Biceps Femoris Rupture & Acute Compartment Syndrome in Male Athlete
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Background: A 21 year-old male football player suffered a biceps femoris rupture and acute compartment syndrome to his right thigh while playing recreational basketball. Two weeks prior, the athlete felt a “pop” in the back of his right thigh while running sprints in football practice and was treated conservatively by the Kean University Athletic Training staff for a strained biceps femoris muscle. On ER presentation the athlete described playing basketball when he bent down and felt a snap in the back of his thigh. He reported immediate and severe pain in his posterior thigh, which was far worse than the pain he experienced with the injury 2 weeks prior. He reported a burning pain that was more than 10 out of 10; stating it was “the worst pain I have ever felt.” He denied any numbness or tingling, but stated it “feels tense” and “very swollen.” He was given 1mg Dilaudid IM, 60mg Toradol IM, and Percocet PO in ER for pain with no relief. Physical exam found point tenderness, edema, and ecchymosis on the distal aspect of the posteriolateral thigh. Differential Diagnosis: Biceps femoris strain/rupture, avulsion injury, ischial bursitis, compartment syndrome. Treatment: An MRI revealed an acute hematoma with large amounts of edema and hemorrhage within the biceps femoris muscle and extending along fascial planes; hamstrings insertion on ischial tuberosity insertion intact. The athlete was emergently taken to operating room for excisional debridement of the wound and fasciocutaneous flap closure of defects. Following the procedure, wet dressings were applied, followed by a negative pressure wound vacuum. He was given pain medication and antibiotics, placed in a loose knee immobilizer, and instructed strict bed rest with the right leg elevated. Uniqueness: A biceps femoris rupture leading to compartment syndrome is extremely rare with only one documented case found in the literature. Additionally, biceps femoris ruptures more commonly occur as an avulsion at the ischial tuberosity and compartment syndrome in the thigh is more commonly seen in the anterior compartment from direct trauma. Conclusion: The compartment syndrome in this individual likely resulted from excessive bleeding following the biceps femoris rupture. However, extensive work-up by vascular surgery did not reveal a source or reason for the amount of bleeding that occurred. Now, approximately 18 months out from the injury, the athlete has successfully returned to full activity without complications. Relevant Evidence: The most common mechanism for hamstring injury occurs during dynamic sport specific activity, usually involving high-speed running when the hamstrings actively lengthen to decelerate during the swing phase. However, this injury occurred from static stretching, meaning the muscle was passively lengthened and is unusual that this mechanism caused the muscle to tear. This could indicate muscle weakness from the previous injury was still present. Additionally, 1/3 of all hamstring injuries will reoccur and have the greatest risk of re-injury during the initial 2 weeks following return to play. Lastly, acute compartment syndrome resulting from a biceps femoris rupture is unique and further research is required to determine optimal prevention, diagnosis, and management techniques. Word Count: 528