

Does Open Wedge Proximal Tibial Osteotomy Really Affect Tibial Slope and Patellar Height?

Olca Akdeniz¹, Cemal Dinçer¹, Mehmet Hasan Tatari¹

¹Dokuz Eylül University, Department of Orthopaedics and Traumatology, İzmir, TURKEY

Objectives: Open wedge proximal tibial osteotomy has gained popularity over recent years. This technique has several advantages over lateral closed wedge osteotomy, like lack of any need for fibular osteotomy and freedom from peroneal nerve complications, easier and more precise correction, no limb shortening and easier access for an eventual total knee arthroplasty. However it was been shown that open wedge osteotomy may reduce patellar height and increase sagittal tibial slope which can cause patellofemoral problems. The aim of the study was to evaluate the alterations in the angle of posterior slope of the tibia and the degree of patellar height following medial opening wedge proximal tibial osteotomy in our patients.

Methods: 26 females and 7 males, with a mean age of 48, who underwent medial opening wedge proximal tibial osteotomy were included in the study. In all cases, the preoperative measured varus angle was overcorrected to between 5-8° valgus. The posterior slope of the tibia was determined by the proximal tibial anatomical axis and patellar height was measured retrospectively by the Caton index on the pre- and postoperative radiograms at the end of the second month.

Results: Preoperatively, on the standing orthoroentgenograms, the mean mechanical axis deviation was 12,36° (8-20) and the mean posterior tibial slope in the sagittal view was 16,24° (10-23). The mean postoperative tibial slope was 17,85° (6-25). Using paired samples test, this increase was statistically significant ($p=0.049$). Preoperative mean Caton index was 1,35 (1,01-1,92) and the postoperative average was 1,73 (1,11-2,76). There was also a statistical significant increase between the pre-and postoperative values ($p<0.001$) with paired samples test. There was a positive correlation between preoperative mechanical axis deviation and postoperative slope angle ($p=0,014$) but there was no correlation between preoperative mechanical axis deviation and postoperative patellar height.

Conclusion: In conclusion, tibial slope and patellar height are strongly affected by open wedge high tibial osteotomy and this might have an adverse effect on an eventual knee arthroplasty.

The Orthopaedic Journal of Sports Medicine, 2(11)(suppl 3)

DOI: 10.1177/2325967114S00164

©The Author(s) 2014