

Dynamic Ultrasonography During Nonoperative Treatment following Achilles Tendon Rupture

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Introduction/Purpose: Many recent studies suggest similar outcome and rerupture rates between operative and nonoperative treatment with accelerated rehabilitation for acute Achilles tendon rupture. Nevertheless, it is very difficult for surgeons who have traditionally been performing surgery for Achilles tendon rupture to adopt nonoperative treatment. Unlike fracture healing, surgeons cannot confirm the amount of tendon healing with plain radiography to begin accelerated rehabilitation. The aim of the present study was to determine visually the amount of Achilles tendon healing with dynamic ultrasonography and therefore aid in surgeons decision-making process during nonoperative treatment following Achilles tendon rupture.

Methods: Thirty-one patients with acute Achilles rupture were included in the study. The mean age at the time of rupture was 42 years. There were 32 male and 10 females. Ultrasonographic evaluation was performed at the time of initial diagnosis, and at 2, 3, 5, 7, 10, 13 weeks after injury. Initially the amount of gap with ankle in neutral position was measured, then the amount of tendon healing(continuity) was measured during the follow-up.

Results: Initially, the mean gap was 13mm with ankle neutral, then the mean gap was reduced to 3 mm with maximum ankle plantarflexion. At 3 weeks, proximal stump motion was confirmed with mean gap of less than 2mm during passive ankle motion from maximum plantarflexion to neutral in all patients, indicating that tendon healing began between the distal and proximal stumps. Yet, there were no definitely visible continuity between the two stumps. At 5 weeks, 30% of entire tendon width showed continuity, 50% at 7 weeks, 70% at 10 weeks, and the entire tendon healed at 13 weeks. Clinically, all patients returned to previous activities of daily living without any complications at the final follow-up.

Conclusion: Surgeons beginning to adopt nonoperative treatment for acute Achilles tendon rupture may safely remove the cast or orthosis at three weeks after injury for gradual increase in ankle range of motion and to reduce patient disability.



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