



Medial Collateral Injury in the Young, Nonprofessional Athlete: Surgical Repair

Ajay C. Lall, MD, and Jeffrey R. Dugas, MD

Injuries to the medial ulnar collateral ligament (UCL) have traditionally been treated with reconstructive methods aimed at recreating medial elbow stability. At our practice in Birmingham, Alabama, thousands of overhead athletes have been treated with UCL reconstruction regardless of the injury severity or the patient being treated. Reconstruction techniques include autograft harvest and implantation at the native UCL origin and insertion. Rehabilitation, graft maturation, and return to play can take anywhere from 12-18 months on average. We have experienced excellent long-term outcomes with 84% return to play at the same or higher level at an average of 11.4 months. of UCL injuries has reached near epidemic proportions with a fiercely competitive youth baseball culture in America. The number of UCL reconstructions at our institution alone nearly tripled at the youth and high school level between 1998 and 2008. The young, nonprofessional athletic population accounts for a significant number of UCL injuries being managed nation wide each year, and until recently, with a gold standard ligament reconstruction approach. With advancements in suture anchor technology we began to ask whether the severity of injury or patient characteristics, such as end-avulsions in the young athlete, called for alternative fixation methods. This led us to create a novel repair and augmentation construct that involved suture fixation of the avulsed native UCL to bone followed by reinforcement of the ligament along its entirety. is our recommendation that patients identified as candidates for UCL repair have intraoperative confirmation of ligament end-avulsions or partial thickness tears with minimal midsubstance damage. This article highlights our criteria for patient selection and reviews our newly described technique of repair.

Oper Tech Sports Med ■■■■-■■■ © 2017 Elsevier Inc. All rights reserved.

KEYWORDS UCL repair, elbow, internal brace

Introduction

In a 2016 technologies and techniques article¹ from the American Sports Medicine Institute (Birmingham, AL) we reviewed the history of ulnar collateral ligament (UCL) repair and reconstruction. We discussed how direct repair of UCL ruptures was first reported in 1981 by Norwood et al² in a group of 4 athletes, none of whom experienced any residual

instability 2 years postoperatively. Jobe et al³ first described Jobe's technique of UCL reconstruction (UCLR) in 1986, often referred to as "Tommy John surgery," named after Job's initial patient in 1974, which laid the framework for treating UCL injuries. Conway et al⁴ published a follow up on Jobe's technique and set the early standard for management in the overhead throwing population with nearly 75% of patients who underwent UCLR returning to same level of play. In this same study population 14 of 70 (20%) were treated with direct repair of the ligament. Half this cohort, 7 of 14, played professional Major League Baseball. Of these 7 professionals only 2 (29%) were able to return to the same level of play. Overall, only 7 of 14 (50%) were able to return to the same level of play before injury. Similarly, in 2000 Azar et al⁵ reported on Dr James Andrews' experience with UCL injury in male collegiate and professional baseball players. Once again,

American Sports Medicine Institute, Andrews Sports Medicine and Orthopaedic Center, Birmingham, AL.

Grant support: Educational Grant provided by Arthrex.

Conflict of interest: Jeffrey R. Dugas is consultant for Arthrex, receives royalty on kit created for technique.

Address reprint requests to Ajay C. Lall, MD, American Sports Medicine Institute, 833 St Vincent's Dr, Birmingham, AL 35205. E-mail: ajaylallmd@gmail.com

UCL repair did poorly when compared to UCLR, with only 63% of repair patients returning to the same level of play compared to 81% of UCLRs, respectively.

Since the advent of UCLR, various fixation techniques have been described and biomechanically evaluated treating the professional overhead athlete.⁶⁻¹⁰ Regardless of the technique these procedures have demonstrated excellent rates of return to sport at the same or higher level of play with rates ranging from 75%-92%.^{4-6,11-14} Athletes across all skill levels have seen good results after UCLR, which has prompted acceptance among those managing these injuries in overhead sport. However, since these landmark studies there has been a near exponential increase in the number of injuries in the young, nonprofessional athlete^{15,16} with little focus on alternative treatment options.

In comparison to UCLR, relatively little has been published on UCL repair since Azar et al⁵ report in 2000. In 2006 Argo et al¹¹ published a report on the outcome of 17 UCL repairs in female athletes. Although there was only 1 thrower, 16 of 17 (94%) returned to the same or higher level of sport at an average of 3 months postoperatively.¹¹ In 2008 Savoie et al¹³ published a report on 60 UCL repairs in young overhead athletes (51 throwers and 9 nonthrowers) with a mean age of 17.2 years where good-to-excellent overall results were obtained in 93% of patients who returned to the same or higher level of sport at an average of 6 months postoperatively. The rapid return to sport in the earlier 2 studies is likely owing to the less invasive repair procedure, which obviates the need for graft harvest, avoids graft site complications such as wound infection or damage to neurovascular structures and does not require a delay for graft maturation. Additionally, the repair procedures were completed on mostly young, nonprofessional athletes with good-quality tissue having end avulsion ligament injuries and no evidence of midsubstance damage. Modern anchor and suture technology likely added to the success of these procedures, as opposed to the early repairs performed by Jobe, Conway, and others.

The reports on UCL repair mentioned previously highlight a way of re-evaluating UCL injuries and thinking broadly about the patient, level of activity, outcome needs, and fixation technique. The idea of end avulsion injuries being repaired back to bone is not new, but advances in modern technology help ensure stronger time-zero fixation and hopefully excellent long-term results.

Medial Collateral Injury in the Young Athlete

At our practice in Birmingham, Alabama we have successfully treated thousands of athletes with the modified Jobe technique of UCLR regardless of the patient's skill level or injury severity encountered at surgery.⁶ This technique was exclusively used from the mid 1990s until August 2013, which included placement of a palmaris longus or gracilis autograft at the anatomical origin and insertion sites of the native UCL. Advancement in suture and anchor technology prompted us to revisit previous author reports of UCL repair and to critically re-evaluate our treatment algorithm for a broad spectrum of UCL injuries ranging from ligament end-avulsions, low-

high-grade partial tears or complete ruptures. We began looking at the patient individually in regard to level of competition, future sport aspirations, prior elbow pathology, and biology of ligamentous tissue. Instead of treating all UCL injuries with 1 surgical technique requiring 12-18 months return to sport, we asked if a particular technique could be applied to patients with end-avulsions or partial tears of the UCL typically found in the young, nonprofessional athlete. In addition, we asked if adding biologics could help these patients repair their native ligaments and achieve excellent outcomes in less time.

A recent epidemiological report by Hodgins et al¹⁷ described an alarming 193% increase in New York statewide number of UCLRs performed between 2002 and 2011. Mean age was 21.6 years and there was a significant trend for increased frequency in UCLR in patients aged 17-18 and 19-20 years ($P < 0.001$). Likewise, the number of UCLRs at our single institution between 1998 and 2008 has nearly tripled at the youth and high school level.¹⁸ Amount of competitive pitching and pitching with fatigue have been associated as risk factors with this sharp rise in elbow injury and need for surgical management.^{16,19} Other risk factors may include year round pitching, poor mechanics, and poor physical conditioning.^{16,20-23} When looking at these numbers we began asking whether our gold standard operation was too aggressive for certain young, nonprofessional athletes that may have aspirations other than sport beyond a certain level of play. For patients with no prior history of elbow pain that suffered a traumatic end avulsion injury or partial UCL tear, was 12-18

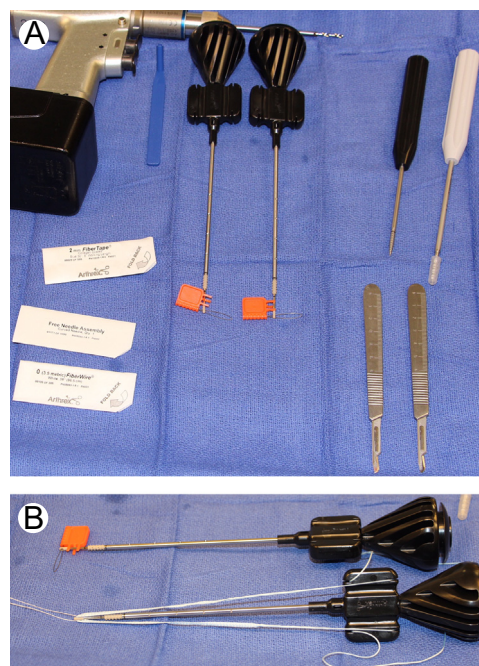


Figure 1 (A) Complete kit for ulnar collateral ligament repair: No. zero braided permanent suture, collagen-coated FiberTape, two 3.5-mm SwiveLock, 2 bone taps, and drill with guide (Arthrex). (B): No. zero braided permanent suture and collagen-coated FiberTape loaded into 3.5-mm SwiveLock (Arthrex). (Color version of figure is available online.)

Download English Version:

<https://daneshyari.com/en/article/8801891>

Download Persian Version:

<https://daneshyari.com/article/8801891>

[Daneshyari.com](https://daneshyari.com)