

Percutaneous Repair of Acute Achilles Tendon Ruptures: A Step in the Right Direction

Acute ruptures of the Achilles tendon are common and generally involve males in their 3rd or 4th decades who play sports intermittently. The mechanism of trauma is thought to be sudden and forced plantar-flexion of the foot, sudden dorsiflexion of the foot or sudden dorsiflexion of the plantar-flexed foot. Management of acute ruptures of the Achilles tendon continues to be an enigma. Nonoperative *vs* operative treatment has been hotly debated for years, with proponents of each putting forth various reasons.¹ Nonoperative treatment usually consists of cast application in plantar-flexion. Those in favor of nonoperative treatment report similar functional outcomes, range of motion, strength and return to sports, alongwith a low overall rate of complications (0.3%), when compared with operative treatment. However, the risk of reruptures with nonoperative treatment varies from 13 to 22%. Operative treatment, in the form of surgical repair of the tendon, has been shown to result in reliable and faster healing, and lower risk of tendon reruptures (5%). Nevertheless, surgical repair is not without its disadvantages. It has also been shown to be associated with problems in wound healing, tendon adhesions, infection and altered sensation along the wound margin.¹⁻³



Mandeep S Dhillon



Siddhartha Sharma

In an attempt to overcome the problems of open surgical repair, percutaneous techniques have been devised. Common to all of these techniques is the use of multiple small stab incision and passage of sutures without extensive exposure of the tendon. Ma and Griffith⁴ in 1977 were the first to report the technique for percutaneous repair of the Achilles tendon. This can be accomplished under local, regional or general anesthesia and involves passage of percutaneous sutures through the tendon in a criss-cross fashion. In their series of 17 patients, all ruptures healed and there were two cases of skin irritation by the subcutaneous suture, which necessitated suture removal. Although Ma and Griffith did not report any case of sural nerve injury, subsequent studies reported sural nerve injury, with rates varying from 10 to 13%. Sural nerve injury has been attributed to the lateral stab incision used by Ma and Griffith and entrapment of nerve within the knot. This complication may be avoided by using a small midline incision and placing the sutures under direct vision.⁵ The complication rates with percutaneous techniques have been reported to be overall low, the cosmetic appearance is better and there is no apparent increase in the risk of reruptures.^{1,5}

In this issue of the journal, Salunkhe⁶ describes their results of percutaneous repair, which can be considered as encouraging. However, the overall literature on operative *vs* nonoperative management and the type of surgical repair continues to be plagued by lack of well-designed clinical trials. Most of the published literature consists of case series, nonrandomized trials or randomized controlled trials with weak methodology. Therefore, it is prudent that surgeons individualize treatment on a case-by-case basis. Whereas operative treatment may be beneficial for younger patients who participate in sports; nonoperative treatment may be beneficial for older patients with comorbidities. Furthermore, percutaneous techniques can help avoid the complications associated with open surgical techniques and may therefore be a step in the right direction.

REFERENCES

1. Khan RJ, Carey Smith RL. Surgical interventions for treating acute Achilles tendon ruptures. *Cochrane Database Syst Rev* 2010 Sep 8; (9):CD003674.
2. Kocher MS, Bishop J, Marshall R, Briggs KK, Hawkins RJ. Operative versus nonoperative management of acute Achilles tendon rupture: expected-value decision analysis. *Am J Sports Med* 2002 Nov-Dec;30(6):783-790.
3. Bhandari M, Guyatt GH, Siddiqui F, Morrow F, Busse J, Leighton RK, Sprague S, Schemitsch EH. Treatment of acute Achilles tendon ruptures: a systematic overview and meta-analysis. *Clin Orthop Relat Res* 2002 Jul;(400):190-200.
4. Ma GW, Griffith TG. Percutaneous repair of acute closed ruptured Achilles tendon: a new technique. *Clin Orthop Relat Res* 1977 Oct; (128):247-255.

5. Henriquez H, Munoz R, Carcuro G, Bastias C. Is percutaneous repair better than open repair in acute Achilles tendon rupture. Clin Orthop Relat Res 2012 Apr;470(4):998-1003.
6. Salunkhe GD. Percutaneous repair for the treatment of rupture of the Achilles tendon: a study of 20 cases. J Foot Ankle Surg (Asia Pacific) 2015;2(2):51-59.

Mandeep S Dhillon

MBBS, MS (Orth), FAMS, FRCS
Chairperson, AO Trauma, India
President, Indian Association for Sports Medicine
Founder President, Indian Biological Orthopedics Society
Past President, Indian Arthroplasty Association
Past President, Indian Foot and Ankle Society
Past President, North Zone IOA
Professor and Head, Department of Orthopedics
Head, Department of Physical Medicine
Postgraduate Institute of Medical Education and
Research, Chandigarh, India
e-mail: drdhillon@gmail.com

Siddhartha Sharma

Assistant Professor, Department of Orthopedics
Postgraduate Institute of Medical Education and Research
Chandigarh, India