

## **Retro-tubercular Opening Wedge High Tibial Osteotomy Using a Protective Cutting System**

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This video shows an opening wedge high tibial osteotomy with the use of a protective cutting system. The protective cutting system was designed to complete one plane sawing of the posterior wall before the lateral hinge, protect posterior neurovascular structures, and allow for bone cutting along the natural tibial slope.

With regard to fixation stability, two bridges (medial fixator and lateral hinge) are present in an opening wedge high tibial osteotomy, and loads should be properly shared. For support of a lateral hinge, the plate must have the best possible contour of post-correction anatomy, be placed at the central portion of both fragments, and have its proximal screws headed to the lateral hinge.

Ideal plate geometry was evaluated using patients' CT data, and the ideal screw insertion angle was assessed for lateral hinge stability. In the axial plane, the newly designed locking plate showed a favorable screw insertion angle for support of the lateral hinge and more acceptable plate fitting to the bone compared with conventional plates.

The case presentation of a 53-year-old woman with left knee pain is reviewed. Preoperative radiographs demonstrated genu varum of 10°, a flexion contracture of 5°, further flexion of 140°, and a medial meniscus root tear.

On preoperative planning, the Miniaci method was used to predict the correction amount, and a 62% target with a 14-mm opening, using a 13-mm bone block, was selected.

The video demonstrates a step-by-step example of an opening wedge high tibial osteotomy.