



Endoscopy Assisted Percutaneous Repair for Achilles Tendon Rupture Instead of Open Surgical Treatment

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Abstract

Achilles tendon (AT) is the strongest and most ruptured tendon due to increasing sports activities. Operative treatment techniques for AT ruptures are open, percutaneous or endoscopic assisted percutaneous techniques. Endoscopy-assisted percutaneous suturing of the Achilles tendon is an optimal treatment with cosmetic wound healing and short time recovery which may be the first choice for patients with AT rupture with wound healing problems and for athletic population with better clinical outcomes than other treatment methods.

Key Words: Percutaneous, endoscopy, repair, Achilles tendon

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Achilles tendon (AT) is the strongest tendon in the body but most ruptured tendon due to high tensional forces during movements. Most ruptures occur during sports activities. 6-18% of all sport injuries are related with AT injuries. They occur more commonly in men in the third or fourth decade. Due to increasing of sport activities in the population there is an increase in sports injuries and also in AT ruptures [1,2].

There is no consensus in treatment of AT ruptures. Non-operative and operative techniques with open, percutaneous or endoscopic assisted percutaneous techniques are the treatment methods of these injuries.

Non-operative treatment is not preferred because of its high rate of recurrence (9.8-12.6%). Also long periods of cast immobilization lead to muscle weakness [3]. Open surgical repair is a good option in AT ruptures with lower recurrence and early rehabilitation. But this method has some complications such as adherence of scar, joint stiffness, muscle atrophy, infection, keloid formation and patient dissatisfaction due to long incision [4].

When compared with open surgical repair, percutaneous repair has a lower rate of recurrence and has a better cosmesis. Sural nerve injury is another serious complication with rates of 3-18% which some of them necessitates operative exploration to release the nerve by removing the suture [5]. Another problem with percutaneous repair is not providing direct visualization.

Endoscopy assisted percutaneous repair of AT rupture may provide direct visualization and would be a preferable approach [6].

22 years old patient with Achilles tendon rupture while playing football was referred to our hospital. After 5 hours of injury, the operation was performed under local infiltration anesthesia with prone positioning without using tourniquet. Endoscopy assisted percutaneous AT repair was performed as described by Doral et al [7]. After the operation the skin was closed and a walking brace is applied with the ankle in the neutral position for 3 weeks. Full weight-bearing is allowed after 3 weeks postoperatively without a brace. Return to competitive sports activities was allowed after 6 months of surgery. The active ankle plantar flexion range of motions (ROM) were 134° (117-142) and 139° and active dorsiflexion ROM's were 12° (5-21) and 17° on the repaired and on the non-injured sides ($p_1 > 0.05$,

$p_2 > 0.05$), respectively. The patient had neither infection, nor wound problem or deep vein thrombosis.

When compared with percutaneous technique without endoscopy; endoscopy-assisted percutaneous repair allows direct observation of the suturing process. Direct visualization may also prevent from sural nerve injury. With this method apposition of the tendon ends may be prevented and also can be avoided from the paratenon damage which decreases the gliding resistance of the extra synovial tendons after repetitive motion [8]. When compared with other techniques, this technique allows early ankle mobilization that would be useful for returning sport activities quickly [9]. Although calf atrophy is a major disadvantage of this technique, continuing blood supply of the tendon by covering the paratenon is an important factor for tendon healing.

Endoscopy-assisted percutaneous suturing of the Achilles tendon is an optimal treatment with cosmetic wound healing and short time recovery. We think that, this method may be the first choice for patients with Achilles tendon ruptures especially for patients with wound healing problems with diabetes mellitus, rheumatologic disorders and vascular anomalies, also for athletic population.

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