Check for updates

Opening Wedge High Tibial Osteotomy Using Tricalcium Phosphate Wedge: Preliminary Results

Sinan Zehir[1], Murat Çalbıyık[1], Ercan Şahin[2], Mahmut Kalem[3], Murat Songür[2], Deniz İpek[1]

[1]Hitit University, School of Medicine, Dep. of Orthopedics and Traumatology, Çorum, TURKEY, [2]Bülent Ecevit University, School of Medicine, Dep. of Orthopedics and Traumatology, Zonguldak, TURKEY, [3]Ankara University, School of Medicine, Dep. of Orthopedics and Traumatology, Ankara, TURKEY

Objectives: High tibial osteotomy is a standard procedure indicated for early medial sided osteoarthritis in varus knees. In this study, we present the early results of high tibial open wedge osteotomy cases using beta-tricalcium phosphate as a graft substitute and Otis-c plate.
Methods: Between years 2010 and 2013, 47 cases of (34F, 13 M) medial compartmental gonarthrosis with genu varum deformity treated with high tibial osteotomy, were evaluated with at least one year follow-up, preoperatively both clinically and radiologically. Clinical evaluation involved functional assessment and pain evaluation using Lysholm and visual analog scale (VAS) scores, including knee range-of-motion. Radiological evaluation included medial joint space measurements on weight bearing knee radiographs with measurements of varus angle and posterior tibial slope. Surgical procedure included standard arthroscopy followed by medial sided opening wedge osteotomy with correction of the varus deformity using β- tricalcium phosphate graft substitute and fixation of the osteotomy site using Otis-C plate and locking screws. All patients were evaluated at the end of minimum one-year follow-up period.
Results: Mean age of the patients was 56,7 (50- 65) years and mean follow-up period was 24,5 (12- 44) months. Mean duration of surgery was 47,4±10.2 minutes. No case of nonunion, delayed union, neurovascular injury or iatrogenic fracture was encountered. Two cases developed deep vein thrombosis and one case developed superficial wound infection managed successfully by local debridement with retention of implants and antibiotics. Mean duration of union was 13,4±2.7 weeks. Mean preoperative and follow-up range-of-motion were measured as 131±8.9 and 129±9.1 respectively with no statistical difference. Preoperative and follow-up VAS scores showed significant difference as 7.6±1.76 and 2.3±1.08 respectively (p=0.001). Also Lysholm scores improved significantly at the end of the follow-up period (43.23±4.01 vs. 76.3±3.7 p<0,001). Radiological evaluation revealed mean correction angle of 10.84±2.70 degrees at follow-up. Mean posterior tibial slope was measured relatively unchanged (8.6±1.70° degrees preoperatively versus 8.2±2.30° follow-up). Medial joint space width measurements showed a significant increase (pre-op 3.7±1.6 mm. versus 4.6±1.32 mm. at the follow-up (p<0.001)).
Conclusion: Medial opening wedge osteotomy for treatment of early medial compartment gonarthrosis in varus knees is still a valuable option. Our short term preliminary results using beta-tricalcium phosphate wedge graft substitute and Otis-c plate-screw osteosynthesis revealed satisfactory short term clinical and radiological results with acceptable complication rates.

The Orthopaedic Journal of Sports Medicine, 2(11)(suppl 3)
DOI: 10.1177/2325967114S00137
©The Author(s) 2014

This open-access article is published and distributed under the Creative Commons Attribution - NonCommercial - No Derivatives License (http://creativecommons.org/licenses/by-nc-nd/3.0/), which permits the noncommercial use, distribution, and reproduction of the article in any medium, provided the original author and source are credited. You may not alter, transform, or build upon this article without the permission of the Author(s). For reprints and permission queries, please visit SAGE's Web site at http://www.sagepub.com/journalsPermissions.nav.