



EDITORIALS

Surgery or conservative management for Achilles tendon rupture?

Patients need better evidence on functional outcomes, including a return to sport

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Acute ruptures of the Achilles tendon are common and can lead to major functional limitations, with noticeable loss of strength and endurance.¹ Many such patients fail to resume sporting activities in the short term, and the injury produces ongoing problems even after 10 years.² Modern management aims to promptly maximise function and minimise complications. Much of recent research has tried to determine the optimal methods of either surgical or non-surgical treatment using a randomised controlled trial study design, with the primary outcome in most of such studies being the prevention of re-ruptures. In a linked systematic review and meta-analysis, Ochen and colleagues (doi:10.1136/bmj.k5120) carefully analysed 29 studies in this specialty, including 19 observational and 10 randomised controlled trials.³

This rigorous work is to be commended. Ochen and colleagues' investigation emphasises the importance of including high quality observational studies as well as randomised controlled trials, and the results are sound: compared with non-operative management, surgery statistically significantly reduced the risk of re-rupture, but significantly increased the risk of other complications.³

Is this the end for surgical management? Well, not quite. A few interesting facts should be noted when interpreting these findings: the risk of re-rupture was low after both surgery (2.3%) and conservative management (3.9%). The rate of postoperative complication after surgery was equally low (4.9%), and the differences between surgical and non-operative management were small for both outcomes. Indeed, the differences may have been statistically significant, but the clinical relevance is questionable.³

Several techniques are available for percutaneous or minimally invasive repair of acute tears of the Achilles tendon. Comparative studies⁴⁻⁶ and a systematic review⁷ show that minimally invasive and open surgery of the Achilles tendon produce equivalent results. Minimally invasive and percutaneous surgery carry a greater risk of iatrogenic injury to the sural

nerve¹: however, the functional impairment induced by such a complication is minor and does not compromise the function of the foot and ankle, and the leg. Novel percutaneous repair techniques have been developed to minimise the risk of sural nerve injury.⁸

Measuring outcomes that matter

As Ochen and colleagues show, the difference in re-rupture rate between operative and non-operative management is small and not clinically relevant when examined at population level.² However, other outcomes are equally important to patients, and other studies have shown that patients treated conservatively take longer to return to sport, are less strong, and have less confidence in their Achilles tendon.^{5,6} Future studies should be powered to evaluate recovery of strength and endurance in the gastro-soleus complex and return to high level physical activities, as well as other patient centred functional outcomes. These studies will require greater numbers of participants, followed up for longer than in previous studies.

Many surgeons in the United Kingdom manage acute rupture of Achilles tendon conservatively. This has resulted in a growing cohort of people with a healed Achilles tendon that is elongated, altering the relation between the tendon and the gastro-soleus muscle complex.⁹ These individuals develop a more acute Achilles tendon resting angle,⁹ and they are not able to push off properly when walking, ascending and descending stairs, and running. They have problems similar to patients with a chronic Achilles tendon rupture. Corrective operations have been described,¹⁰ but reconstructive surgery is more technically demanding than primary repair procedures - recovery is long and often less optimal than following primary surgical repair.¹⁰ The most common functional evaluation score, the Achilles Tendon Total Rupture Score,¹¹ is generally lower after non-operative management than surgical management.^{2,3} Although the difference is not statistically significant,^{2,3} it might still have a noticeable effect on patients' confidence and return to activity.

In the absence of better evidence on the long term outcomes that matter most to patients, this debate is likely to continue. Non-operative management of Achilles tendon rupture is apparently cheaper and avoids surgical complications. However, less invasive surgical repair techniques performed under local anaesthesia in outpatients can be safe and effective.¹² A recent cost effectiveness analysis showed a 57% likelihood for surgical treatment to be cost effective at a willingness to pay per quality adjusted life year threshold of €50 000 (£44 900; \$56 600).¹³

A personalised approach incorporating fully informed shared decision making remains essential for the management of acute ruptures of the largest and strongest tendon of the human body.¹⁴

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