

Case Study

Repair of distal triceps tendon rupture with human acellular dermal matrix (ADM)

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Abstract

The following case presentation involves treatment of a ruptured distal triceps tendon with this human ADM, DermACELL®.

Introduction

Distal triceps tendon ruptures can cause long-term disability for the patient which can be further complicated by difficulties for the surgeon in developing a diagnosis as well as determining the severity of the injury [1,2]. Distal triceps tendon ruptures are often caused from a fall onto an outstretched hand or trauma to the posterior of the arm, with pulling or tearing at the osseous tendon insertion [1,3]. Other studies report intramuscular injury or injury at the myotendinous junction as another possible cause of the rupture [1,3]. Treatment of these ruptures typically includes surgery to reattach the ruptured triceps tendon to the olecranon of the elbow [4]. This is commonly achieved with the use of sutures that are passed through tunnels in the olecranon [4]. Surgeons often augment the tendon with an allograft in patients with chronic tears or undergoing revision surgery [5].

An alternative treatment for ruptured distal triceps tendon is a matrix scaffold for new tissue generation, an acellular human dermal matrix (ADM) allograft as reviewed by Wainwright and Bury [6]. Decellularized human skin has been used for a variety of medical procedures, primarily involving wound healing, soft tissue reconstruction, and sports medicine applications [7-10].

Case study

Patient

- 42 year old, Male.

Diagnosis

- Failed repair of total full-thickness laceration of the distal tendon of the triceps (Figure 1).
- Original failed repair had been attempted 3 months earlier.

Treatment

- The scar tissue was resected with a resulting 6 cm gap between the tendon stumps.
- Two core sutures (Ethibond 2, Ethicon, Somerville, NJ, USA) were placed at both sides of the tendon (Figure 2).
- One trimmed piece of 6 cm x 6 cm non-meshed DermACELL

(LifeNet Health, Virginia Beach, VA, USA) was weaved through the tendon mid-structure for augmentation and a second custom fit piece of 6cm x 6cm non-meshed DermACELL was laid over the repair site (Figures 3 and 4).

- A small incision was made to let the exudate drain.
- Elbow was splinted in 90° flexion for 3 weeks and progressive flexion was allowed to achieve full flexion in the following 3 weeks (Figure 5).

Outcome

- Postoperative course was uneventful except for a prolonged swelling over olecranon bursa, healed spontaneously after 3 weeks
- By 6 months post-op, the patient regained 87% ROM and 70% strength

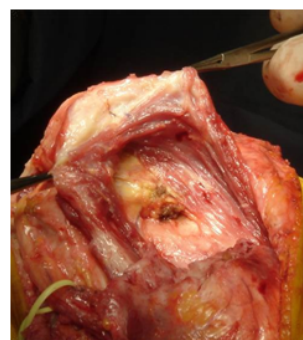


Figure 1. Full-thickness laceration of the distal tendon of the triceps.

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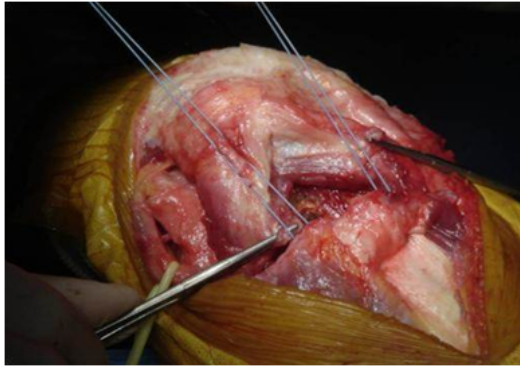


Figure 2. Core sutures were placed at both sides of the tendon.

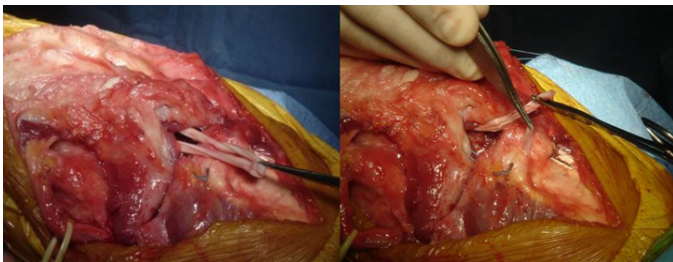


Figure 3. DermACELL was weaved through the tendon mid-structure.

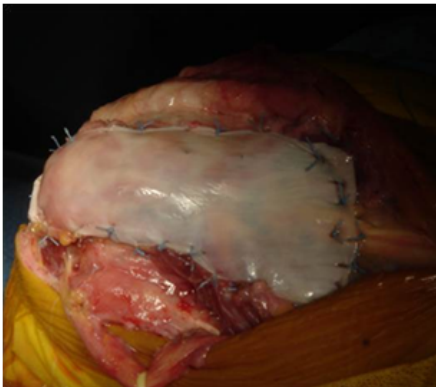


Figure 4. A second custom fit piece of DermACELL was laid over the repair site.



Figure 5. 3 month MRI demonstrates intact distal triceps brachialis tendon.

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