



ORTHOPEDIC ISSUES IN FAMILY & EMERGENCY MEDICINE

Managing Common Fractures: The Heel

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Introduction

Physicians need skills in the diagnosis and management of commonly occurring injuries. In many places, subspecialist help is not available or affordable.¹ These basic skills reflect the reality of community medical practice for a variety of specialties staffing rural emergency rooms, primary care offices, and mission hospitals. For younger physicians, most academic medical centers teach a curriculum of “Refer to Ortho.” Hatch et al. have described the epidemiology of common fractures in the community.²

Many training programs have no incentive to install and maintain basic imaging equipment. Patients with possible fractures are triaged to the hospital before they receive any evaluation at the point of initial service. This is a lost opportunity for the development of these skills.

Most injuries require screening with imaging. When detected, most fractures can be managed conservatively while maintaining quality in the community. The trick is to find the fracture. Then physicians can start to develop the knowledge of selecting those cases that require surgery and conservatively managing the others.³⁻⁶ This series is dedicated to those physicians serving in areas where resources are scarce and the hours are long.

Case 1

A 54-year old male physician is observing a high school football game when he is called down to the field to evaluate a potential dislocated shoulder. In his enthusiasm he vaults the three-foot

fence onto the field. He fails to notice that the stadium floor is an additional six feet below and lands on both feet. Upon impact, he experiences a sharp pain in his left heel. With great pain and a limp, he walks across the field, evaluates the player, and returns to his seat.

The next morning he is in great pain, has difficulty putting his shoe on, and comes to the office for an x-ray. Prior to the x-ray, his past medical history is reviewed and found to be unremarkable. Upon examination, there is point tenderness on the lateral posterior edge of the foot. Swelling is difficult to assess, but the foot appears normal. There is a subcutaneous bruise along the lateral posterior edge of the foot.

An x-ray is taken. The image is available for review.



1. Which statement best describes what the x-ray reveals?

- A. There is a metatarsal fracture.
- B. There is a phalangeal fracture.
- C. There is a calcaneal fracture.
- D. There is an ankle fracture.

2. At this point, the best advice would be:

- A. Non-weight bearing with crutches for one to two days is advised.
- B. Immediate weight bearing will promote healing.
- C. Splinting would be helpful.
- D. A cast is indicated.

3. Regarding pain management in this case, which one of the following is most likely to manage the pain of this injury (check all that apply):

- A. Over-the-counter analgesics as needed.
- B. Tylenol 650 mg with Benadryl 25 mg every six hours.
- C. Hydrocodone 5mg with acetaminophen 500mg every eight hours.
- D. Demerol 100mg IM now.

The patient returns two weeks later for a follow-up visit. He has not taken any time off from work. He continues to have substantial but not disabling pain in the heel. He walks with a limp, and there is tenderness to palpation on the lateral posterior heel. A second radiographic image is obtained.

**4. At this point you conclude:**

- A. Callus formation is clearly visible at this point.
- B. The patient has a fracture without visible x-ray change over two weeks.
- C. CT or MRI would be helpful to make a more accurate diagnosis.

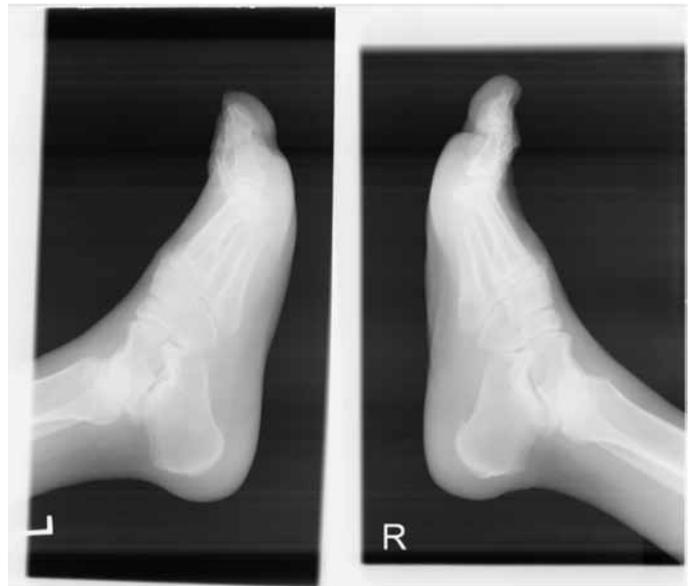
D. Bone scan to evaluate a stress fracture is indicated.

5. The patient asks how long he can expect to have the pain. Although he can work, he would like to take his son hunting, which requires considerable ambulation over rough terrain. You advise him:

- A. The pain, if no further injury, will be gone in a week.
- B. Chronic pain can be expected at the area of injury.
- C. He should be fit for hiking in three to five days.
- D. The pain, if no further injury, will gradually diminish over four to six weeks.

Case 2

A twenty-one year old gymnast lands on her right heel after a forceful dismount. She has a limp and heel pain. An image of the foot is obtained.

**6. You should conclude:**

- A. The patient has a fracture of the heel.
- B. Comparison views of both feet are not automatically necessary.
- C. Comparison views are distracting, and a new film should be taken.
- D. A bone scan to evaluate a stress fracture is indicated.

7. Management advice should include:

- A. Non-weight bearing crutches for two weeks.
- B. Return to gymnastic workouts tomorrow.
- C. Weight bearing as personal tolerance allows.
- D. Immediate weight bearing may lead to disability.

Answers and Explanations

1. The only observable fracture on this radiograph is mid-calcaneus. This fracture would fit in the category of extra-articular calcaneus fracture, which makes up about 30% of all calcaneus fractures.⁷ It is important to make sure that the fracture is not in one of the articular surfaces of the bone, because it typically has more complex management and poorer prognosis.⁸
Answer: C
2. This type of calcaneus fracture (extra-articular) has a good prognosis.⁹ Patients can temporarily ice and elevate the injured foot, and some may be able to bear weight within a few days after injury.^{8,10} However, immediate full weight-bearing or strenuous activity is not advised.
Answer: A
3. Simple anti-inflammatory medications are unlikely to be sufficient for this pain.
Answer: C
4. Again, the patient's mid-calcaneal fracture is visible on this radiographic image. It is common to see a therapeutic lag in time before the appearance of callus healing over a fracture. In this case the patient is dramatically improved from a clinical point of view, but the radiograph appears unchanged.
Answer: B
5. Each individual heals at his/her own pace. Age, personality characteristics, environment, and co-morbidities – all enter into the equation. Generally patients gradually perceive insignificant pain by six to eight weeks.
Answer: D
6. Taking comparative views of the foot can be helpful in accurately diagnosing the patient. In this case the patient has a minor bone spur on the inferior surface of one calcaneus. Although incorrectly presumed to be a source of pain, these bone spurs are almost always an incidental finding.
Answer: B
7. Conservative treatment is appropriate. It should be noted that a conservative strategy has been proven effective for the last 50 years in extra-articular calcaneus fractures. Although returning to strenuous activity immediately is not advised, many patients can tolerate bearing weight on the injured foot within a few days of injury.^{9,11}
Answer: C

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