ANTERIOR CRUCIATE LIGAMENT INJURY OF THE KNEE WITH SECONDARY DEVELOPMENT OF A DEEP VEIN THROMBOSIS IN AN INTERCOLLEGIANTE FEMALE VOLLEYBALL PLAYER

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BACKGROUND: A 19 year old female NCAA Division II volleyball setter, presented with significant right knee pain following an injury during an intercollegiate match. The mechanism of injury was planting and rotating the lower extremity while attempting to set a ball at the net. Upon physical evaluation she had mild pain over her medial joint line with mild diffuse swelling of the knee. Range of motion was limited as she could not reach full extension and could only move to 30 degrees of flexion. Special tests performed included a Lachman’s which was negative due to muscle guarding, Homan’s sign which was negative. No other special tests were performed due to knee pain and discomfort. The athlete had no previous history of a knee injury or deep vein thrombosis. At the time of injury she was taking an oral birth control. After being evaluated by the team physician she was sent for an MRI to assess the status of internal knee structures. Upon the return visit to the physician, it was confirmed that the athlete had sustained an anterior cruciate ligament (ACL) tear. At that time, the athlete also complained of lower leg pain, discomfort and tightness in the gastrocnemius and soleus muscle complex. She was then sent for a Doppler test to check for a possible blood clot. DIFFERENTIAL DIAGNOSIS: The following were possible outcomes from the athlete’s signs and symptoms: lower leg pain resulting from gastrocnemius muscle guarding/spasm, grade II strain of the gastrocnemius and soleus muscles, posterior compartment syndrome, and deep vein thrombosis. TREATMENT: Initially this injury was treated with rest, ice, compression and elevation including ambulation with crutch assistance. An elastic bandage was applied to the knee for compression. Ankle pumps were used to decrease swelling and tightness in the gastrocnemius and soleus complex, but had to be discontinued due to discomfort with all active plantar flexion. Once the Doppler test revealed a deep vein thrombosis she was immediately given heparin intravenously, followed by four days of intramuscular injections. She was then given Coumadin orally and continues with daily doses. Due to the medication and deep vein thrombosis, knee surgery was postponed for three months. Currently, rehabilitation consists of knee range of motion and lower extremity strengthening. She also gets weekly blood tests to monitor the medication effects. UNIQUENESS: The uniqueness of this case was that she developed a lower leg deep vein thrombosis post-injury when other reported cases normally arise post-surgery. CONCLUSION: The athlete was initially diagnosed by the team physician with an ACL tear. Due to signs and symptoms arising after the MRI, the physician ordered a Doppler test which revealed a blood clot in the posterior aspect of her knee. The team physician concluded that the oral birth control could have contributed to the development of the deep vein thrombosis and advised the athlete to discontinue the medication. Though most knee injuries do not have secondary blood clot development, health care professionals must monitor related signs and symptoms to rule out deep vein thrombosis.

KEY WORDS: deep vein thrombosis, anterior cruciate ligament tear, blood clot