Correction of Rigid Equinovarus Deformity in Adults by Tibiotalocalcaneal Arthrodesis with Retrograde Intramedullary Nail

Yunfeng Yang, MD, Haichao Zhou, MD, Yun Zhang, MD

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Introduction/Purpose: To evaluate the results of tibiotalocalcaneal arthrodesis with retrograde intramedullary nail for rigid equinovarus deformity in adults.

Methods: We performed a retrospective review of rigid equinovarus deformity in adults treated with tibiotalocalcaneal arthrodesis using retrograde intramedullary nail between January 2011 and July 2014. The main outcome evaluations included American Orthopedic Foot and Ankle Society (AOFAS) ankle and hindfoot score, visual analogue scale (VAS) score and fusion time. All complications were recorded.

Results: A total of 14 cases were enrolled. The average AOFAS ankle and hindfoot score improved from 34.4 (range from 11 to 48; SD±10.4) preoperatively to 41.6 (range from 26 to 55; SD±8.3) at 3 months postoperatively (P=0.041). The score increased significantly at 6 months postoperatively, which was even a little higher at 12 months. The change of the VAS score was similar to that of the AOFAS ankle and hindfoot score. The average VAS score decreased from 6.5 preoperatively to 1.4 at 12 months postoperatively. In total, five patients (35.7%) had complications; three cases developed delayed union, one case developed superficial infection and one experienced the tibial split operatively. Bone fusion was achieved in all patients at a mean of 13 weeks.

Conclusion: Tibialocalcaneal arthrodesis with retrograde intramedullary nail is an effective procedure to correct rigid equinovarus deformity in adults, with a high rate of bone fusion and satisfying outcomes.