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Treatment of avulsion fractures of the base of the fifth metatarsal with hard-soled shoes and a walking boot: a comparative cohort study

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ABSTRACT

Introduction: Conservative treatments for avulsion fractures of the base of the fifth metatarsal described are elasticated bandaging, cast, a walking boot (WB) and hard-soled shoes (HSS). The aim of this study is to compare the clinical and functional outcomes, time to return to previous activities, and time and rate of bone healing of patients with avulsion fracture of the base of the fifth metatarsal treated in an HSS or in a WB. Our hypothesis is that a less rigid immobilization yields the same results.

Methods: A comparative cohort study was conducted of 72 patients with acute avulsion fractures of the base of the fifth metatarsal treated with WB or HSS, from March 2014 to November 2018. The mean age of the patients was 41,25 years. There were 56 females and 16 males. Thirty-nine patients were treated with WB and 33 with HSS. Patients with comorbidities that could interfere with bone healing (diabetes, inflammatory joint disease), associated ankle ligament lesions and loss to follow-up were excluded. Patients were followed regularly until they were asymptomatic and able to return to their previous activities (work, daily activities, sports). We retrospectively reviewed medical records containing the visual analogue scale (VAS) for pain and the American Orthopaedic Foot and Ankle Society (AOFAS) score, as well as radiographic exams to evaluate the time and rate of bone healing.

Results: Both groups had similar VAS and AOFAS scores at 8 ($p=0,34$ and $p=0,83$) and 12 ($p=0,25$ and $p=0,79$) weeks. Age and gender distributions in the two groups were equal ($p=0,23$ and $p=0,34$, respectively). Time taken to return to previous activities was not significant different, with the HSS group taking 8,33 weeks and the WB taking 9,73 weeks ($p=0,10$). The mean time for bone healing was significant longer in the HSS group, lasting 8,64 weeks compared with 7,18 weeks in the WB group ($p<0,001$). One case of non-union was observed in the WB group and none in the HSS group.

Conclusion: Avulsion fractures of the base of the fifth metatarsal can be treated equally with HSS or WB. Both treatments were found to be equivalent in terms of clinical and functional evaluations and return to previous activities.

Keywords: Metatarsal; Avulsion fractures; Immobilization.

