

PLATE-FREE CORRECTION OF HIGHLY SYMPTOMATIC GENU RECURVATUM (20 DEGREES OF HYPEREXTENSION) CAUSED BY A NEGATIVE TIBIAL SLOPE: A CASE REPORT

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Introduction

Genu recurvatum (extension $>5^\circ$) can be caused by increased posterior joint laxity or by a primary or secondary bone deformity. More common in females, it can be the cause of unspecific anterior or posterior knee pain and poor proprioceptive control of terminal knee extension, which predisposes patients to future injuries (i.e. PCL-tears).

We report a case of a 24 years old female patient affected by a symptomatic left knee hyperextension of 20° due to a negative posterior tibial slope of 2° , no history of traumatic injury. Over the years the symptoms hadn't shown any improvement under conservative and active therapy (knee arthroscopy with resection of plica mediopatellaris and peripatellar synovectomy/denervation 9 years before), Lysholm Score of 74.

Methods

Full length a.p. and lateral radiographs of the lower left limb were obtained, which revealed a negative posterior slope of 2° and minimal left valgus deformity of 1° with normal patellar height (Insall-Salvati 1.15). Clinical examination showed passive knee hyperextension of 20° (contralateral 10°) without generalized joint hypermobility (Beighton-Score 3). No intraarticular pathologies on MRI.

We planned an anterior opening wedge osteotomy of 6 mm to increase the posterior tibial slope by 9° , resulting in a physiological slope of 7° . The tibial tuberosity was detached and an antero-posterior osteotomy with residual posterior hinge was performed. Three cortical bone grafts were placed at the anterior aspect of the osteotomy site. The tibial tuberosity was placed back and fixed with four bicortical screws. Intraoperative ROM testing showed a reduction of passive hyperextension from 20° to 10° .



Full length lateral radiographs: preoperative negative posterior slope (left), preoperative correction planning (middle), post operative physiological slope (right).

Results

No intra- or postoperative complications were observed. At 12-months follow-up the patient reported full satisfaction (Lysholm-Score 100) and was able to participate in long hiking tours without any pain. ROM was symmetrical to the asymptomatic contralateral side ($140/0/10^\circ$), no changes in cruciate and collateral ligaments tension. Radiographs showed good osseous consolidation and no signs of loosening. Full length lateral lower limb radiographs confirmed a posterior tibial slope of 7° .

Conclusion

A pathological negative posterior tibial slope can be the main cause of a symptomatic Genu recurvatum. A plate-free correction through an anterior open-wedge tibial osteotomy can improve life quality of patients without the need of further surgery.

Literature

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