Single-Surgeon Experience with Supramalleolar Osteotomy: Can Tibiotalar Tilt Be Corrected?
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Introduction/Purpose: Supramalleolar osteotomy is a joint-preserving option for patients with asymmetric ankle osteoarthritis. However, it remains unclear whether tibiotalar tilt can be effectively corrected by this procedure. The objective of this prospective study was to evaluate the short-term clinical and radiographic outcomes in patients who underwent a supramalleolar osteotomy procedure performed by one surgeon.

Methods: A total of 16 patients with asymmetric ankle osteoarthritis and a concomitant supramalleolar deformity were included in this prospective study: 7 patients with valgus (medial closing wedge osteotomy) and 9 patients with varus deformity (medial opening wedge osteotomy). There were 11 male and 5 female patients with a mean age of 41.6 ± 10.9 years. Intraoperative and postoperative complications were recorded and analyzed. Clinical and radiographic outcomes were assessed after a mean follow-up of 3.6 ± 1.1 years. The clinical assessment included pain assessment (VAS), functional assessment (range of motion and AOFAS hindfoot score), and quality of life (SF-36). The radiographic assessment included alignment measurements (medial distal tibial angle, tibiotalar tilt, calcaneal moment arm) and osteoarthritis degree assessment in the tibiotalar joint. Outcomes were compared between both patient groups: valgus vs. varus ankle osteoarthritis.

Results: In 10 of 16 patients, removal of hardware was performed. There was significant pain relief from 5.8 ± 0.8 to 2.4 ± 0.8. The AOFAS score increased significantly from 36 ± 12 to 84 ± 10. The average range of motion increased from 31 ± 5 to 33 ± 4. All categories of the SF-36 score showed significant improvement. Preoperatively, tibiotalar tilt was 4.8 ± 2.4 in the varus group and 1.8 ± 2.4 in the valgus group. Postoperatively, tibiotalar tilt improved significantly in both groups, however, there was significant difference between both groups with 2.3 ± 1.6 (varus) vs. 0.2 ± 0.5 (valgus) (p=0.005). Postoperative clinical outcomes were comparable in both groups. One patient showed progressive ankle osteoarthritis requiring ankle arthrodesis.

Conclusion: Our prospective study demonstrated encouraging short-term results in patients with asymmetric ankle osteoarthritis who underwent supramalleolar osteotomy. A significant clinical and radiographic improvement can be expected. However, especially in patients with varus osteoarthritis, tibiotalar tilt cannot be fully corrected.