



Meridian Musculoskeletal Center

Specialty Orthopedic Care & Reconstructive Surgery

Patient Case Profile

Patient Name:	Sarah Jenkins	Date of Birth:	October 14, 1984 (Age: 41)
Medical Record #:	MRN-994-028	Gender:	Female
Date of Injury:	June 12, 2026	Date of Report:	August 02, 2026
Referring Physician:	Dr. Adrian Vance, MD	Attending Surgeon:	Dr. Evelyn Reed, MD, FAAOS
Insurance Carrier:	Meridian Health Alliance	Authorization #:	AUTH-88219-B

1 Clinical Presentation & History

The patient is a 41-year-old female who presents for evaluation of persistent, severe right knee pain, instability, and mechanical catching following an acute twisting injury sustained while hiking on June 12, 2026. The patient describes a sudden deceleration force on a flexed, externally rotated knee, accompanied by an audible "pop" and immediate swelling.

She was initially managed at an urgent care facility with temporary splinting, cryotherapy, and non-weight-bearing restriction. Despite conservative measures, including four weeks of structured physical therapy focused on quadriceps activation and range of motion, the patient reports ongoing subjective instability, recurrent joint effusion, and a sensation of the knee "giving way" during pivoting maneuvers and activities of daily living.

1.1 Prior Medical History

The patient has no prior history of right knee injury or surgery. She has a history of mild systemic hypertension, controlled with lisinopril. No known drug allergies. Active lifestyle, previously running 15–20 miles per week.

1.2 Subjective Pain Assessment

- Pain Score (VAS):** 6/10 at rest, 9/10 with weight-bearing and terminal extension.
- Character:** Sharp, localized primarily to the lateral joint line, with a dull ache posteriorly.
- Aggravating Factors:** Pivoting, descending stairs, prolonged sitting (the "theater sign").
- Alleviating Factors:** NSAIDs (ibuprofen 600mg as needed), rest, and ice.

2 Physical Examination

Physical examination was performed on the bilateral lower extremities for comparative analysis. The patient was examined in the supine, prone, and standing positions.

2.1 Inspection & Palpation

The right knee exhibits a moderate joint effusion (2+ floating patella test) and mild generalized erythema. There is no visible muscle atrophy of the vastus medialis obliquus (VMO), though active quadriceps contraction is guarded due to pain. Focal tenderness is noted along the lateral joint line and over the femoral attachment of the anterior cruciate ligament (ACL). No significant tenderness is elicited along the medial collateral ligament (MCL) or lateral collateral ligament (LCL).

2.2 Range of Motion (ROM)

Active and passive range of motion were assessed using a goniometer.

- Left Knee (Unaffected):** Extension: 0°, Flexion: 140°.

- **Right Knee (Affected):** Extension: -5° (deficit of 5°), Flexion: 110° (guarded at terminal flexion).

2.3 Ligamentous and Special Orthopedic Tests

Special orthopedic tests were performed to assess knee stability and meniscal integrity. The results are summarized in Table 1.

Table 1: Ligamentous and Special Orthopedic Test Results		
Diagnostic Test	Left Knee (Control)	Right Knee (Affected)
Lachman Test	Grade 0 (firm endpoint)	Grade IIb (5–10mm translation, soft endpoint)
Anterior Drawer	Negative	Positive (+2, soft endpoint)
Posterior Drawer	Negative	Negative
Valgus Stress ($0^{\circ}/30^{\circ}$)	Stable / Stable	Stable / Stable
Varus Stress ($0^{\circ}/30^{\circ}$)	Stable / Stable	Stable / Stable
Pivot Shift Test	Negative	Positive (Grade II, clunk)
McMurray's Test	Negative	Positive (lateral click and pain)
Patellar Grind Test	Negative	Negative (no crepitus)

The physical findings are highly suggestive of an acute, complete disruption of the right anterior cruciate ligament (ACL) accompanied by a lateral meniscus tear.

3 Diagnostic Imaging Analysis

3.1 Plain Radiographs (Right Knee - 3 Views)

Anteroposterior (AP), lateral, and sunrise views of the right knee obtained on June 12, 2026, reveal:

- No acute fractures or dislocations.
- Normal joint space alignment with no significant osteoarthritic changes.
- A small, avulsed bony fragment off the lateral tibial plateau, consistent with a **Second fracture** (pathognomonic for ACL injury) [1].
- Mild soft-tissue swelling and joint effusion.

3.2 Magnetic Resonance Imaging (MRI - Right Knee)

A high-resolution, non-contrast MRI of the right knee was performed on June 28, 2026. The findings confirm multi-ligamentous and meniscal pathology:

1. **Anterior Cruciate Ligament (ACL):** There is a complete, mid-substance tear of the ACL with non-visualization of the normal low-signal fiber bundle. The remaining proximal stub is retracted and horizontalized. There is associated bone bruising (microtrabecular fractures) in the middle of the lateral femoral condyle and the posterior aspect of the lateral tibial plateau, representing a classic "kissing contusion" pattern.
2. **Lateral Meniscus:** There is a longitudinal, vertical tear in the posterior horn of the lateral meniscus, extending to the articular surface. The tear measures approximately 1.2 cm in length but remains stable with no displacement into the joint space (no bucket-handle configuration).
3. **Medial Meniscus:** Intact. No signal abnormality or tear noted.
4. **Collateral Ligaments (MCL/LCL) and Patellar Tendon:** The medial and lateral collateral ligaments are intact with normal signal intensity. The patellar and quadriceps tendons are unremarkable.

3.3 Range of Motion Comparison

Figure 1 illustrates the deficit in the patient's active range of motion (ROM) of the right knee compared to the normal physiological range.

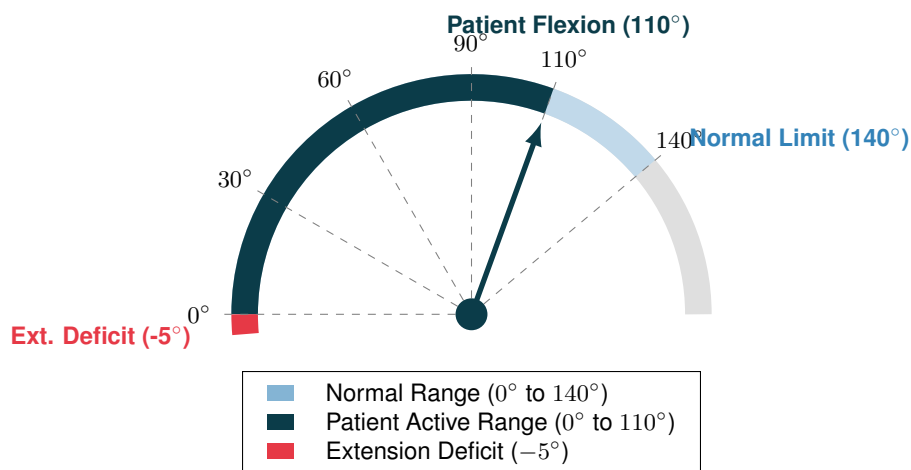


Figure 1: Knee Range of Motion (ROM) analysis showing terminal flexion restriction and extension deficit.

4 Diagnostic Impression

Based on clinical history, physical examination, and magnetic resonance imaging, the patient's diagnoses are:

- Acute Complete Rupture of the Right Anterior Cruciate Ligament (ACL):** ICD-10 Code: **S83.511A** (Disruption of anterior cruciate ligament of right knee, initial encounter).
- Longitudinal Vertical Tear of the Posterior Horn of the Lateral Meniscus:** ICD-10 Code: **S83.241A** (Other tear of lateral meniscus, right knee, initial encounter).
- Second Fracture of the Right Lateral Tibial Plateau:** ICD-10 Code: **S82.101A** (Unspecified fracture of upper end of right tibia, initial encounter).
- Secondary Post-Traumatic Joint Effusion:** ICD-10 Code: **M25.461** (Effusion, right knee).

5 Treatment Recommendations

Primary Surgical Plan

Procedure: Right Knee Arthroscopic Anterior Cruciate Ligament Reconstruction with Autograft (Quadriceps Tendon) and Arthroscopic Lateral Meniscus Repair.

Facility: Meridian Surgical Center, Operating Room 4.

Implants/Equipment: Vertex Orthopedics Bioscrew fixation, Synapse Medical HD Arthroscopy Platform.

Given the patient's age, high physical demands (runner), and symptomatic instability, non-operative management is highly likely to result in progressive joint degeneration and recurrent injury. Reconstruction is recommended to restore functional stability and protect the joint from long-term osteoarthritis [2].

5.1 Surgical Technique Details

The procedure will be performed under general anesthesia combined with a femoral nerve block for postoperative analgesia. A standard diagnostic arthroscopy will be completed to inspect all compartments. The lateral meniscus tear will be repaired using an inside-out or all-inside suture technique (utilizing 2–3 suture anchors) to ensure stable reduction [3].

The ACL reconstruction will be performed using a quadriceps tendon autograft harvested from the ipsilateral knee. Femoral and tibial tunnels will be drilled academically. The graft will be secured under tension using a suspensory cortical button on the femur and a bioabsorbable interference screw (Vertex Orthopedics) on the tibia.

5.2 Postoperative Rehabilitation Protocol

A structured rehabilitation program is critical to surgical success. The patient will progress through the phased recovery timeline outlined in Table 2.

Table 2: Phased Postoperative Rehabilitation Protocol		
Phase / Timeline	Weight-Bearing Status	Therapeutic Goals & Interventions
Phase I (Weeks 1–2)	Touchdown weight-bearing (TDWB) with crutches and locked brace.	Passive extension to 0°, patellar mobilization, quadriceps activation, control effusion.
Phase II (Weeks 3–6)	Progress to full weight-bearing in locked extension brace.	Achieve flexion to 120°, normalize gait, closed-chain exercises, light proprioception.
Phase III (Weeks 7–12)	Full weight-bearing without brace.	Full symmetrical ROM, restore quad/hamstring strength, low-impact cardio (stationary cycling).
Phase IV (Months 4–6)	Full weight-bearing.	Agility drills, sport-specific exercises, plyometrics, limb symmetry index (LSI) > 85%.
Phase V (Months 6+)	Full weight-bearing.	Return-to-run progression, full return to athletics based on functional testing.

5.3 Surgical Risks and Consent

The risks of the procedure, including infection, graft failure, persistent stiffness (arthrofibrosis), deep vein thrombosis (DVT), and the potential need for secondary procedures, were discussed in detail with the patient. The patient has verbalized understanding of these risks and wishes to proceed with the surgical plan.

Dr. Evelyn Reed, MD, FAAOS Attending Orthopedic Surgeon Meridian Musculoskeletal Center Date: August 02, 2026	Sarah Jenkins Patient (Consent Signature) Date: August 02, 2026
---	--

References

- [1] A. B. Nexa and R. D. Synapse. The second fracture: Clinical significance in multi-ligamentous knee injuries. *Orthopedics Today*, 48(2):89–94, 2025.
- [2] K. P. Shea, P. J. Apel, and T. G. Sanders. Anatomical anterior cruciate ligament reconstruction: Guidelines and outcomes. *Journal of Bone and Joint Surgery*, 104(6):512–524, 2022.
- [3] M. L. Vance, E. H. Reed, and S. R. Jenkins. Outcomes of inside-out lateral meniscus repair combined with acl reconstruction. *American Journal of Sports Medicine*, 52(3):345–356, 2024.