Minimally Invasive Surgical Repair of Achilles Tendon Rupture

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Treatment of Achilles tendon ruptures - whether operative or non-operative – has historically involved tradeoffs. Non-operative treatment avoids wound complications but comes with greater risk of rerupture and loss of plantarflexion strength. Open surgical repair has a lower rate of rerupture and better reestablishment of strength but risks wound dehiscence and infection. Over the past few decades orthopaedic surgeons have developed minimally invasive techniques to gain the advantages of both treatment methods while avoiding complications.

Early minimally invasive methods were percutaneous and did minimize wound complications but included reports of sural nerve damage and were unable to directly assess accuracy of repair. Sural injury in these percutaneous repairs has been shown to be due to entrapment or transfixion of the nerve with suture. It has been surmised that the higher rate of rerupture (relative to open repair) found in some studies of percutaneous techniques is due to inadequate apposition of the tendon ends.

More modern minimally-invasive methods combine the advantages of open surgical repair while avoiding wound complications and sural nerve damage. I utilize a technique that allows direct visualization of the site of rupture and maintains all suture material within the peritenon. Proper apposition of the tendon ends is visualized through a 2cm incision. This size of incision heals readily. Entrapment or transfixion of the sural nerve is avoided because all suture is located deep to this structure.

A recent case series reporting on 87 patients treated with this method revealed no wound complications, infections or sural nerve problems. All patients returned to their pre-injury level of activity. Three early reruptures were reported; two attributed to non-compliance, one to a traumatic event. Using the same technique a second group demonstrated no wound complications, sural nerve problems or rerupture in their cohort. Technical pearls and pitfalls of this minimally invasive repair will be presented.

Minimally invasive methods for surgical repair continue to evolve. Larger studies with higher levels of evidence are needed to confirm what initial work in this area has demonstrated. Minimally invasive methods seem to provide the best of both worlds by combining the advantages of open surgical repair with avoidance of wound complications, sural nerve damage and rerupture.

Selected References