Acute Achilles Tendon Rupture in Collegiate Football Player
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Background: A 25 year-old male football player suffered an acute Achilles tendon rupture. Mechanism of injury: athlete felt a pop posterior aspect of left ankle when tackling; athlete felt “like someone hit him on back of ankle”. Initial assessment found palpable defect in distal 1/3 of Achilles tendon with palpable pain noted posterior-medial calcaneous and superior portion Achilles tendon and musculotendinous unit of calf; neurological assessment WNL. Active dorsiflexion, inversion, and eversion WNL but weak active plantarflexion of left ankle was apparent. Special Tests: Thompson Test found complete absence of plantarflexion with calf squeeze. Initial treatment: Jones’ compression wrap with posterior splint and crutches. Athlete advised RICE and acetaminophen as directed for pain. Appointment with orthopedic surgeon was made for 2 days after injury and surgery was scheduled 5 days post-injury. Differential Diagnosis: Ankle fracture, ankle sprain, Achilles tendon strain/tendonitis, acute Achilles tendon rupture. Obvious palpable defect and positive Thompson Test indicate acute Achilles tendon rupture. Treatment: Surgery to repair tendon performed 5 days post-injury. Pre-surgery treatment included two sessions of RICE and light pulsed electrical stimulation to decrease swelling and pain. Uniqueness: Typically, Achilles tendon rupture occurs more commonly in males 30-50, years old and who are participating in recreational sports, or the “weekend warrior”. In this case, the athlete is a 25-year-old male who ruptured his Achilles tendon during an intercollegiate football game. Previous history reports two separate complaints (8/2009 and 1/2010) of pain felt in his Achilles tendon during sprinting activities. Palpable pain was consistently reported in medial attachment site of Achilles tendon posterior calcaneous and on medial calcaneal tubercle. In January 2010, the athlete complained of specific pain during push off when running and jumping. Weakness with plantarflexion and crepitus in posterior ankle was noted; Physician’s assessment was tendonosis of the Achilles tendon; treatment of RICE, electrical stimulation, stretching, balance and eccentric manual resistive exercises were implemented for approximately 2 months. Therapy was discontinued due to summer break. Athlete returned to the 2010 and 2011 football season without any complaints of Achilles tendon pain or dysfunction. Therefore, is there an association of previous Achilles tendon pathology to the acute Achilles tendon rupture? Conclusion: Spontaneous, acute ruptures are closely related to sports activity, in which the activity involves a sudden and aggressive stretch to the triceps surae group, while simultaneously contracting the calf eccentrically. The interplay of increased mechanical stress to the Achilles tendon during the explosive activity and possible intratendonis degeneration may have increased the risk of acute Achilles tendon rupture. Schepsis et al discussed pathologic degenerative changes in region of tendon rupture was found in 50% of 292 patients and that the acceleration/deceleration mechanisms have been reported in approximately 90% of sports-related Achilles tendon ruptures². A recent study reported histopatholgical differences in patients undergoing surgery to repair acute Achilles tendon compared to cadaver samples of intact Achilles tendon¹. Significantly, the study found a marked difference in abnormal collagen cells in the ruptured Achilles tendon, including the proximal and distal intact portions. The authors hypothesized the collagen abnormality in the Achilles tendon could result in an increase risk to tendon rupture because the tendon is less resistant to tensile forces. Abnormal changes in the collagen matrix of the Achilles tendon may influence the elastic component of the tendon, inhibiting the tendon’s ability to overcome excessive mechanical stress. Therefore, previous history of Achilles tendonosis may have predisposed this athlete to the acute rupture, which is an uncommon injury for his age population. Word Count: 596