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## Recurrent Knee Effusions in Gymnast

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**History:** A 20-year-old current college freshman sustained a right knee effusion following a hyperextension injury approximately 8 years ago while participating in gymnastics. Per report, workup at the time was negative, and she returned to gymnastics. She participated in gymnastics for 2 additional years and retired due to other interests. While continuing regular exercise, and participation in marching band, she reports recurrent, intermittent right knee effusions since that time. She reports that these would occur more often with repetitive activity. Over the past few months, her knee has been more significantly and persistently swollen. She exercises often, but reports no specific inciting incident. She reports pain with end range flexion. She denies any instability or locking. Previous physical therapy has improved her pain.

**Physical Examination:** Examination revealed significant effusion of right knee. No obvious effusions in other joints. Range of motion was normal and pain free. Negative Lachman, anterior drawer, posterior drawer, varus and valgus stress testing, patellar grind, McMurray, Thessaly. Neurovascularly intact.

**Differential Diagnosis:** 1. Meniscal tear, 2 Infection including possible Lyme Disease or Gonococcal Infection; 3. Rheumatoid Arthritis; 4. Gout; 5. Pigmented Villonodular Synovitis; 6. Hemophilia

**Test and Results:** Aspiration: Bloody - >10000 RBCs, no crystals, normal WBC. Lyme and gonorrhea negative. Ultrasound: Significant for villous synovial thickening within the suprapatellar recess with large effusion. MRI: Large joint effusion with synovitis, synovial proliferation and significant hemosiderin staining of the synovium suggests pigmented villonodular synovitis. Concern for recurrent hemarthrosis with etiology not otherwise apparent. No osseous erosion.

**Final/Working Diagnosis:** Pigmented Villonodular Synovitis

**Treatment and Outcomes:** 1. Referral to orthopedic oncology who recommends biopsy. 2. Plan for open Synovectomy; 3. 3 months of Intensive Physical Therapy; 4. Postoperative Radiation due to high recurrence rate.