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# Posterior Knee Pain in a Teenage Soccer Player

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## Patient Presentation:

DW is a 17-year-old male with 2 weeks of sharp, constant, non-radiating, worsening posterior right knee pain after being kicked in the back of the knee during a high school varsity soccer game. He complained of local swelling and stiffness, which he attributed to a chronic lack of flexibility. Flexing the knee to 90 degrees alleviated symptoms. His trainer had been treating him for a hamstring strain conservatively, and DW came to the office after noticing a "pea-sized lump" in the back of the knee that hurt tremendously each time the knee was wrapped. DW was enrolled in PT to develop flexibility, and was advised to play soccer to tolerance.

DW returned one week later with worsening pain and increased local swelling. After X-ray, DW was removed from soccer because of worsening pain. Advanced imaging was obtained following subsequent neuro-vascular symptoms

## Physical Exam:

**VS:** 138lbs / 69in / BMI: 20.4 / BP: 100/60  
HR: 62 / RR: 16 / POx: 99%RA

**Ext:** Soft tissue superficial swelling superior to right popliteal fossa w/focal small hard indurated lesion. TTP over hamstrings musculature – worse over swelling. No palpable thrill

**Msk:** Tight hamstring b/l (R>L). ROM 0-100° with noted pain at end AROM. PROM to 120° w/pain. 5/5 strength throughout LE b/l. Full ROM in lumbar spine. Normal right knee exam.

**Neuro:** CN II-XII grossly intact, sensation preserved in b/l LE, 2/4 DTR LE b/l

**Vasc:** pulses equal and adequate b/l LE DP/PT

## Tests and Results:

**XR R-Knee:** Large sessile osteochondroma of the distal femur

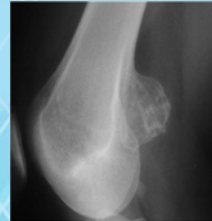
**R-Knee MRI w/o:** Osteochondroma involving distal posteromedial metaphysis of femur with large overlying soft tissue mass of uncertain etiology. Motion artifact – consider aneurysm

**RLE Arterial Duplex Doppler US:** Large above-knee popliteal artery aneurysm with classic 'ying-yang' appearance

**CTA RLE:** 5.9x4.8x7cm right popliteal artery pseudoaneurysm w/thin neck. Mass effect from pseudoaneurysm results in 60% stenosis of mid-popliteal artery.

## Differential:

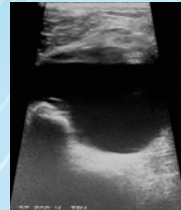
- 1) Hamstring Strain
- 2) PCL Sprain
- 3) Baker's Cyst
- 4) Bone Tumor
- 5) Aneurysm



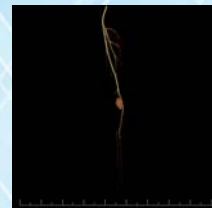
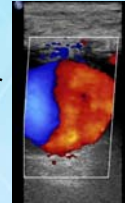
XR



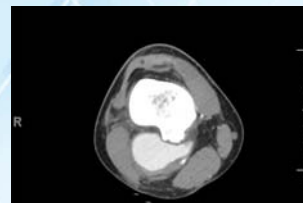
MRI



Arterial  
Duplex  
Doppler  
US



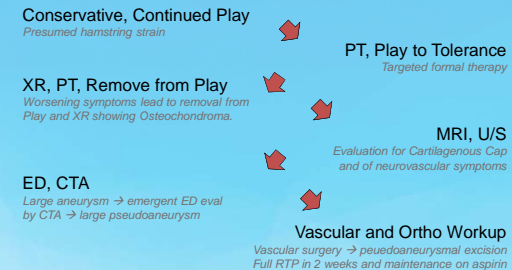
CTA



## Final Diagnosis:

Right Popliteal artery pseudoaneurysm with large sessile osteochondroma of the right distal posterior femur.

## Flow of Management:



## Discussion/Outcome/Follow-up:

Trauma to the posterior knee is a common sports injury. While initially treated appropriately as a hamstring strain, crucial information from the history suggested alternate pathology. The importance of the physical exam is emphasized in this case; earlier imaging would have led to a speedier diagnosis and decreased morbidity.

Incidental XR finding of an osteochondroma is not uncommon and often asymptomatic. When painful, MRI evaluation can assess for malignant growth of a cartilaginous cap (chondrosarcoma). In this case, the large osteochondroma likely traumatically irritated the popliteal artery, leading to an inflammatory state causing the growth of a pseudoaneurysm. As it grew, mass effect led to arterial stenosis and neurovascular compromise.

DW had emergent primary pseudoaneurysmal closure with partial osteochondromal excision to distance the bone from the neurovasculature as secondary prevention.

DW's growth plates were likely fused, given his age and a negative MRI/bone biopsy for cartilagenous cap. Strict guidelines don't exist for young athletes with pseudoaneurysm. Because of low cardiovascular risk, aspirin was used for therapeutic intervention status-post vascular surgery. DW was enrolled in physical therapy, and returned to soccer after 2 weeks without restriction. While regrowth of the osteochondroma is unlikely, reimaging of the bony tumor is important at a 1 year FU.

1. Miller, MD, Thompson SR. Imaging considerations in the skeletally immature athlete. DeLee and Drez's Orthopedic Sports Medicine. 4th ed. 2015. chapter 130; 1555-1575.e1
  2. Al-Hadidy, AM, Al-Smady, et al. Multiple Hereditary Exostosis with Pseudoaneurysm. Cardiovascular and Interventional Radiology. (2007) 30:537-540
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