

Case Presentation for Pigmented Villonodular Synovitis (PVNS)

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ABSTRACT

CASE HISTORY: The patient is a 21 years old male collegiate baseball player who suffered an acute pain in his right knee during practice. The athlete began to experience pain while decelerating following running to first base. Immediately after the occurrence, the athlete's knee was "locked" and the athlete was unable to perform active knee flexion or extension. Passively, he was unable to flex or extend due to pain. Following the event, there was an immediate swelling of the knee. The athlete had not complained of pain in his knee prior to this date, but mentioned his knee would occasionally lock. Previous medical history showed right knee anterior cruciate ligament (ACL) reconstruction surgery from two years ago.

PHYSICAL EXAM: Examination of the right knee did not demonstrate any palpable deformity or crepitus. The knee was stuck in a 15° flexion and was observed with edema. Range of motion could not be assessed due to pain and inability to self-initiate movement. The athlete classified the pain as sharp, and a 6 on a 1-10 scale. Neurologically the athlete was within normal limits.

DIFFERENTIAL DIAGNOSIS: Meniscus strain; Compromised graft from previous ACL surgery; Synovial chondromatosis; Inflammatory synovitis. **TESTS & RESULTS:** Magnetic resonance imaging (MRI) showed the anterior cruciate ligament graft to be intact and revealed a 2 cm nodular region of scar tissue, anteriorly at the intercondylar notch anterior to the graft. The MRI also revealed a 4-5 cm ill-defined region of nodular synovitis, anterior to the ACL graft. A much smaller finding with a similar appearance was observed laterally in the suprapatellar pouch. Acute synovitis in the joint behind the posterior cruciate ligament (PCL) was also observed. A clear joint effusion was present. All other surrounding tendons were intact. Lateral and medial meniscus were also intact. The possibility of pigmented villonodular synovitis (PVNS) was considered and confirmed.

FINAL DIAGNOSIS: Pigmented villonodular synovitis. **DISCUSSION:** Inflammation of the knee can indicate acute or chronic conditions. Clinical manifestations of PVNS includes pain, swelling, locking, and instability of the affected joint. In most cases, PVNS affects the knee joint, but may also affect the hip, ankle, shoulder, and elbow joints. This condition causes the synovium, which lines the joints and tendons to thicken. This thickening leads to swelling of the joint and pain when flexing or extending the joint. As the condition progresses, the affected joint is exposed to bone damage and arthritis. This is a rare condition that can affect people of any age, but has been typically present in adults between 30-40 years of age.

According to the National Institute of Health, PVNS may occur in about 5-6 people out of 10,000 people.

The cause of PVNS is currently unknown. Clinical presentation includes inflammation of the joint and pain when attempting to perform movement. **OUTCOME OF THE CASE:** This case is unique because PVNS is usually present in older individuals, whereas this patient is only 21 years of age and had reported no previous pain. PVNS is rarely a suspected condition or final diagnosis. The athlete underwent an arthroscopic debridement surgery. He then went through 28 days of rehabilitation and had no complications during rehabilitation. The athlete began rehabilitation with quadriceps isometrics which involved taking his knee through a passive range of motion. He was further progressed into gait training and resistance exercises through a full range of motion. After full range of motion was achieved, the athlete finalized rehabilitation with functional exercises. **RETURN TO ACTIVITY AND FURTHER**

FOLLOW-UP: The athlete was cleared to return to full activity by day 28 of rehabilitation. Further follow-up was not needed as the athlete has not complained of pain and has full range of motion.