Lachman Test

Purpose

- To assess the integrity of the anterior cruciate ligament (ACL) in the knee

Anatomy

- The ACL attaches to the anterior intercondylar area of the tibia then passes posteriorly, laterally, and upward to attach to the femur on the medial side of its lateral condyle. The ligament prevents forward sliding of the tibia on the femur and prevents hyperextension of the knee

Technique

1. The patient should by relaxed and lying supine on the exam table, heel on the table and knee flexed 20°-30 °
2. The examiner should stand to the side of the exam table
3. Hold the femur firmly with one hand to prevent motion of the upper leg and relax the hamstrings
4. Place the thumb of the other hand on the anterior side of the tibia and grasp the posterior side of the tibia near the joint line with the fingers
5. Apply a brisk posterior-to-anteriorly force through the tibia (tug forward)

Results

- Positive: no distinct endpoint is felt by examiner and there is increased translation of the tibia (excessive movement)
    - Patients with a torn PCL may test positive with a Lachman test (tibia will rest further posterior than usual due to the absence of the PCL)
- Negative: distinct endpoint is felt by examiner

Diagnostic Accuracy

- Acute: Sensitivity: .94, Specificity: .97
- Chronic: Sensitivity: .95, Specificity: .9
- Likelihood ratios:
    - Positive test: 42.0 (95% CI, 2.7-651)
    - Negative test: 0.1 (95% CI, <0.0-0.4)

Pearls

- It is important to obtain/maintain the correct joint angle (20°-30 °) because a position closer to full extension has less anterior translation of the tibia and can result in a false endpoint
- The ACL is more maximally stressed at 20° and can be assessed more accurately due to other tissues not limiting anterior translation of the tibia
- PCL integrity should be assessed prior to looking at ACL integrity

References

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