The Effect of Fibular Osteotomy on Talus Position in Supramalleolar Osteotomy

Ki-Sun Sung, MD, PhD, Dae-Wook Kim, MD

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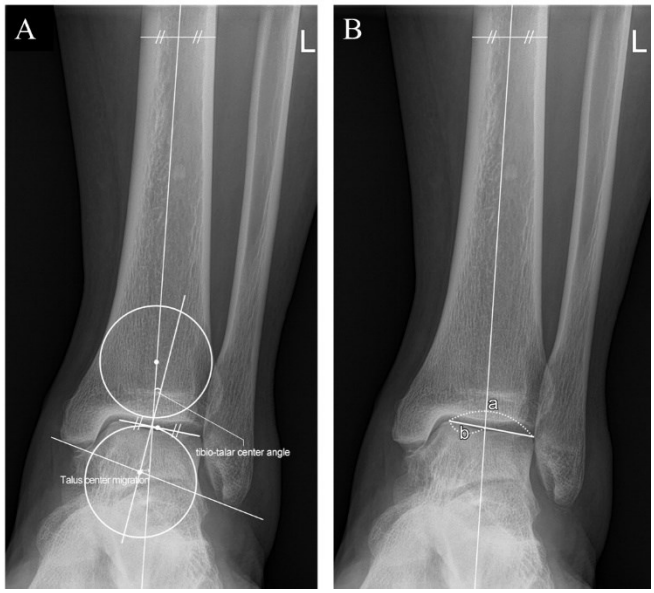
Introduction/Purpose: A supramalleolar osteotomy (SMO) creates angulation and translation of the ankle joint. However, when the fibular osteotomy was not performed, the amount of shifting of the osteotomized fragment might be limited by the fibula. We use three different radiographic parameters to evaluate the extent of lateral translation of the talus in coronal plane after SMO with or without fibular osteotomy.

Methods: Forty-two patients (44 cases) that were followed for more than 6 months after SMO with or without fibular osteotomy were retrospectively reviewed. Their mean (range) age and mean follow-up period were 55.6 years (24–74 years) and 19.9 months (6–84 months), respectively. The American Orthopedic Foot and Ankle Society (AOFAS) Ankle Hindfoot score was used for clinical evaluation of the patients. The radiological evaluations included tibial anterior surface (TAS) angle, tibial lateral surface (TLS) angle, talar tilt (TT) angle, tibiocrural (TC) angle, tibio-talar center (TTC) angle, talar center migration (TCM), talar translation ratio (TTR), and Takakura stage. We compared the improvements of the clinical and radiographic parameters between the two groups according to fibular osteotomy, and we assessed the types of complications after surgery.

Results: The improvement of the AOFAS Ankle Hindfoot score was 29.9 ± 17.4 in the fibular osteotomy(FO) group and 26.1 ± 13.8 in the fibular preservation (FP) group, without significant difference between the two groups ($p = 0.481$). The FO group showed a significant improvement in Takakura stage, TAS angle, TT angle, TC angle, TTC angle, TCM, and TTR. No postoperative complication was found in the FO group, but one metal failure was observed in the FP group.

Conclusion: Fibular osteotomy showed more satisfactory lateral translation of the talus after SMO and decreased Takakura stage, although the AOFAS Ankle Hindfoot score was not significantly different. Therefore, SMO with fibular osteotomy could result in better radiological parameters in coronal plane for varus ankle osteoarthritis.



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