



PATIENT CASE EXAMPLE

Repair of ruptured Achilles tendon with use of AmnioCord®

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OVERVIEW/DISCUSSION

The Achilles tendon is the strongest but most frequently ruptured tendon in lower extremity, with reported incidence ranging from 5.5-9.9 ruptures per 100,000 people in North America.¹ The injury typically occurs in one's thirties through fifties, and most commonly in the "weekend warrior" athlete. A rise in the incidence of acute ruptures has been seen and is attributed to the increased participation of the aging population in physically demanding activity. Surgical repair is often recommended for acute Achilles tendon ruptures, especially in the active patient. However, complications can occur. Reported complications include keloid formation, tendon thickening and adhesions, infection and skin slough, and even re-rupture can occur.²⁻⁵

Recently, the use of amniotic tissue including amniotic membrane and umbilical cord has expanded to lower extremity reconstructive procedures. Amniotic membrane properties include the presence of important growth factors and cytokines, which allow for anti-inflammatory, anti-scarring and regenerative potential.^{6,7} Furthermore, the results of a recent publication by MiMedx® suggest that dehydrated human umbilical cord (dHUC) is a promising therapy due to its vast growth factor and protein content, ECM components and ability to promote cell responses such as proliferation, migration and angiogenesis.⁸ The study findings also demonstrate that dHUC has biological properties that can promote basic cell activity involved not only in wound closure but also other general healing responses that can be found in soft tissues.⁸ A case of AmnioCord used in acute Achilles tendon repair is presented.

CLINICAL HISTORY

The patient is a 45-year-old male who suffered an Achilles tendon rupture while playing basketball. He commented that he felt as if he was kicked in the back of the ankle as he was pushing off, and experienced significant pain and swelling in the Achilles region as well as difficulty with ambulation. The patient had no previous history of injury to the affected ankle. Upon physical examination, patient had swelling, bruising, and tenderness. There was a palpable defect present in the watershed region of the Achilles tendon and an absent Thompson test. Lateral X-ray of the ankle was normal. Ultrasound was performed and revealed a complete rupture of the Achilles tendon. Due to the patient's activity level and the complete nature of the rupture, surgical repair was the selected course of action.

SURGICAL PROCEDURE

The Achilles was approached just medial to the tendon. Sharp dissection was performed down to the peritenon. The peritenon was incised and the Achilles tendon inspected, revealing a complete rupture. Next, a Flexor Hallucis Longus (FHL) fasciotomy was performed prior to the tendon repair to allow blood supply to the Achilles repair site and a tension-free peritenon closure. The Achilles was then repaired in standard fashion: the tendon ends were sharply debrided, a running-locking Krackow suture was utilized through the proximal and distal ends of the tendon (Figures 1 & 2). The corresponding limbs of the suture were tied together with the foot in approximately 20 degrees of plantar flexion. An epitenon suture was utilized circumferentially to reinforce the repair. AmnioCord (3 cm x 5 cm) was placed directly over the repair site to promote healing and minimize post-operative scarring (Figure 3). AmnioCord adhered well to the tendon and did not require to be sutured in place, thus preventing any potential inflammatory response from suture.

CLINICAL FOLLOW UP

The patient's wound healed uneventfully. At 6 weeks post-op, physical therapy was initiated.

CONCLUSION

The patient presented with a complete Achilles tendon rupture requiring surgical repair. AmnioCord was utilized directly over the repair site to enhance healing and act as a barrier to minimize post-operative scarring and adhesions. AmnioCord, with its unique biological properties, can be an effective adjunct to surgical repair when placed at the repair site.

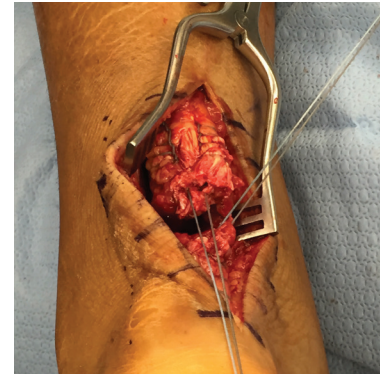


Figure 1:
Placement of sutures to repair the ruptured Achilles tendon.



Figure 2:
Achilles tendon rupture repaired.



Figure 3:
AmnioCord placed as an onlay directly over the repair site.

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