Operative Techniques in Orthopaedics, *Volume 21, Issue 2*, *June 2011*, *Pages 156-162*
Alex E. Staubli

Open-Wedge High Tibial Osteotomy with a Locking Plate (TomoFix) for Treatment of Medial Monocompartment Osteoarthritis

Abstract

Overload osteoarthritis, even without significant varus deformity of the knee, is the most common indication for closed- and open-wedge high tibial osteotomy. Progression of damage to the joint surfaces because of overloading can be significantly retarded by realignment of the extremity with the aim to at least reduce the overload on the medial compartment to a value close to physiological. Significant improvement to open-wedge high tibial osteotomy has been made in the last decade on 3 fronts: (1) by exact preoperative planning; (2) by use of a more appropriate surgical technique; and (3) by promoting osteogenesis without loss of correction through an angular-stable fixation device with just the correct amount of elasticity. Prerequisites for primary and secondary stability are preservation of fragment vitality by minimal dissection of soft tissues and bone, the biplanar lateral ascending interligamentous osteotomy, the gradual opening of the wedge with adequate medial release and, in case of disruption, reduction and compression of the lateral hinge, and finally the stable fixation with an angular stable bridging plate, which allows early functional rehabilitation. A retrospective study of 53 consecutive cases in which no interpositioning material was used to fill the wedge, with gap openings between 4 and 18 mm, showed that ossification of the gap always progressed from the lateral hinge towards the medial side. Standard radiographs showed 75% of the gap filled in with new bone within 6-18 months. In conclusion, open-wedge high tibial osteotomy with use of the TomoFix plate has proven to be successful in treatment of unicompartmental gonarthrosis, even without bone grafts or bone substitute material.