patient lying supine, make an anteromedial incision starting 1cm distal to the knee joint line about 8-12cm caudally. Divide the subcutaneous tissues and the fascia until you reach the pes anserinus and the anteromedial border of the tibia.

Using a scalpel, split the pes anserinus and MCL attachment horizontally at the site of the osteotomy. Clear the periosteum at this location until the posterior ridge of the tibia is exposed.

Pass a periosteal elevator in order to detach the deep part of the MCL at the tibia and then pass a retractor on the posterior border of the tibia. That way the posterior neurovascular structures will be protected when performing the osteotomy.

## 3 Position guide

Fit the surgical guide<sup>1</sup> together onto the proximal tibia as described in the case report and as tested on the bone model. Check for large gaps between the guide and the tibia, large gaps indicate that it is not in the correct position. The guide should have a stable fit to the bone. Secure the guide onto the bone by applying compression pressure on the guide, followed by drilling the K-wires<sup>2</sup> into the small fixation holes. Ensure that the wires do not obstruct the use of instrumentation by cutting/ bending them out of the way. The K-wires<sup>2</sup> should be drilled bi-cortically for maximum fixation.

## 4 Drill screw holes

Place the implant's metal guides<sup>2</sup> into the drill sleeves on the guide. Drill the pilot screw holes bi-cortically. Apply compression on the guide<sup>1</sup> as necessary during drilling.

## 5 Osteotomy

Where an open cut slot is used, gently saw<sup>2</sup> through the connectors on the far side of the slot to open it fully. Apply compression pressure on the guide<sup>1</sup> and perform the osteotomy using the cut slot

on the medial border of the guide.

The top of the cut slot is parallel to the hinge axis and the distance between them is noted on the side of the slot. Cut through the slot, keeping the blade<sup>2</sup> perpendicular to the top of the slot where possible.

Use the depth indication on the saw blade to control the depth of the cut.

Make sure to protect the neurovascular structures in the back. Avoid cutting too deep as this will jeopardize the bony hinge. (Optional) If making a second cut to protect the tuberosity, remove the K-wire on the antero lateral border of the guide as it may interfere with the sawblade. Cut the bone through the second slot to protect the tuberosity. Be sure to protect the patella tendon.

## 6 Remove guide

Remove all K-wires<sup>2</sup> and remove the guide from the bone. Use lavage to clean the region of any debris that was generated.

## 7 Affix plate

Use a spreader to open the wedge slightly. Approximately position the plate with the drill bit/k-wires/temporary screws in a proximal and distal hole, according to the surgical technique of the implant.

Open the wedge until the plate's screw positions align with the drilled holes (step 4). Refer to the surgical technique of the implant in order to determine the fixation of the implant.

<sup>1</sup> Materialise cannot guarantee a successful surgery if the guide is not used as described in the case report provided.

<sup>2</sup> Use only the instruments that are defined in the case report provided. If the parts do not fit into the guide, do not use the guide during surgery.

Materialise is the manufacturer of patient-specific SurgiCase Guides. Materialise does not practice medicine and does not recommend this technique or device. Each surgeon takes full responsibility for using SurgiCase Guides and the described technique intra-operatively.

SurgiCase and Materialise are registered trademarks owned by Materialise, registered in the United States and other countries.

For more information:

ortho@materialise.com – ortho.materialise.com +32 16 396666