



In each issue, *JUCM* will challenge your diagnostic acumen with a glimpse of x-rays, electrocardiograms, and photographs of conditions that real urgent care patients have presented with.

If you would like to submit a case for consideration, please email the relevant materials and presenting information to editor@jucm.com.

Hip Pain in an Adult After a Fall



Case

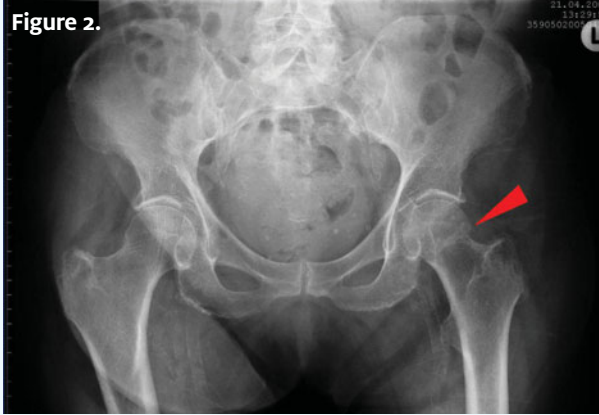
A 67-year-old woman presents to an urgent care center after 12 hours of pain in her right hip that began after she slipped in her kitchen and fell onto that hip. She reports that the pain is constant and worsens with walking. She has not experienced numbness in the hip, and she reports no other injuries. She has not sustained any head trauma, and she has no head or neck pain.

View the image taken (**Figure 1**) and consider what your diagnosis would be.

Resolution of the case is described on the next page.

THE RESOLUTION

Figure 2.

**Differential Diagnosis**

- Osteoporosis
- Inferior pubic rami fractures
- Intertrochanteric hip fracture
- Subcapital hip fracture
- Pathologic femur fracture

Physical Examination

On physical examination, the patient has a temperature of 98.8°F (37°C), a pulse of 112 beats/min, a respiration rate of 20 breaths/min, a blood pressure of 146/92 mm Hg, and an oxygen saturation of 99% on room air. She is alert and oriented and is not in acute distress. She has a regular heart rate and rhythm without murmur, rub, or gallop. Her abdomen has a normal appearance, has no surgical scars, and is soft and nontender without rigidity, rebound, or guarding. Palpation shows her pelvis to be stable, but she feels pain when her right hip is palpated, as well as pain on passive range of motion. She has no leg-length discrepancy.

Her medical history reveals that she has osteoporosis, hypertension, and acid reflux disease. She takes Fosamax (alendronate), hydrochlorothiazide, and omeprazole. She smokes cigarettes.

Diagnosis

An x-ray of the painful hip (**Figure 2**) is performed, and it shows a subcapital hip fracture (*arrowhead*).

Learnings

Fractures of the proximal femur account for 11.6% of all fractures in older adults (average age, 80.5 years) in the United States and occur in women three times as often as in men. Each year, more than 250,000 hip fractures occur, at a total annual cost of about \$8 billion. Plain radiographs are 90% sensitive for detecting hip fracture. With a typical mechanism of injury (a fall onto a hip), typical symptoms (hip pain worse with movement

through the range of motion), and typical examination findings (a shortened and externally rotated painful hip), the diagnosis is easy. However, with an impacted, nondisplaced, or stress fracture, a patient may still be able to ambulate, and the fracture may not be evident on plain x-rays. Hip fractures in patients with osteoporosis may not be visually detectable.

Explore causes for the fall that might be rectifiable, including

- Dementia
- Balance problems
- Difficulty with vision or hearing
- Alcohol or substance use
- Repeated falls
- Domestic abuse (elder abuse)
- Deconditioning

What to Look For

During the physical examination, check for the following:

- The patient's general appearance, position, and ability to ambulate
- Location of pain
- Exacerbators of pain such as movement through the range of motion
- Shortening of the affected leg
- External rotation and abduction
- Swelling over the hip
- Skin changes such as ecchymosis

The following diagnostic tests are appropriate.

- X-rays (plain film): approximately 90% of fractures will be evident on plain x-rays
- Computed tomography scans: more sensitive than plain x-rays for detecting hip fractures
- Magnetic resonance imaging: more sensitive than computed tomography and bone scans

Transfer the patient to an emergency department in the presence of the following:

- Diagnosed hip fracture
- Suspicion for hip fracture despite normal x-ray findings
- Concern that there is multi-trauma such as a closed-head injury, cervical spine fracture, or thoracoabdominal trauma
- Hemodynamic instability
- Inability to adequately assess the patient because of severe pain, altered mental status, or body habitus ■

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Heel and Ankle Pain in an Adult After a Jump from a Second-Floor Window

Figure 1.



Case

A 38-year-old man presents to an urgent care center and reports pain in his right heel and ankle that he describes as severe enough that he cannot walk on the foot. He says that the pain began the previous evening when he landed on the ground after jumping out of a second-floor window on a dare. He has some minimal paresthesia, but he has no fever, vomiting, head trauma, head or neck pain, or chest or abdominal pain.

View the image taken (**Figure 1**) and consider what your diagnosis would be.

Resolution of the case is described on the next page.

THE RESOLUTION

Figure 2.

**Differential Diagnosis**

- Cuboid fracture
- Osteolytic lesion
- Ankle dislocation
- Bimalleolar fracture
- Trimalleolar fracture

Physical Examination

On examination, the patient has a temperature of 98.8°F (37°C), a pulse rate of 112 beats/min, a respiration rate of 24 breaths/min, a blood pressure of 88/52 mm Hg, and an oxygen saturation of 99% on room air. He is alert and oriented and seems uncomfortable, and there is a wheelchair parked in the corner of the room. He has pain on palpation of his back at the midline. His medical history reveals no previous illnesses. He takes no prescription medications.

Diagnosis

An x-ray is obtained (**Figure 2**), and it shows a comminuted fracture (*arrow*) of the calcaneus.

Learnings

Calcaneus fractures account for 1.2% of all fractures in U.S. adults, and they occur most commonly in those who are about 40 years of age. Men are three times more likely than women to sustain such fractures. Most injuries (71%) occur from a fall from a height, usually over 6 feet (1.8 m). Fractures may be intra-articular (75%), which means that they involve the subtalar joint (more severe fractures with worse outcomes), or extra-articular (25%), which means that they do not involve the subtalar joint (and often have a favorable outcome).

What to Look For

During the medical history, check for the following items.

- **Onset—gradual versus sudden:** Most mechanisms will be a fall from height with sudden onset of pain.
- **Location:** These fractures are typically over the heel, but there may be referred pain, so even when there is a known mechanism of ankle strain, palpate the heel.
- **Duration:** Typically patients with these fractures seek immediate medical care, though if there are extenuating circumstances, such as substance use, assault, or physical abuse, the patient may delay seeking care.
- **Severity:** Pain is typically severe and increases with attempts to bear weight.
- **Other types of trauma:** Is there ankle, leg, or hip pain? Is there intra-abdominal, chest, neck, or head pain?
- **Social history:** Ask about the patient's occupation, ask whether there is alcohol or substance use, and consider assault as a cause.

The following diagnostic tests are appropriate.

- X-rays:
 - Obtain lateral and axial views, and consider an oblique view if an avulsion fracture is suspected.
 - X-rays are usually adequate for determining the severity of the deformity and assessing the prognosis.
- Computed tomography scans:
 - These are useful for fracture evaluation when findings are normal on plain x-rays.
 - These are helpful for defining the extent of the fracture to determine surgical indications and approach.
- Magnetic resonance imaging:
 - Use this modality to evaluate for stress fracture.
 - Use this modality to further define nonspecific computed tomography findings.

The following are indications for transferring the patient to an emergency department:

- An open fracture
- Severe pain
- Possibility of a compartment syndrome
- The presence of neurovascular compromise
- Fractures with dislocation
- Comorbid conditions such as coagulopathy, anticoagulant use, immunosuppression, and difficulty with baseline ambulation

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