EDITORIAL

Surgery versus nonoperative treatment for Achilles' tendon rupture

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ALTHOUGH NONOPERATIVE TREATMENT FOR ACHILLES' TENDON RUPTURE PRODUCED SIMILAR outcomes to surgery (minimally invasive or open repair) with respect to patient-reported and clinically assessed function, rerupture rates were substantially lower in patients who underwent surgery, a study from Norway has found.[1]

The study authors conducted a multicentre, randomised controlled trial comparing nonoperative treatment, open repair, and minimally invasive surgery in adults, aged 18-60 years, with acute Achilles' tendon rupture who presented to four centres in Norway between 2013 and 2018.

'Surgery substantially lowers the risk of rerupture, and dynamic rehabilitation does not'

Eligibility criteria included no previous history of rupture, no systemic illness that might compromise surgery, and no prior walking disability. Participants who had received quinolones or local glucocorticoid injections in the Achilles' tendon area in the 6 months before the injury, were excluded.

Patients were randomly assigned to one of the three treatment arms (nonoperative treatment, open repair or minimally invasive surgery) in a 1:1:1 ratio. The average age in each arm was 39 years and around three-quarters of participants were men. All patients underwent dynamic rehabilitation. They were allowed to weight bear and instructed to carry out isometric exercises commencing three weeks post rupture.

The primary outcome was the change from baseline in the Achilles' tendon Total Rupture Score (ATRS) at the 12-month follow-up. This ten-item instrument is used to assess patient-reported outcomes following treatment. Secondary outcomes included rerupture, change from baseline in strength and endurance scores and measures in the SF-36 survey.

A total of 526 patients completed the study and were included in the final analysis. The mean changes in the ATRS were -17.0 points (95% CI: -20 to -14): in the non-operative group, -16.0 points (95% CI: -19 to -12.9) in the open repair group, and -14.7 points (95% CI: -17.9 to -11.6) in the minimally invasive surgery group (P = 0.57).

The changes from baseline in physical performance and patient-reported physical function were similar in the three groups.

However, the number of tendon reruptures was substantially higher in the nonoperative group; 11 cases (6.2%) compared with one (0.6%) in each of the open repair and minimally invasive surgery groups. There were nine superficial nerve injuries in the minimally invasive surgery group (5.2%), five in the open repair group (2.8%) and one in the nonoperative group (0.6%).

Small studies and a recent systematic review have shown similar outcomes with open repair surgical and nonsurgical approaches. While there may be a higher risk of rerupture following conservative treatment, surgery is associated with complications such as nerve damage.

This trial shows that none of the standard treatments of acute Achilles' tendon rupture has clear superiority over another when used for unselected patients.

The authors of an accompanying editorial[2] point out that the good outcomes seen with all three treatment strategies 'occurred in the context of a structured rehabilitation programme with close follow-up of all patients' and that 'this level of control may be difficult to reproduce in clinical practice, which may constitute a particular problem for nonoperative patients since both surgeons and patients may better understand the severity of an injury that is treated surgically.'

'In light of the results of the present trial and previous trials, the message is now clear: surgery substantially lowers the risk of rerupture, and dynamic rehabilitation does not,' they state.

They conclude: 'Until evidence-based guidance for individualised treatment selection is available, the choice of treatment should be based on shared decision making that weighs the benefits of avoiding surgery against the higher risk of tendon rerupture.'

REFERENCES
1 Myhrvold SB, Brouwer EF, Andresen TKM et al. Nonoperative or surgical treatment of acute Achilles' tendon rupture. *N Engl J Med* 2022;386:1409-20
2 Barfod KW, Hölmich P. (Editorial). Acute Achilles' tendon rupture – surgery or no surgery. *N Engl J Med* 2022;386:1465-66

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