Uptilting osteotomy of the lateral tibial plateau for a knee deformity

A case report

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A middle-aged woman had had anterior poliomyelitis at 11 years of age that had left her with residual weakness in both legs. She gradually developed a recurvatum and valgus deformity in both knees, which caused pain and instability. A technique to restore the top of the tibia by means of a rotational osteotomy of the lateral tibial plateau is presented. This operation resulted in painless, asymptomatic knees and improved function.

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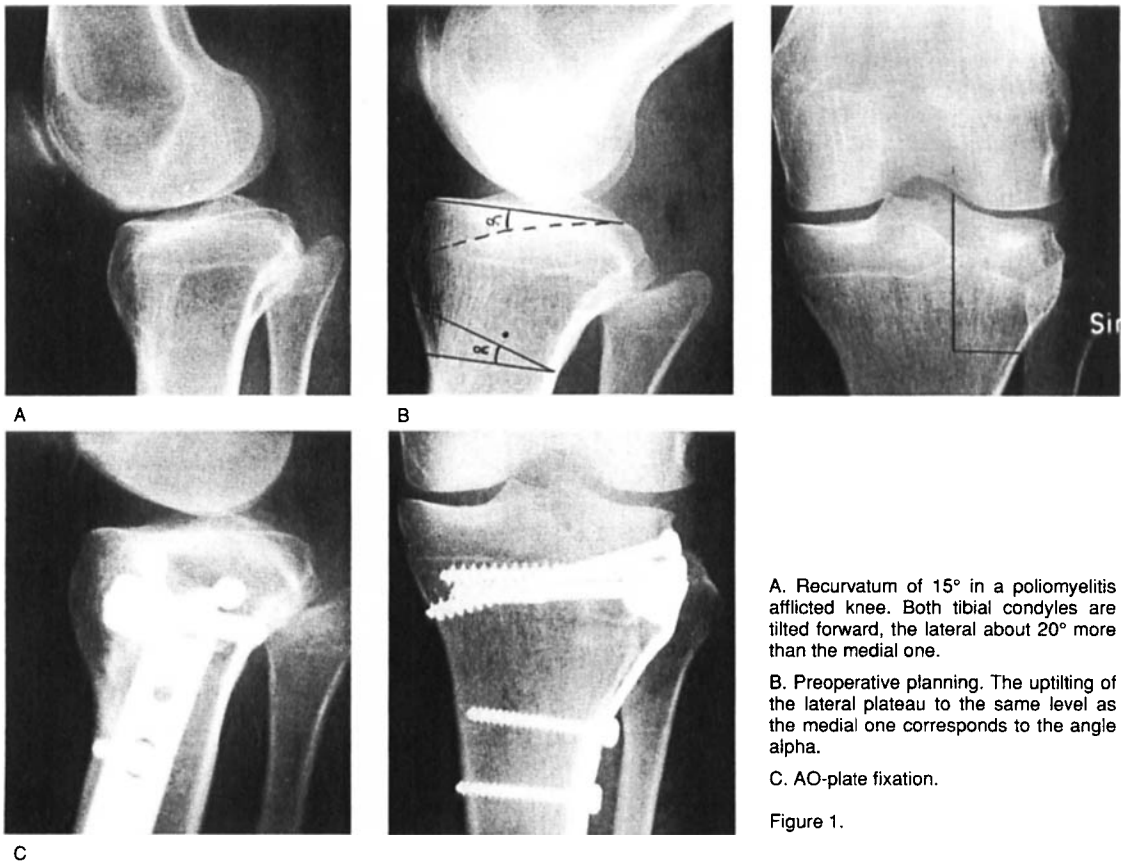
Submitted 91-04-04. Accepted 91-08-20

A 47-year-old woman who had contracted anterior poliomyelitis at 11 years of age had residual weakness in both of her legs. The left knee had developed a 15° recurvatum (Figure 1) and 20° valgus. Because of successively increasing overstretching in the medial and posterior capsular structures, the patient was unable, owing to pain, to load her left leg. The radiographic examination showed that both tibial condyles had developed abnormally and that the lateral plateau tilted 20° more anteriorly than the medial one.



A. Recurvatum of 15° in a poliomyelitis afflicted knee. Both tibial condyles are tilted forward, the lateral about 20° more than the medial one.

B. Preoperative planning. The uptilting of the lateral plateau to the same level as the medial one corresponds to the angle alpha.

C. AO-plate fixation.

Figure 1.

Through an anterolateral incision, the knee joint was exposed both superior and inferior to the lateral meniscus. An uptilting osteotomy was done with a Tuke® saw at the border between the eminentia and the joint cartilage and with the rotational axis through the posterior cranial part of the lateral condyle. The arthrotomy permitted visualization of the procedure, and thus damage to the meniscus and the cruciate ligament could be avoided. After the uptilting rotation, the distal gap was filled with a cortical bone graft, and the osteotomy was secured with an AO-plate and screws.

The osteotomy healed within 3 months, and the patient was so satisfied (no pain and better stability) that she insisted on having the same operation done on her right knee, where the situation was similar. This operation was performed 2 years later with the same good result.

Discussion

The abnormality of the tibial plateau with a forward tilting of the lateral part explained both the recurvatum and the valgus position. A certain hyperextension was desirable to allow leg loading with the weakened quadriceps muscles; but the main problem was extreme valgus in extension. The present osteotomy was a good solution to this problem. During the operation, we were able to test an optimal position of the lateral condyle to allow about 5° of hyperextension and a physiologic valgus position.

The osteotomy technique was easy to perform, and could also be useful for young patients with failed treatment of a tibial condylar fracture.