

Mini-Open Repair Using Ring Forceps Show Similar Results to Repair Using Achillon Device in Acute Achilles Tendon Rupture

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Abstract : Background: Repair using the Achillon device is a representative mini-open repair technique; however, the limitations of this technique include the need for special instruments and decreased repair strength. A modified mini-open repair using ring forceps might overcome these limitations. Purpose: This study was performed to compare the Achillon device with ring forceps in mini-open repair of acute Achilles tendon rupture. Study Design: This was a retrospective cohort study, and the level of evidence was 3. Methods: Fifty patients (41 men and 9 women), with acute Achilles tendon rupture on one foot, were consecutively treated using mini-open repair techniques. The first 20 patients were treated using the Achillon device (Achillon group) and the subsequent 30 patients were treated using a ring forceps (Forcep group). Clinical, functional, and isokinetic results, and postoperative complications were compared between the two groups at the last follow-up. Clinical evaluations were performed using the American Orthopedic Foot and Ankle Society (AOFAS) score, Achilles tendon Total Rupture Score (ATRS), length of incision, and operation time. Functional evaluations included active range of motion (ROM) of the ankle joint, maximum calf circumference (MCC), hopping test, and single limb heel-rise (SLHR) test. Isokinetic evaluations were performed using the isokinetic test for ankle plantar flexion. Results: The AOFAS score ($p=0.669$), ATRS ($p=0.753$), and length of incision ($p=0.305$) were not significantly different between the groups. Operative times in the Achillon group were significantly shorter than that in the Forcep group ($p<0.001$). The maximum height of SLHR ($p=0.023$) and number of SLHRs ($p=0.045$) in the Forcep group were significantly greater than that in the Achillon group. No significant differences in the mean peak torques for plantar flexion at angular speeds of $30^{\circ}/s$ ($p=0.219$) and $120^{\circ}/s$ ($p=0.656$) were detected between the groups. There was no significant difference in the occurrence of postoperative complications between the groups ($p=0.093$). Conclusion: The ring forceps technique is comparable with the Achillon technique with respect to clinical, functional, and isokinetic results and the postoperative complications. Given that no special instrument is required, the ring forceps technique could be a better option for acute Achilles tendon rupture repair.

Keywords : achilles tendon, acute rupture, repair, mini-open

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