

Lateral vs Posterolateral Approach for Ankle Fracture: A Comparative Analysis of Infection Rates

Mireia Gomez Masdeu, Orthopaedic Trauma Consultant, MD; Ion Carrera Fernandez, Orthopaedic Trauma Consultant, MD, PhD; Sara Wahab Zuriarrain, Orthopaedic Trauma Consultant, MD; Angelica Millan Billi, Orthopaedic Trauma Consultant, MD; Jorge B. Pilco Inga, Orthopaedic Trauma Resident, MD; Jorge E. Acha Baldelomar, Orthopaedic Trauma Resident, MD; Julio De Caso Rodriguez, Orthopaedic Trauma Consultant, MD

Purpose: The aim of this study was to compare the incidence of fracture-related infections (FRI) of 44B AO ankle fractures following open reduction and internal fixation (ORIF) synthesis, examining the impact of the surgical approach used (lateral versus posterolateral). Secondary objectives included assessing the impact of comorbidities and surgical duration on outcomes.

Methods: We conducted a comparative, retrospective, single-center cohort study of patients who underwent ORIF for 44B AO ankle fractures between 2019 and 2024 with a minimum follow up of 3 months. Demographic, clinical, and surgical data, history of smoking, and corticosteroid therapy, as well as comorbidities such as diabetes, renal failure, or vasculopathy were obtained from the patients' clinical history. FRI was classified according to the 2018 AO Foundation/European Bone and Joint Infection Society criteria. Statistical analysis compared infection rates between approaches and evaluated associations with comorbidities using appropriate tests (χ^2 tests, Mann-Whitney Test).

Results: In total, 427 patients (288 women, mean age 52 years) were included. The FRI rate was 3.3%, similar to current literature (1.4–9). For the lateral approach, the incidence of infection was 2.9% and for the posterolateral approach, it was 3.2%, a nonstatistically significant difference ($p = 0.92$). No significant associations were found between FRI and comorbidities: corticosteroid therapy ($p = 0.2$), comorbidities such as diabetes ($p = 0.9$), vascular disease ($p = 0.4$), or renal insufficiency ($p = 0.2$) could increase the risk of infection, which has not been demonstrated in any group. Surgical time was longer in the posterolateral approach (96 min) versus the lateral approach (75 min), which was statistically significant ($p < 0.05$).

Conclusion: No statistically significant differences were found between the lateral and posterolateral approaches regarding the incidence of FRI in 44B AO fractures in our cohort although the posterolateral approach required longer surgical time. Comorbidities and corticosteroid use were not predictive of infection.