Educational Objectives:

1. Understand the basic anatomy of the knee to build a differential diagnosis for acute traumatic knee pain
2. Name and demonstrate the historical features, symptoms, and physical exam findings of ligamentous injury to the knee
3. Understand the indications for and limitations of the available pharmacologic therapies for symptomatic knee osteoarthritis
4. Understand the indication for referral for surgery for knee osteoarthritis

CASE ONE:

Mr. MJ is a 27-year-old PhD student with a past medical history of GERD who presents with left knee pain after colliding with a defender while pursuing a ball in an intramural soccer game four days ago. He immediately felt pain and a “pop” and fell to the ground. He was able to get off the ground and walk to the bench, though with a limp. He tried ice and ibuprofen for the following three days, but he now notices his right knee is swollen. He continues to walk with a limp and feels his knee may buckle, and therefore is seeking medical attention.

Questions:

1. What is the differential diagnosis, and most common presentation of each disorder in your differential? What is the most likely diagnosis in this patient?

2. What physical exam findings and maneuvers can you use to aid in correct anatomic diagnosis?
CASE ONE CONTINUED:

You examine Mr. MJ and notice the right knee shows loss of the peri-patellar groove on either side of the patella and demonstrates ballottement of the patella. There is also a positive Lachman’s test. Posterior drawer and McMurray’s tests were negative. There was no medial or lateral joint line tenderness. You diagnose the patient with an ACL tear and you inform the patient of the presumed diagnosis. He wants to know if he should get an x-ray to confirm the diagnosis.

3. Is further imaging necessary to make the diagnosis? If needed, what imaging test would you order?

4. What treatment recommendations would you make to Mr. MJ?

CASE TWO:

Ms. JZ is a 68-year-old female with a past medical history of HTN, HLD, obesity, CKD stage III, CAD with a drug-eluting stent placed eight months ago, who presents as a follow-up for left knee pain. You last saw her three months ago when her greatest concern was five months of intermittent left knee pain which was worse at the end of the day or with walking. She was diagnosed with osteoarthritis, and you advised her on exercises and as needed acetaminophen therapy. Her other medications include aspirin 81 mg qd, clopidogrel 75 mg qd, metoprolol 25 mg BID, and lisinopril 10mg qd. She returns today to discuss her osteoarthritis, as the acetaminophen was not providing much pain relief, and the pain is starting to limit her ability to move. Her knee exam is unchanged from last visit. She wonders if there are any “natural” or complementary ways to treat her OA.

5. What non-pharmacologic interventions would you advise for Ms. JZ?
6. What pharmacologic interventions could you recommend to Ms. JZ?

7. Are there any natural/complementary options for Ms. JZ?

CASE TWO CONTINUED:

Ms. JZ opts for treatment with topical NSAIDs in addition to acetaminophen and decides to try tai chi. She returns to clinic three months later but has no improvement in her pain with these interventions. You begin a conversation about surgical knee replacement. She is hesitant about surgical intervention and asks if there is anything else that can be tried prior to referral to a surgeon.

8. What is the efficacy of intra-articular injections? Are there any adverse outcomes associated with intra-articular injections?

9. What are the indications for surgery for knee OA?
Primary References:


Additional References:


Andrew Levin attended SUNY Downstate Medical Center for medical school and completed residency at Yale University, as well as a chief residency year. His areas of interest include preventative cardiology, specifically with dietary measures.
Knowledge Questions:

1. A 32-year-old female with no significant medical history presents with left knee pain after playing basketball with friends. She awkwardly landed after attempting to get a rebound. She did not feel a pop but had some minor knee pain following the game. She attempted to keep playing but kept noticing her knee was locking. On exam, an effusion is not apparent, but there was a positive McMurray on the medial side while externally rotating the foot. What is the most likely diagnosis?
   a. ACL tear
   b. ACL sprain
   c. MCL tear
   d. Medial meniscus injury
   e. None of the above

2. A 57-year-old male with past medical history of obesity (BMI 37) presents for follow-up of osteoarthritis-related knee pain. He has tried acetaminophen and a topical NSAID without much relief. He said he bought some over the counter ibuprofen which provided some relief. Which of the below choices would be a contraindication (relative or absolute) to NSAID therapy?
   a. Peptic ulcer disease
   b. Coronary artery disease
   c. CKD stage IV
   d. Age over 55
   e. a, b, and c are correct
   f. All of the above

3. Which of the following factors is the most important factor when considering referral for surgery for osteoarthritis of the knee?
   a. Severe tri-compartmental disease on knee x-ray
   b. Age
   c. Obesity
   d. Severe pain> 6 months
   e. Use of a cane