

Intermediated-Term Outcomes Of Casting Versus Deltoid Ligament Repair In SER Type IV Equivalent Ankle Fracture: A Prospective Randomized Controlled Study

Chamnani Rungprai¹, Yantarat Sripanich², Piriya Panichpibool¹

1. Department of Orthopaedics, Bangkok, Thailand
2. Phramongkutkiao Hospital and College of Medicine, Bangkok, Thailand

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Background

There remains a controversy to repair deltoid ligament in SER type IV equivalence of acute ankle fracture. Some surgeons prefer conservative treatment with casting while others prefer to repair deltoid ligament after distal fibular fixation. However, there is a paucity of evidence to report comparative outcomes between the two techniques.

Objectives

The purpose of this study was to report and compare short- to intermediate-term clinical and functional outcomes including complications between the casting and deltoid repair in patients with SER type IV variant/equivalent ankle fracture.

Study Design & Methods

A prospective, randomized collected data of 50 consecutive patients who were diagnosed with SER type IV equivalence acute ankle fracture and underwent either conservative treatment (25 patients) or deltoid repair (25 patients) between 2015 and 2017. A minimum follow up to be included in the study was 24 months (mean, 30.2 months; range, 24 to 48 months). The primary outcome was visual analogue scale (VAS), Short Form-36 (SF-36); physical and mental component scores, and FAAM; ADL and Sport. Pre- and post-operative SF-36, FAAM, and pain (Visual Analog Scale) were obtained and compared between the two groups using independent t-test. The secondary outcomes were time to return to activity of daily living, sports, work, and complications.

Results

There were 50 patients (35 male and 15 female) with mean age of 29.7 years (range, 18-70 years) and mean BMI of 26.7 kg/m² (range, 18.3-33.6 kg/m²). Both methods demonstrated significant improvement of post-operative functional outcomes (FAAM, SF-36, and VAS ($p < 0.05$ all)) compared to pre-operative period; however, there was no significant difference between the two groups. Functional outcomes between casting and deltoid repair groups were time to return to activity of daily living (10.4 vs 11.7 weeks), works (12.4 vs 12.6 weeks), sport (28.9 vs 23.7 weeks), weight bearing medial clear space (2.9 vs 3.6 mm), and complications included medial side ankle pain (60 vs 14%), medial side ankle instability (25 vs 0%), and painful screw post (0 vs 10%) for cast and deltoid repair groups respectively.

Conclusions

Both casting and deltoid repair were demonstrated significant improvement in terms of functional outcomes as measured with the FAAM, SF-36, and VAS in patients with SER IV equivalent ankle fracture. Although there was no significant difference of functional outcome in intermediate-term of follow-up, deltoid repair group was better in terms of faster time to return to sport, lesser medial side ankle pain, lesser medial side ankle instability, and lesser medial clear space widening.