

Pediatrics– H&P #3

Chief Complaint: “right knee pain” since 3 hours ago.

HPI

13-year-old male with no significant past medical history and UTD immunizations presents to the ED with right knee pain after a fall at school approximately 3 hours ago. Patient states that he was playing basketball during gym class when he slipped, heard a “popping” sound in his right knee, and fell, landing on his buttocks first. He denies trauma to the head, shoulders, upper extremities, or hip. Patient reports immediate right knee pain rated as an 8/10. The knee is painful to touch and painful with movement, particularly with flexion. He can flex the knee slightly but reports significant discomfort when trying to flex the knee and is unable to bear weight on the right leg. Patient states that he has noticed swelling that built up after the injury located under his right patellar region. He denies numbness or tingling in the leg or foot. He denies prior sports-related injuries and has no history of prior surgeries. At school, the nurse applied ice and instructed him to rest, which has helped with the pain slightly. He has not taken any pain medication before arrival to the ED. Patient denies any headache, loss of consciousness, dizziness, fever/chills, shoulder pain, back pain, ankle pain, or foot pain.

PMHx

- None

PSHx

- No known past hospitalizations, surgeries, or transfusions.

Medications

- None

Allergies

- No known drug, food, or environmental allergies.

FHx:

- Maternal Grandfather → alive and well, unknown medical history
- Maternal Grandmother → alive and well, unknown medical history
- Mother → alive and well, no known medical history
- Father → alive and well, DM2 and HLD
- No other siblings

SHx

- D. F. lives with father and mother in a house. Patient is active in sports, playing on a basketball team at school. Patient denies smoking tobacco, vaping, alcohol use, or illicit drug use. Mother and father are employed.

ROS

General – Denies fever, night sweats, unusual weight gain or weight loss.

Skin – Denies rashes, jaundice, or pallor of the skin. Admits to swelling of the right anterior shin.

HEENT – Denies sore throat, conjunctivitis, or ear pain

Neck – Denies any neck pain.

Chest/Cardiovascular – Denies any chest pain or palpitations.

Pulmonary – Denies cough, shortness of breath, or wheezing

Gastrointestinal – Denies abdominal pain, nausea/vomiting/diarrhea, or constipation.

Genitourinary – Denies urinary frequency, hematuria, or discharge.

Neurological – Denies headaches, dizziness, or loss of consciousness

Musculoskeletal – Admits to trauma of the right knee and anterior shin and swelling of the anterior shin without discoloration. Admits to pain when touching the area of injury and inability to bear weight on the right side. Denies shoulder, back, hip, quadriceps/hamstring, ankle, or feet pain bilaterally. Denies other injuries/traumas.

Hematologic – Denies any bruising or abnormal bleeding.

Vital Signs

| Vitals | 3:13 PM | 8:02 PM |
|----------|-----------------|-----------------|
| BP | 130/70 | 128/70 |
| P | 100 | 108 |
| RR | 20 | 20 |
| T (oral) | 98.4 F | 98.7 F |
| O2 Sat | 98% on room air | 98% on room air |

Height: 68 in | **Weight:** 68 kg (150 lb) | **BMI:** 22.8

Physical Exam

General: Patient is well-appearing, in mild distress, and is actively speaking with father and is on his phone.

Skin: No signs of diaphoresis, cyanosis, or pallor. Skin is warm.

HEENT: Head is normocephalic and atraumatic. Eyes are PERRLA bilaterally, EOMS intact, sclera is white, conjunctiva is pink, mucous membranes are pink and moist without lesions or exudates seen, TM without bulging or erythema bilaterally, oropharynx is clear without erythema, lesions, or exudates seen. Tonsils without hypertrophy and the uvula are midline.

Cardiac: RRR. No murmurs/gallops heard.

Lungs: Lungs are clear to auscultation bilaterally without stridor, wheezing, rhonchi, or rales. Normal breathing effort without retractions, accessory muscle use, or nasal flaring.

Abdomen: Abdomen is soft, flat, and nondistended. Bowel sounds are normoactive in all 4 quadrants. There is no abdominal tenderness throughout.

MSK: There is swelling and tenderness to palpation of the lateral and medial patellar region and anterior proximal shin region without obvious deformities or crepitus heard. There is swelling of the anterior proximal tibial region below the patella. There is no tenderness to palpation of the hip, ankle, or foot bilaterally. Dorsalis pedis and posterior tibial pulses are intact bilaterally, 2+. Sensation is intact to light touch bilaterally. Patient denies numbness or tingling of the lower extremities. There is limited active and passive ROM of the right knee with flexion. Varus stress test is (+) on the right side. Unable to conduct McMurray's, Lachman's, Anterior/Posterior Drawer Test due to limited extension of the joint and pain. Patient is able to wiggle toes bilaterally on command. No paralysis or weakness noted.

Peripheral Vascular: Lower extremities are warm and dry with no cyanosis. Capillary refill <2 seconds on upper and lower extremities. No ulcers or open wounds present. Distal pulses (dorsalis pedis and posterior tibialis) are present and is 2+ bilaterally.

Neurological: AxO3 (person, place, time). No focal deficits are present.

Assessment

13-year-old male with acute right knee injury after a sports-related fall with audible “pop,” inability to bear weight, and limited flexion. No deformity or neurovascular compromise noted. Concerning for ligamentous injury versus fractures of the patella/tibula/fibula.

D/Dx

1. Compartment Syndrome
 - a. Rationale: Acute traumatic injury with severe pain and inability to bear weight raises concern for increased intracompartmental pressure. Although patient currently has intact pulses, no paresthesias, and no worsening pain out of proportion to exam, compartment syndrome must always be considered in acute lower extremity trauma due to risk of neurovascular compromise.
2. Tibula/Fibular Dislocation/Fracture
 - a. Rationale: Inability to bear weight following a fall with an audible “pop” raises concern for possible fracture or dislocation. Even without visible deformity, occult fractures (including tibial plateau fracture) must be ruled out with imaging.
3. Ligamentous (ACL/PCL/MCL/LCL/Meniscus) Tear
 - a. Rationale: Audible “pop,” immediate pain, limited extension, and inability to bear weight are classic for internal knee derangement, particularly ACL tear. Mechanism of injury during pivoting sport (basketball) further increases suspicion.
4. Patellar Dislocation/Fracture
 - a. Rationale: A popping sensation and acute knee pain may indicate transient patellar dislocation that spontaneously reduced. Patellar fracture is also possible with traumatic mechanism. Absence of visible deformity lowers suspicion but does not exclude injury.
5. Osgood-Schlatter Disease
 - a. Rationale: Common in adolescent males involved in sports due to repetitive traction at the tibial tuberosity. However, this condition typically presents with gradual onset anterior knee pain rather than acute pain following trauma, making this less likely in this presentation.

Problem Lists & Plan

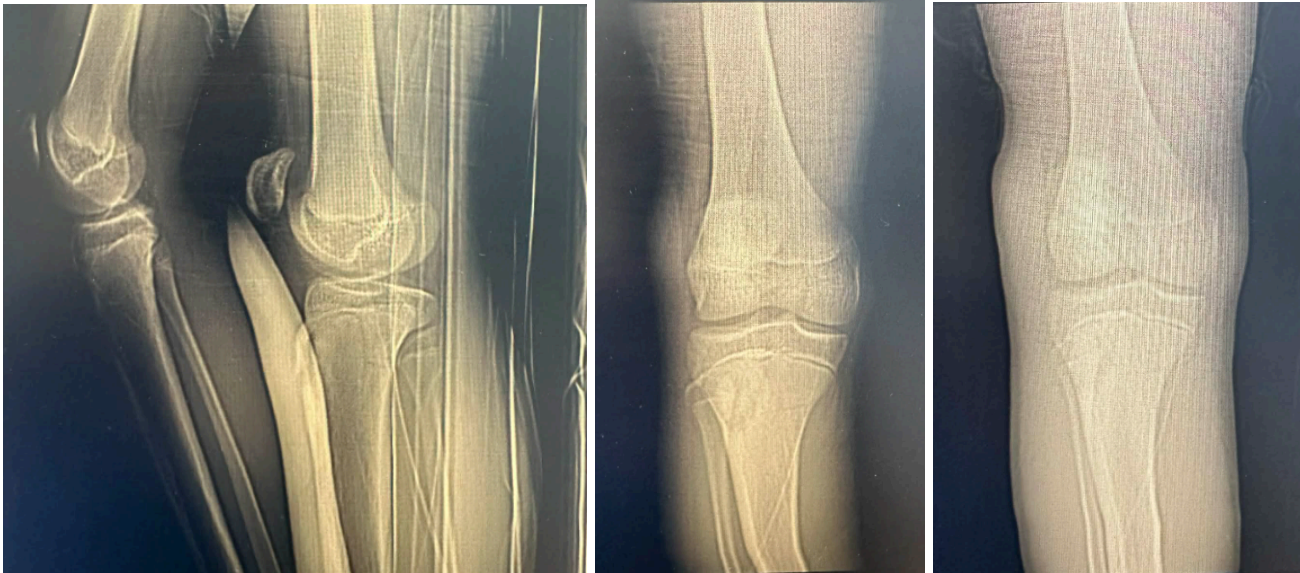
Problem: Acute Right Knee Injury

Plan

- Obtain Right Knee XR, Right Tib/Fib XR, CT WO Contrast of Right Knee
- Rest, Ice, Compression, and Elevation of the right lower extremity.
- Provide & Educate about how to use crutches to avoid bearing weight on the affected side
- Analgesia with Ibuprofen 400mg
- Continuous monitoring of the patient's status until the image results, and will plan the disposition based on the results.

Labs/Imaging

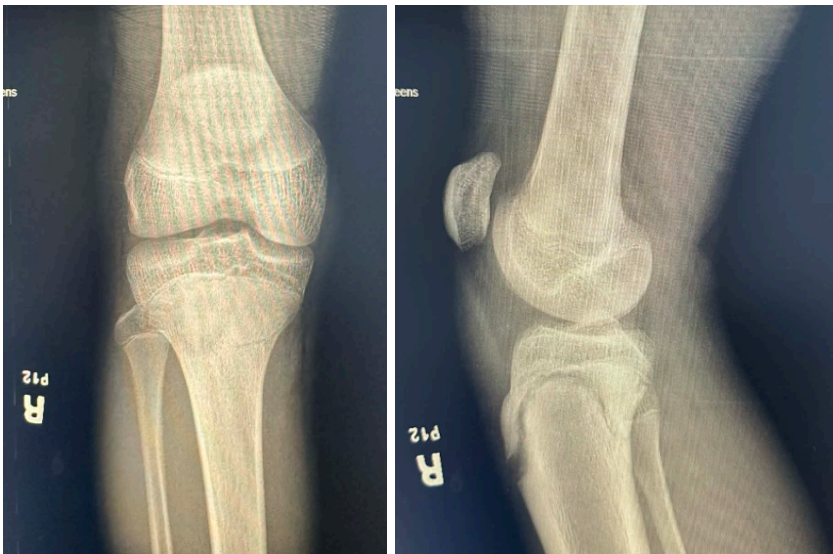
CT Knee without Contrast (Right)



IMPRESSION:

1. Mildly displaced, mildly comminuted Salter-Harris 4 fracture of the proximal right tibia. Anterior soft tissue swelling of the visualized right lower leg extending to the lateral distal right thigh likely represents posttraumatic hematoma.
2. Thin curvilinear calcifications lateral to the proximal physis of the right tibia, raising concern for superimposed Segond fracture. Consider MRI for further evaluation of internal derangement of the soft tissues of the right knee.

XR Knee (Right)



IMPRESSION: WIDENING OF THE TIBIAL TUBEROSITY GROWTH PLATE WITH THICKENING OF THE INFERIOR ASPECT OF THE PATELLAR TENDON. PLEASE CORRELATE CLINICALLY. CONSIDER TIBIAL TUBEROSITY AVULSION FRACTURE VERSUS OSGOOD-SCHLATTER DISEASE. NONCONTRAST KNEE MRI OR CT MAY BE HELPFUL.

XR Tibula Fibula (Right)



IMPRESSION: WIDENING OF THE TIBIAL TUBEROSITY GROWTH PLATE WITH THICKENING OF THE INFERIOR ASPECT OF THE PATELLAR TENDON. PLEASE CORRELATE CLINICALLY. CONSIDER TIBIAL TUBEROSITY AVULSION FRACTURE VERSUS OSGOOD-SCHLATTER DISEASE. NONCONTRAST KNEE MRI OR CT MAY BE HELPFUL.

Disposition

D. F. requires an urgent inpatient pediatric orthopedic specialist consult and is transferred to Elmhurst Hospital via ambulance. Patient needs further diagnostic workup with an MRI with contrast to determine possible surgical or closed intervention to stabilize the Salter Harris IV fracture of the proximal tibia of the right leg and to rule out compartment syndrome.