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Persistent Anterior Knee Pain in a Collegiate Softball Player

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OBJECTIVE

Describe the use of combination of therapeutic interventions in the treatment of chronic anterior knee pain in a collegiate softball player.

MEDICAL HISTORY

19 year old female Division III Collegiate Softball athlete with history of bilateral anterior knee pain and catching that began in 2010. Initial MRI of the right knee revealed mild chondromalacia patellae and Hoffa's fat pad edema. MRI of the left knee showed moderate chondromalacia patella, lateral meniscal tear, and Hoffa's fat pad edema. The athlete underwent arthroscopic synovectomy of medial and patellofemoral compartment with chondroplasty of medial femoral condyle, lateral tibial plateau, and loose body removal of the left knee in December 2010. Following return to sport she sustained a right knee microfracture injury to the anterior tibia and anteromedial femur as a result of a collision during high school basketball in 2013. She was once again able to successfully return to sport following rehabilitation. In February of 2015 the athlete slid on hardwood floor during softball practice resulting in contusion and 7/10 pain. She was treated symptomatically and able to participate in spring 2015 softball season. However, during the season the athlete was regularly in significant pain, which was unreported to the medical staff at the time. An MRI following the season revealed healing of the 2013 chondral injury and resolution of bone bruising, additionally inflammation of

Hoffa's fat pad was once again present. Following a course of rehabilitation over the summer the athlete was able to complete ADL's without complication. During September of 2015 the athlete was unable to participate in fall softball season due to anterior knee pain (7/10). Pain decreased with activity modification and rehabilitation but returned with initiation of softball activities in January of 2016. At that time athlete presented with global anterior knee pain, pain with palpation at mid substance of the patella tendon and lateral patella facet, positive patella grind, and positive fat pad impingement test.

DIFFERENTIAL DIAGNOSIS

Fat pad impingement, chondromalacia patella, patella tendonitis, patella tendinosis.

RELATED LITERATURE

A 2013 systematic review by Malliaras et al. on tendon loading protocols reported positive effects of heavy slow resistance loading in the treatment of patella tendinopathy.

TREATMENT

Treatment during the fall 2015 season included activity modification and Pennsaid topical anti-inflammatory. At the conclusion of the 2015 fall season, hip, core and lower extremity strengthening, as well as non-impact conditioning was incorporated. Strength exercise included focus on the eccentric component of squatting and lunging. A course of patella tilting tape and use of patellofemoral bracing were trialed to reduce

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compression of the fat pad at the start of the spring 2016 season. The athlete was able to participate on a limited basis at the beginning of the 2016 spring season, however pain continued and exam findings remained unchanged. Therefore diagnostic ultrasound was sought and performed. Musculoskeletal ultrasound performed in March 2016 resulted in final diagnosis of patella tendinosis. Heavy slow resistance leg press was then added to the rehabilitation plan, and followed by a reduction in pain and increased activity tolerance. The athlete was able to complete the spring 2016 season in role of designated hitter.

DEVIATIONS

This case is unique in that the athlete had a combination of long standing anterior knee pain with additional acute injuries that limited her ability to fully participate in softball. She developed a chronic tendon injury that was likely not realized due to the occurrence of several acute injuries. Her physical exam was consistent with fat pad impingement, however limited improvement in symptoms was realized with focused treatment and taping techniques. The use traditional strength principles in concert with slow heavy resistance also makes this case unique.

CONCLUSION

Following the diagnosis of patella tendinosis heavy slow resistance was added to the treatment program. The athlete was then able to participate in spring 2016 season as a designated hitter. She has since continued with an individualized strength and conditioning program and has been able to progress to unrestricted participation for the fall 2016 and spring 2017 seasons. This case shows the usefulness of a multifaceted approach to the management of an athlete with tendinosis and the ability to successfully combine various strength and rehabilitation methods.

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KEY WORDS: *patella tendinosis, heavy slow resistance, patellofemoral pain*