Patellar Height and Upper Tibial Inclination in Open-Wedge Valgus High Tibial Osteotomy

(Comparison between Retrotubercle and Upper Tibial Osteotomies)

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Abstract

Background: Medial opening-wedge valgus high tibial osteotomy has gained popularity. However, the reported complication rate is high. The technique has been modified to remedy the problems of patellar descent and alteration in angle of the inclination of the tibial plateau and delayed union. Our aim is to compare the modified retrotubercle opening-wedge osteotomy with the conventional technique.

Methods: In a clinical trial study, 72 consecutive patients with varus knees who were candidates for high tibial valgus osteotomy were, randomly treated with either conventional medial opening-wedge upper tibial osteotomies (34 patients) or retrotubercle opening-wedge osteotomies (38 patients) from Feb 2006 to Feb 2008. These matched cases were evaluated for patellar height and upper tibial slope as well as tibial inclination measurements. The intra and inter-observer reliability of the radiographic measures were also assessed before surgery and in a mean follow up of 13 months (10-21 months).

Results: In retrotubercle open-wedge osteotomies no surgical change in patellar length or any patellar infra was seen. The tibial plateau inclination also showed no significant change from the pre-operative values. On the other hand, the conventional medial open-wedge technique showed significant reduction in patellar height as well as increase in tibial plateau inclination as compared to pre-operative values.

Conclusion: In high tibial valgus osteotomies for genu varum retrotubercle medial open-wedge osteotomy negates the ill-effect of conventional open-wedge osteotomy in producing patella infra or increased tibial plateau slope or change in Q-angle of quadriceps mechanism.

Keywords: Osteotomy; Bone malalignment; Tibia

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