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Plaster-of-Paris Backslaps Versus Split and Spread Cast in the Initial Preoperative Treatment of Ankle Fracture

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Purpose: Ankle fractures should be operated on as soon as possible because swelling causes soft-tissue injury. Immobilization with a “temporary” backslap is the most widespread treatment until definitive surgery is performed. Our aim was to demonstrate that acute transyndesmal bimalleolar ankle fractures (not operated on within 24 hours) who underwent a temporary backslap had an increased risk of presenting blisters than those treated with a split and spread cast.

Methods: From June 2020 to January 2024, 245 acute ankle fractures were retrospectively reviewed. The inclusion criteria were transyndesmal bimalleolar fractures type B2 or B3 (Weber classification) that were not operated on in the first 24 hours. 62 patients met the inclusion criteria. 33 of them were immobilized with a split and spread cast, and 29 with a backslap. A CT scan measured baseline demographics, the talus's initial displacement in relation to the tibial plateau, and the quality of fracture reduction. The presence of blisters after 24 hours was also recorded.

Results: 80.6% of the fractures occurred in women and 19.4% were in men ($P<0.01$). Blisters were more frequent in women ($P = 0.029$). The mean age of blister arising was 64.07 (standard deviation [SD] 7.34) in comparison with the mean age of those who did not present them, 50.59 (SD 12.14) ($P <0.01$). Patients over 50 years of age were also a risk factor ($P = 0.012$). Patients who were immobilized with complete plaster had a lower incidence of blisters (n = 3, 20%) compared to those who were immobilized with backslap (n = 12, 80%) ($P =0.006$). In the multivariate analysis, the adjusted odds ratio (blister presence) was 6.23 (95% confidence interval: 1.35-28.72) for patients who underwent a backslap.

Conclusion: The use of a backslap in patients who suffered a transyndesmal bimalleolar ankle fracture increased the risk of blisters compared to those who underwent a complete plaster, regardless of the initial fracture displacement and the reduction quality. This was especially relevant in women over 50 years of age. These surprising results, which have never been analyzed before, may revolutionize the initial management of this type of fracture.