Operative Technique and Early Experience with ACL Repair Using Internal Ligament Brace for Proximal ACL Injuries

William Baldwin, MD1  Travis Roth, MD1  Daryl Osbahr, MD1

1Orlando Health; Orlando, FL

Background

Anterior Cruciate Ligament (ACL) reconstruction has long been the gold standard for treating ACL injuries. While ACL repair has previously been shown to provide inferior outcomes to ACL reconstruction, new advances in instrumentation and implants for ACL repair may make certain patterns of ACL injury more amenable to repair. Furthermore, patients that do not undergo an autograft harvest avoid donor site morbidity, associated complications, and possible prolonged rehabilitation from an additional procedure. In this study we describe operative techniques and early results with ACL repair for proximal ACL injuries.

Methods

ACL repair candidates were chosen based on injury pattern, including ACL avulsion from the femoral footprint and 80/20 tears with at least 80 percent intact as determined intraoperatively. The ACL stump was prepared and reapproximated using 3 FiberSnare sutures. This was then passed through a small tunnel made by a guide wire and fixed using suspensory fixation via a TightRope button. A FiberTape is included in the button and then passed thru a small drill hole in the ACL tibial footprint and fixed in the anterior tibia with a SwivelLock anchor. Postoperatively patients were made weight bearing as tolerated in a Bledsoe locked in extension (unless a meniscal repair was performed and the patient was kept partial or non weightbearing 4-6 weeks) and started Physical Therapy (PT) within 5 days. They were followed up postoperatively at 2 weeks, 6 weeks, 3 months, 4.5 months, 6 months, 9 months, 12 months and assessed for instability symptoms, pain, and ROM.

Results

A total of 32 patients with ages ranging from 8 to 38; average age of 23.2+/--12.7 were included, followup ranged from 6 months to 18 months. All patients had a successfully repaired ACL with restoration of a 1A Lachman's examination and no pivot shift. There were no cases of infection or arthrofibrosis. Of the 32 ACL repairs there were 2 noted failures that subsequently underwent uncomplicated ACL reconstruction. Both failures occurred when patients returned to sport before being cleared by the surgeon. Anecdotally, most patients indicated a very low level of postoperative pain, endorsing only mild pain at their first postoperative visit as rated on patient questionaires. Similarly ROM also showed a rapid increase with an average ROM >135 seen in a majority of patients at 4-6 weeks postoperatively.

Conclusions

ACL repair with suture augmentation of proximal ACL injuries shows promise as an effective alternative to reconstruction with high early success rates, low complications and no associated donor site morbidity. Additionally we acknowledge that ACL reconstruction was not complicated or compromised by previous ACL repair in the 2 patients in this series.