Abstract

Background: Athlete was an 18-year-old freshman, male, NAIA football athlete. This athlete had a previous history of Acute Compartment Syndrome of his right quadriceps muscle two years prior. The injury was relieved through surgery. Athlete completed his original rehabilitation and had no limitations. Athlete reported to the training room after weight lifting and complained of a sharp pain in his quadriceps muscle. He felt a pop and instant pain. Athlete has previous history of the calcified areas popping and releasing. In the weight room he stated that when the calcified tissue released he was descending into a split squat. The release was in the leading leg. Athlete has full AROM with pain from the top tissue being released. A palpable divot was felt where it released and was evident that muscle wasn’t torn because the edges were smooth with no drop off. There was relief that followed the sharp pain. Athlete also had tight Quadriceps, Adductors and Hamstring muscles. Along the scar there was built up scar tissue that caused pain. When athlete came in he was also evaluated by the head athletic trainer who confirmed that the musculature wasn’t torn and the scar tissue released.

Differential Diagnosis: Scar tissue released or Quadriceps tear.

Treatment: With the use of modalities such as a heat pack in the superior region of the quadriceps muscle and ultrasound at 1 MHz 7 minutes, warming head on and an intensity of 2.0 watts/cm2. This was done to heat the scar tissue that surrounded the incision which began to break it down. We performed ultrasound on either side of the scar. To work on the athlete’s flexion an Ace bandage was used to force the knee into flexion. Targeting the tight musculature stretching for the quadriceps and hamstring muscle groups were done. Uniqueness: Compartment syndrome is a unique injury that is not seen normally and commonly misinterpreted initially as a contusion. This case, the injury was from the post-surgical scar tissue releasing. This situation he is completely rehabbed from the original injury, but the scar tissue has created pain.

Conclusion: This case study is considered a Level 4: Rare Event Case Report, it highlighted the treatment of an athlete who had surgical buildups that caused moderate pain.

Differential Diagnosis

- Calcified Scar Tissue Releasing
- Torn Quadriceps Muscle
- Strained Quadriceps Muscle

Clinical Evaluation

- Palpation revealed point tenderness at the anterior compartment of the thigh. AROM during knee flexion measured at 142 degrees and knee extension measured at 0 degrees.
- Strength during knee flexion measured at 5/5, hip flexion 5/5.

Treatment

The athlete had begun conservative treatment in the process to diminish the calcified scar tissue. With the use of modalities such as the hydrocollator heat pack in the superior region of the quadriceps muscle and the use of ultrasound at 1 MHz for 7 minutes with the warming head on and at an intensity of 2.0 watts/cm2. This was done in the attempt to heat the scar tissue that surrounded the incision, which began to break down the built up scar tissue. We performed therapeutic ultrasound on either side of the incision scar to tackle both areas in need. To work on the athlete’s flexion an Ace bandage was used in conjunction to force the athletes knee back into flexion. This position would be held for approximately 10 minutes, which would help to further break up the adhesions. In order to work on the athletes tight surrounding musculature stretching techniques for both the quadriceps and hamstring muscle groups were performed. Specifically, the Proprioceptive Neuromuscular Facilitation or PNF stretch technique of contract-relax.

Implications

Compartment syndrome alone is a unique injury that is not often seen and commonly misinterpreted initially as just a contusion. In this case the injury presented was from the post-surgical calcified buildup of scar tissue releasing. In this situation the athlete had completed rehab from the original Compartment Syndrome injury, but the calcified scar tissue had created pain for this athlete. This is relevant to the field since proper diagnosis of this injury is crucial, as it could result in the athlete losing the limb if undetected in the appropriate amount of time. This case the athlete completed all of his rehabilitation for the original compartment syndrome so by releasing the remaining calcified scar tissue build ups, it will in turn help the athlete to become pain free from the original injury with no limitations.

References