

Complex Patellar Tendon Repair with Suture Anchors and Suture Tape Augmentation

Jeremy M Burnham, Anthony Thomas Drazick, Savannah Knighton

Background:

Acute patellar tendon ruptures are debilitating injuries requiring prompt surgical intervention to restore extensor mechanism function. These injuries are most commonly seen in active males in the third to fourth decade of life and are often associated with comorbidities such as diabetes, chronic corticosteroid use, and chronic kidney disease. Traditional transosseous suture techniques may provide insufficient biomechanical stability, particularly in high-demand patients or in the presence of tissue degeneration. Emerging evidence supports the use of suture anchor fixation augmented with suture tape to improve initial construct strength and reduce gapping.

Case Overview:

We present a 35-year-old male who sustained an acute right patellar tendon rupture while landing from a jump during recreational basketball. He reported a twisting mechanism, followed by pain, swelling, and inability to extend the knee. Examination demonstrated a palpable gap, extensor lag, 0/5 quadriceps strength, and a Caton-Deschamps index of 1.6, consistent with patella alta. MRI confirmed a complete mid-substance tendon rupture.

Surgical Technique:

Through a midline approach, the ruptured tendon edges were mobilized and debrided. Three double-loaded suture anchors were placed into the tibial tubercle. Krakow sutures were passed through the tendon stumps and tensioned into the anchors. Suture tape augmentation was then used to reinforce the construct. Intraoperative fluoroscopy confirmed appropriate patellar height and anchor placement.

Postoperative Rehabilitation:

The patient was placed in a hinged knee brace locked in extension and remained non-weight bearing for two weeks. Gradual range of motion was initiated at two weeks, progressing to 90° by week six. Weight bearing was advanced to WBAT by week six, with full return to sport permitted by three months post-op.

Outcomes:

Postoperative imaging confirmed restoration of patellar height (CD index: 0.99). At a 10-week appointment, follow-up, the patient had full range of motion, no extensor lag, and returned to recreational sports with high satisfaction. No complications were observed.

Conclusion:

This video demonstrates a reproducible technique for acute patellar tendon repair using suture anchors with suture tape augmentation. The construct provides robust fixation and may improve early rehabilitation potential. Suture tape augmentation represents a valuable adjunct in managing these high-stress tendon repairs, with promising biomechanical and clinical outcomes.