

Is the Sinus Tarsi Approach Safer Than the Extended Lateral Approach for Calcaneal Fractures?

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Purpose: There is debate regarding the safety of the extended lateral approach (EL) vs the sinus tarsi (ST) approach for ORIF of acute calcaneal fractures. We sought to evaluate the risk of deep infection as well as patient and injury factors that are associated with infection in a large series of acute calcaneal fractures.

Methods: We reviewed a consecutive series of adult patients with intraarticular calcaneal fractures treated surgically at 15 institutions. We excluded ipsilateral distal tibia or foot fractures and those lost to FU. Demographics, comorbidities, injury characteristics, treatment, and radiographic data were collected. The primary outcome was deep infection. Secondary outcomes were restoration of Bohler's angle and other short-term complications. Univariate analysis was performed for entire population and separately for the EL and ST groups to identify risk factors for infection. Multivariate regression was performed for significant variables.

Results: 782 intraarticular calcaneal fractures (Avg age 44, 74% male) were included. 444 patients were fixed via EL and 338 via ST. The ST had higher rates of diabetes (6.8% vs 3.6% $p<.001$) and peripheral vascular disease (3.9% vs 1.4% $p=.033$). However, the EL group had higher rates of LE fx (22% vs 16% $p<.022$), and fall $>10'$ (52% vs 35% $P<.001$). Overall, there were 40 (5%) deep infections, 30 (6.8%) in the EL and 10 (3%) in the ST groups. Univariate analysis of the entire population showed that surgical approach ($p=.017$), age ($P<.001$), peripheral vascular disease ($p=.048$) and pre-injury occupation ($p=.011$) were risk factors for infection. Diabetes, smoking, open fracture, injury mechanism, lumbar fracture, and BMI were not risk factors. Only surgical approach ($P=.023$) and age ($P<.001$) were risk factors after multivariate regression. The EL group had higher rates of wound separation (10% vs 4% $p=.002$) and wound edge necrosis (10% vs 2% $p<.001$), but lower rates of symptomatic hardware (4% vs 10% $p<.001$) and superficial infection (3% vs 6% $p=.023$). We found no difference post traumatic arthritis or postop Bohler's angle. Sustaining a deep infection was associated with less likely return to work ($p<.001$).

Conclusion: The ST approach was chosen more often in perceived high-risk patients (DM, PVD) and is associated with unadjusted lower rates of deep infection and wound healing issues. This is still true after correcting for patient factors. Only increasing age was also associated with infection. Choice of approach did not affect the quality of the restoration of Bohler's angle.

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice.