Knee Case Studies

You might NEED to know some of this stuff

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Disclosures

Presenter
Mark Mildren, MD, has nothing to disclose.

Planning Committee
• Jim Chesnutt, MD, has nothing to disclose.
• Brick Lantz, MD, has nothing to disclose.
• Erin Owen, PhD, has a spouse who receives a salary from Wright Medical
Young female, sudden onset of pain
History

• 20 year female with a sudden onset of pain and swelling to the right knee x 1 week.
• Happened while vigorously celebrating the U of O defeat of Oregon State.
• She can bear weight on the extremity, but with significant pain.
• Any other questions you’d want to ask?
Differential?

- **COMMON**
  - ACL tear
  - Meniscal injury
  - Focal cartilage damage
  - Patellar dislocation

- **Less common**
  - Fracture
  - Septic arthritis
Exam

• Inspection: Large effusion
• ROM: Severely limited by pain
• Tenderness: No discrete areas of tenderness
• Stability:
  • Lachmans – markedly positive
  • Posterior drawer – negative
  • MCL/LCL intact
  • Mcmurrays – unable to perform due to pain
WHAT TO DO NEXT?

• Options:
  • Xray?
  • MRI?
  • Inject some steroid?
  • Aspiration?
  • Bracing?
  • Weight bearing status?
  • Emergent referral to orthopedics?
If ACL tear is suspected on exam...

- ALWAYS, ALWAYS, ALWAYS get an XRAY.
- Make sure this is negative.
- Then MRI
- Bracing?
- ROM restriction?
You already know where this is going...

- MRI shows an acute midsubstance tear of the ACL

- She underwent ACL reconstruction with hamstring autograft.
Take home points

• Xrays always first
• Referral to ortho for ACL reconstruction
• Can be WBAT
• Injection of cortisone?
48 year old female with atraumatic knee pain

I still don’t know what to do with her
History

• 48 year old female with 8 month history of increasing pain to the right knee. Left knee also hurts to a lesser degree.
• Denies any trauma, denies any effusions.
• Still very active, hiked Pisqah just before presentation.
• States that the pain is bothersome ‘somewhat’.
• No prior procedures to the knee
• No prior treatments
Exam

• Inspection: Thin female, no obvious effusion.
• ROM: Full ROM, mild pain with full flexion
• Stability:
  • Lachman 2a
  • Posterior drawer 1a
  • MCL/LCL intact
  • Patellar tracking: mildly lateral, but no instability, no apprehension
Differential

- **Common**
  - OCD
  - Osteoarthritis
  - Patellofemoral disease
  - ACL tear – chronic
  - MCL strain

- **Uncommon**
  - SONK
  - Lupus
WHAT TO DO NEXT?

- What would you do next?
- Hopefully you’re going to say get an xray…
- So we did an xray
Okay, so what now?

- Nothing?
- More x-rays?
- Injection of steroid?
- Injection of hyaluronic acid?
- Glucosamine/chondroitin sulfate?
- Physical therapy?
- MRI?
- Referral to ortho?
I got an MRI

• Why?
  • Wanted to see if a patient had isolated patellofemoral disease as she may be a candidate for PF arthroplasty
  • Rule out significant meniscal pathology as a source for pain
  • Evaluate MPFL – more on this later

• MRI showed significant degenerative changes to all compartments, worst in the patellofemoral joint.

• So now I have a younger active patient with tricompartmental OA.
Management of OA

• NSAID’s – good evidence these work
• Narcotics – no role in management of OA
• Steroid shots until they no longer control the pain
  • Every 3 months as pain dictates
  • No such thing as a patient that wouldn’t benefit from at least a TRIAL of steroid injections
• Physical therapy/Weight loss
• Anything else the patient wants to try first
What the data shows/what I do

• Corticosteroid injections: Yes

• Synvisc injections: Data shows they don’t do anything.
  • I tell patients they probably won’t help, but I still offer it.

• Glucosamine/Chondroitin sulfate: Doesn’t do anything.
  • Same thing. Non-toxic, I tell people to try it. Power of the placebo.

• Shoe inserts: Nope.
  • If they WANT to try it, then sure.

• Bracing: Same thing.
  • Same talk. Try it, if it helps, then do it.
Last point

• In the management of OA, there is virtually NO role for arthroscopic debridement of a torn meniscus

• What that means: VIRTUALLY NO ROLE IN MRI’S FOR PATIENTS WITH MODERATE OR SEVERE OA
Just keep hitting it harder!
History

• 15 year old female with a sudden history of knee pain following batting at softball and twisting her knee during a bat swing

• States that her knee dislocated, and needed to be put back in by her coach

• Placed in a knee immobilizer and made NWB
Differential?

• Likely:
  • MPFL rupture
  • ACL tear

• Unlikely:
  • Actual knee dislocation
  • Meniscal injury
  • Fracture?

• Any other questions you’d want to know?
Exam

- Inspection: Moderate effusion
- ROM: Apprehensive during flexion
- Knee alignment: Valgus
- Stability:
  - Lachman 1a
  - Posterior drawer 1a
  - MCL/LCL intact
  - Patellar tracking: Mildly lateral, +Apprehension
Diagnostic workup

• Xrays – WITHOUT Question
• Referral to ortho?
• Injection?
• Aspiration?
• Physical therapy?
• Bracing?
• MRI?
• Most of the time radiographs are normal
• Can have an osteochondral fragment
• Can assess for Trochlear dysplasia on a lateral view as well as assess for patella alta
• Sunrise – shown on the right – is the best view to assess lateral tilt of the patella
<table>
<thead>
<tr>
<th></th>
<th>Patellar Dislocation</th>
<th>Knee dislocation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ligament involved</strong></td>
<td>Medial PatelloFemoral Ligament</td>
<td>2 or more ligaments (ACL/PCL/MCL/LCL/PLC)</td>
</tr>
<tr>
<td><strong>Associated neurovascular injury</strong></td>
<td>Next to none</td>
<td>5-15% (40-50% in front to back dislocations) (Can be limb threatening)</td>
</tr>
<tr>
<td><strong>Way to reduce</strong></td>
<td>Straighten the knee</td>
<td>Pull the ankle really hard</td>
</tr>
<tr>
<td><strong>Treatment</strong></td>
<td>To be discussed</td>
<td>Major ligamentous reconstructive surgery</td>
</tr>
<tr>
<td><strong>My comfort level upon ED consult</strong></td>
<td>Ain’t no thang.</td>
<td>Oh crap, I’m on my way in.</td>
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</tbody>
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Where to go from here

• First time dislocator – Physical therapy, bracing

• Recurrent dislocator – Further imaging to assess for anatomic abnormalities
  • CT or MRI
  • TTTG distance (tibial tubercle to Trochlear groove) distance
    • Greater than 20 mm is considered abnormal
    • Surgical repair based on anatomy, number of dislocations, etc.
Take home points

• Patellar dislocations not surgical emergencies

• Knee immobilizer/WBAT in KI and referral to ortho

• Just keep slapping it harder
Thank you

Questions?