

Knee Rehabilitation in a Collegiate Baseball Pitcher

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Personal Data/ Medical History: An 18 year old baseball player presented to the athletic trainer (prior to attending the university), with the desire to schedule the removal of a previously diagnosed bipartite patella fragment. Treatment had included conservative treatment of rest, over the counter NSAID, and decrease in weight room activity for the past 3 years. The athlete was advised that the bipartite patella might need removal if this treatment was unsuccessful. His pain began to increase the spring of his senior year in high school.

Physical Signs and Symptoms: Athlete presented with pain in the superior lateral aspect of the patella with active knee flexion. The athlete showed visual signs of lateral tracking of the patella in both knees and significant quadriceps atrophy in the involved knee.

Differential Diagnosis: Patellar Femoral mal-tracking

Results of Diagnostic Imaging/ Laboratory Test: X-rays confirmed a bipartite patella with fragmentation of superior lateral corner.

Clinical Course: Open surgical removal of superior lateral patella component occurred in July with the athlete starting a home rehabilitation program consisting of range of motion exercises and quadriceps strengthening exercises. Upon arriving to the university, the athlete's phased rehabilitation program was monitored by the athletic trainer. Phase 1 began five weeks post-operatively with the goal to attain to full ROM and increase quadriceps strength. Phase 2 started eight weeks post-operatively with the goal to increase entire leg muscle strength and cardiovascular endurance. Phase 3 began twelve weeks post-operatively with the goal to address proprioception and functional activities. Proprioceptive exercises were performed as a progressive series of balancing exercises on a trampoline: walking in place, weight shift, single leg stork stand on the effected leg, single leg mini squat on the effected leg, and a simulated flat land pitching motion with the effected lead leg landing on the trampoline. Phase 4 began fourteen weeks post-operatively with the goal to return to full participation. To return to play, the athlete had to perform a one legged squat with the involved knee. He also had to demonstrate proper throwing mechanics on flat land. The athlete was monitored for proper mechanics and was returned to full participation at sixteen weeks post-operatively.

Deviation From Expected: Bipartite patella is uncommon; reported incidence in adolescents varies from 0.2 to 6%. Normal removal of a bipartite patella should involve a simple surgery and fairly rapid return to normal activity. A special consideration in this case was the athlete demonstrated a lateral tilt of the patella, as well as quadriceps atrophy given his prolonged symptoms. The physician was concerned about increasing the lateral mal-tracking to the involved knee post-surgery if the retinaculum was closed after the removal of the bipartite patella. Therefore, the surgery effectively included a lateral release procedure and this was taken into account in the rehabilitation program. Secondly, the affected leg was the lead leg for this pitcher. The athlete needed to be able to absorb 1 1/2 his body weight on the involved knee when pitching. Finally, the rehabilitative process proceeded slowly due to three years of failed conservative treatment preceding the surgical intervention.