Surgical Versus Nonsurgical Treatment of Acute Achilles Tendon Rupture: A Meta-Analysis of Randomized Trials


Treatment options for Achilles tendon rupture include surgical and nonsurgical management. The meta-analysis by Soroceanu et al aimed to compare the surgical and nonsurgical management of Achilles tendon ruptures with regard to the rerupture rate, overall rate of other complications, return to work, strength, calf circumference, and functional outcomes and to explore the effects of early range of motion on the rerupture rate.

Two reviewers independently searched medical databases (Cochrane Central Register of Controlled Trials, MEDLINE, Web of Science, and Embase) from January 2005 through December 2011 for search terms related to their study. Studies of patients with acute Achilles tendon rupture from any cause were included, but treatment had to have been initiated within 3 weeks of the rupture. Surgical treatment included open or minimally invasive techniques, and nonsurgical management included casting or splinting. Exclusion criteria were patients with delayed presentation (beyond 3 weeks) and trials that included patients being treated for rerupture. Ten studies met the inclusion criteria and included 418 patients treated surgically and 408 patients treated nonsurgically.

The results of the stratified analysis showed that if a functional rehabilitation protocol with early range of motion was used, surgical and nonsurgical treatments were equivalent with regard to the rerupture rate (absolute risk difference = 1.7% ; \( P = .45 \)), suggesting that no absolute risk reduction was achieved with surgical treatment. However, if the treatment protocol used after the rupture included prolonged immobilization, the absolute reduction in the rerupture risk obtained by surgical intervention was 8.8% ( \( P = .001 \)).

Patients undergoing surgery returned to work an average of 19 days sooner than patients treated nonsurgically. The difference in active plantar flexion between the 2 groups was not clinically important, and no significant differences were found between nonsurgical and surgical treatment with regard to calf circumference, strength, or functional outcomes.

These results suggest that surgical and nonsurgical treatments were equivalent with regard to rerupture if the protocol after the rupture included early range of motion; however, if functional rehabilitation was not used, surgical repair reduced the absolute rerupture risk by 8.8%.
Rupture of the Achilles tendon is one of the more common soft tissue injuries treated by orthopedic surgeons. Controversy exists as to whether surgical intervention or nonsurgical management is most appropriate. In North America, surgical intervention, despite a relatively high complication rate, has been the preferred treatment option due to the perceived increased rerupture rate with closed treatment. Recent studies looking at closed treatment with functional rehabilitation and early range of motion have begun to challenge that paradigm.

In this meta-analysis of randomized, controlled trials published between 2005 and 2011, the authors examined the outcomes of patients treated with surgical vs nonsurgical management. The complication rates of surgical intervention were similar to those of previously published studies; however, a marked difference was observed in rerupture rates in the nonsurgical group between patients treated with prolonged immobilization and those treated with functional rehabilitation and early range of motion. Functional rehabilitation led to rerupture rates similar to those of surgical intervention without the associated complications.

Given the results of this meta-analysis, it would seem reasonable that nonsurgical management with functional rehabilitation should be the preferred treatment for patients with Achilles tendon ruptures. Functional outcomes and rerupture rates are similar to surgical intervention without the associated complications.

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