

# Non-Contact Femoral-Tibial (Knee) Dislocation with Peroneal Nerve Palsy in a High School Football Linebacker

**Mason Briles, MS, LAT, ATC**

*Outreach Athletic Trainer, Emory Sports Medicine Center*

R. Amadeus Mason, MD, RMSK

John Xerogeanes, MD

*Emory Sports Medicine Center*

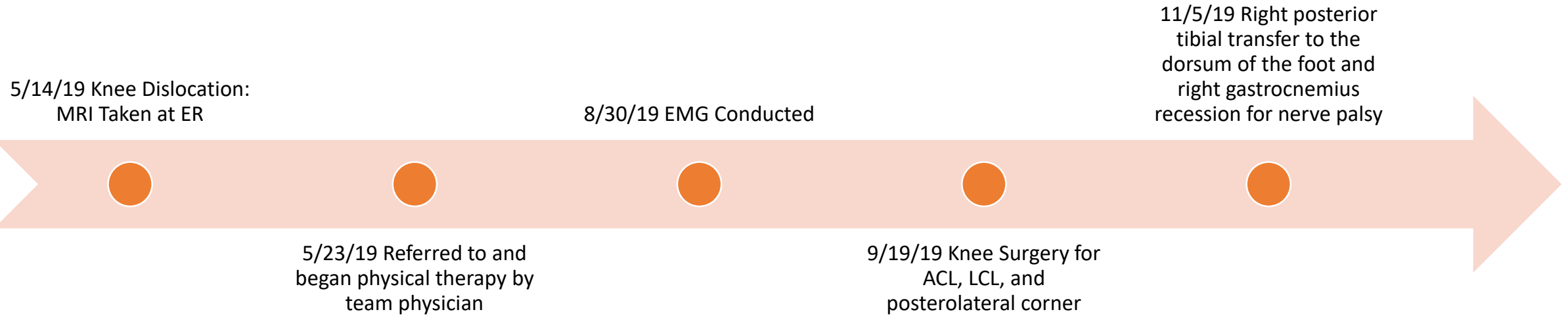


# Patient

- 17 years old
- African American Male
- American Football Linebacker
- No injury history to right knee

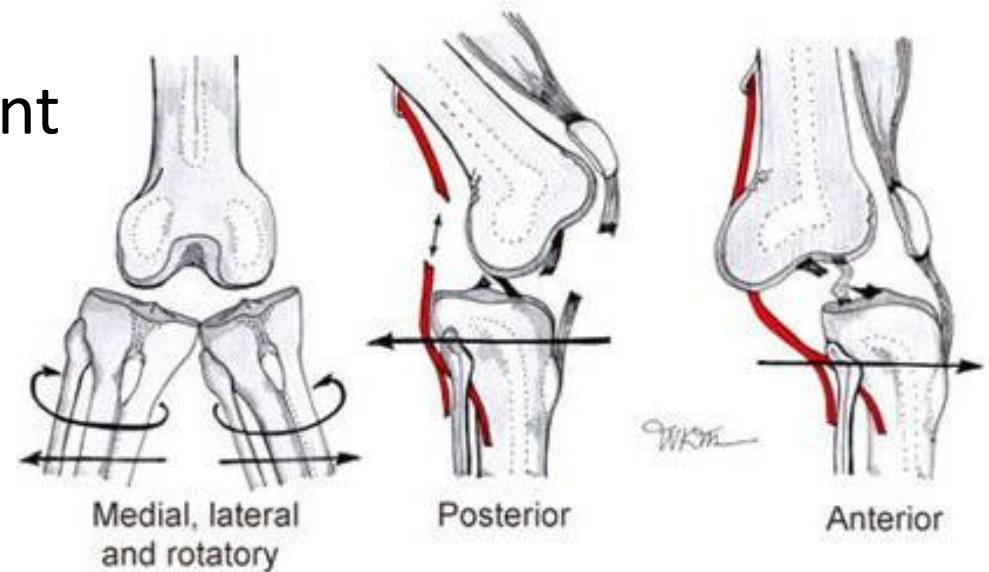


# Injury and Surgical Timeline



# Initial Presentation and Biomechanics

- Knee visibly dislocated at femoral-tibial joint
- Simultaneous transverse and varus force from stepping in a hole
- No External Contact



# Initial Evaluation and Treatment

- Emergency Action Plan activated
- Lower leg neurovascular screen
  - dermatomes, myotomes, posterior tibial and dorsal pedal pulses
- Straight Leg Immobilizer Applied
  - spontaneous reduction, no neurovascular improvement
- EMS transport to trauma center





0:00



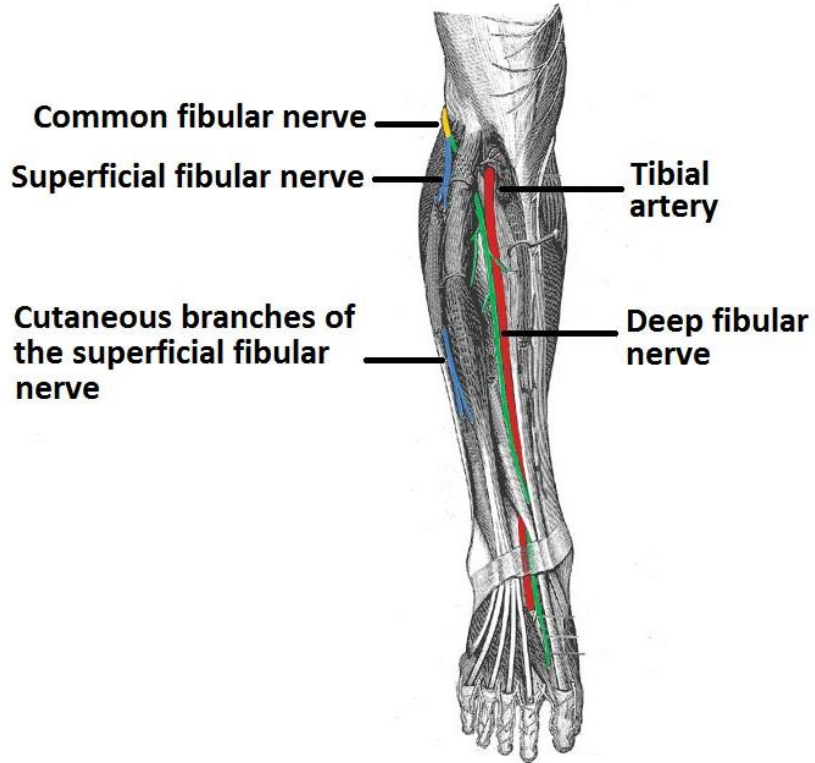
-0:13

# Ligamentous Knee Injury

- Patient had tearing of the ACL, LCL, MCL, and PCL.
  - Reconstruction of the ACL with a quad tendon autograft
  - Reconstruction of the LCL using a tibialis anterior allograft
  - Reconstructed the posterolateral corner of the right knee.
- **Surgery was 4 months after injury**
  - Allowed the patient to regain strength and range of motion prior to surgery
  - Allowed MCL and PCL to heal



# Peroneal Nerve Injury



- Patient had complete common peroneal nerve injury including ankle extensors and evertors
  - Right posterior tibial transfer to the dorsum of the foot and right gastrocnemius recession
  - Surgery offered as a “salvage” for patient’s foot drop
- **Surgery was 5 ½ months after knee dislocation and 1 ½ months after knee surgery**
  - Timeline allowed knee ROM to return to pre-operative levels



# Progress

- **Nerve Injury:**

- February 2020: Cleared to begin jog-run program and progress to shot-put

- **Ligamentous Injury:**

- February 2020: Cleared to to back squat, deadlift, power-clean, leg press
- Cleared to begin return to run program
- Goal for shot-put clearance in April in brace with modified throwing technique



# Uniqueness and Importance

- **Injury Prevalence**

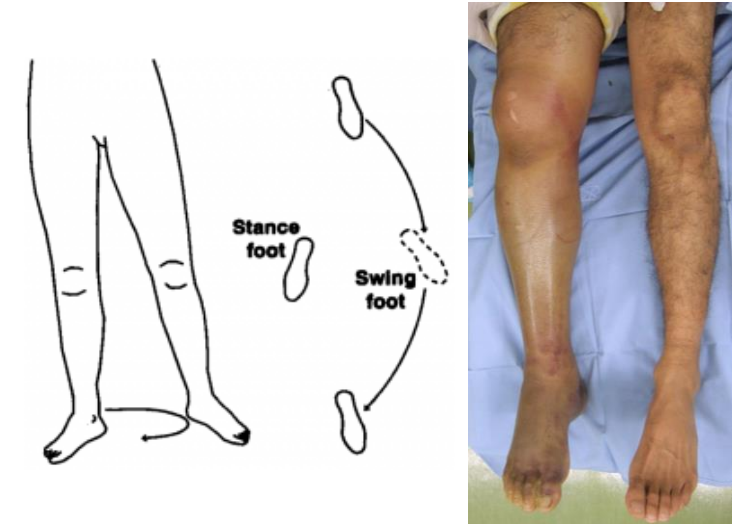
- Knee dislocations have an estimated prevalence of <math><0.02\%</math> and of these injuries, 14-40% have an associated peroneal nerve palsy.
- Due to nerve location and shearing force from injury

- **Non-surgical interventions**

- For peroneal nerve injuries, associated with drop foot
- Lifelong use of ankle and foot orthosis
- Circumduction gait pattern

- **Arterial Compromise**

- With the popliteal artery compromised and left untreated for >8 hours, amputation risk is 86% compared to 11% with prompt treatment.
- Acute compartment syndrome



# Take Home Message

- Thorough examination is necessary for injury recognition and subsequent prevention of life-long disability
  - Athletic trainers should be on-site for all athletic contests and practices to prevent long-term complications
- Emergency Action Plans should be updated and practiced to prepare for serious musculoskeletal injuries



# References

1. Bui KL, Ilaslan HD, Parker RD, Sundaram M. Knee dislocations: a magnetic resonance imaging study correlated with clinical and operative findings. *Skeletal Radiol*. 2008;37(7):653-661.
2. Henrichs A. A Review of Knee Dislocations. *J Athl Training*. 2004;39(4):365-369.
3. Krych AJ, Giuseffi SA, Kuzma SA, Stuart MJ, Levy BA. Is Peroneal Nerve Injury Associated With Worse Function After Knee Dislocation? *Clin Orthop Relat R*. 2014;472(9):2630-2636.
4. Ridley TJ, Mccarthy MA, Bollier MJ, Wolf BR, Amendola A. The incidence and clinical outcomes of peroneal nerve injuries associated with posterolateral corner injuries of the knee. *Knee Surg Sport Tr A*. 2017;26(3):806-811.

# Contact Info

mason.briles@emoryhealthcare.org

