SCREENING ANKLE FRACTURE CASES

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It is estimated that the frequency of ankle injuries in the United States is between 1 million and 10 million per year, with ankle fractures accounting for 15% of all injuries. Malleolar fractures account for 30% of all ankle fractures, with lateral malleoli fractures predominating. Medical malpractice claims are typically related to emergent care, and/ or operative care and follow-up. This article reviews the analysis of claims against the emergency department.

Background and Pathophysiology

Ankle joints are highly susceptible to injury because they are mobile and bear much of the stress associated with weight bearing. Four bones provide the joint framework: the distal tibia, distal fibula, talus, and calcaneus. The primary motion of the ankle at the tibiotalar junction is plantarflexion and dorsiflexion with inversion and eversion occurring at the subtalar joint located between the talus and calcaneus

The most common cause of ankle injury is excessive inversion stress. Eversion injury, although less common, frequently results in substantial damage to bony and ligamentous supporting structures and loss of joint stability.

Evaluating Emergency Room Care

Most ankle injuries are initially evaluated in the emergency room setting. It is imperative that the emergency room physician accurately diagnose and treat these injuries to avoid complications. Some complications of the undiagnosed and/or under treated ankle fracture include:

- Local infection including osteomyelitis and sepsis. Gas gangrene is the most serious infectious complication and can be life threatening.

- Vascular supply to the ankle and foot may become compromised by the development of a compartment syndrome or direct injury to blood vessels from bone fragments.

- Inadequate fracture reduction and/or fixation may lead to mechanical instability, chronic pain, and stiffness.

An ankle fracture commonly presents with symptoms similar to ankle sprain. Therefore, a thorough examination is required. If the patient presented with symptoms of gross deformity, perimalleolar swelling, bony tenderness, discoloration, or ecchymosis, examination should include inspection, palpation, passive and active range of motion, documentation of neurovascular status of the foot and ankle, and examination of a joint above and below the site of injury. Radiographs are ordered for patients with ***acute ankle pain in the ankle region plus one of the following:***

- Bony tenderness at the posterior edge or tip of the medial malleolus
- Bony tenderness at the posterior edge or tip of the lateral malleolus
- Inability to bear weight both immediately and in the Emergency Department

Indications for foot x-ray include ***pain in the midfoot region plus one of the following***:

- Bony tenderness at the base of the fifth metatarsal
- Bony tenderness over the navicular or cuboid
- Inability to bear weight both immediately and in the emergency department

3-view radiographic examinations including AP, lateral and mortisse views are standard. If the radiographic examination is negative, but high suspicion for fracture persists, the patient should have the extremity immobilized, be instructed to refrain from weight bearing activity, and receive a referral to an orthopedic surgeon for further evaluation.

Treatment of Confirmed Fractures
Simple, uncomplicated lateral malleolar fractures usually can be splinted in the emergency department. Orthopedic follow-up is ordered. Bimalleolar, trimalleolar, and pilon fractures require urgent orthopedic attention for possible open reduction and internal fixation (ORIF). Additional emergency room treatment may include:

- Covering wounds with a wet, sterile dressing secured by loosely wrapped dry sterile gauze to prevent further contamination of open fractures. Tetanus immunization should be confirmed.

- Antibiotic prophylaxis: cephalexin for mildly to moderately contaminated wounds and adding an aminoglycoside for highly contaminated wounds. Administer vancomycin and gentamicin when the patient is allergic to penicillin.

- Leave fracture blisters intact. Once ruptured, they are likely to become contaminated by skin flora.

- Unless neurovascular compromise exists, reduction is best deferred to the orthopedic consultant when an unstable ankle fracture is diagnosed. However, blood flow compromise may require the emergency room physician to perform an immediate reduction, in order to prevent further compromise.

- Liberal analgesics

- Splinting and casting as required.

Consultations
Orthopedist consultations are required for the following conditions:

Displaced medial, lateral, or posterior malleolar fracture; medial malleolar fracture with lateral ligament damage; lateral malleolar fracture with deltoid ligament damage; fibula

fracture at or proximal to tibiotalar joint line; all bimalleolar fractures; all trimalleolar fractures; all intraarticular fractures; all open fractures; all pilon fractures. Consult a vascular surgeon when vascular flow to the ankle or foot is compromised. In a fracture with vascular compromise, angiography may be necessary.

Legal Nurse Consultant Considerations

Did the emergency room physician perform a well-documented examination? Were radiographic examinations ordered if indicated? Were the films adequate? Was there a real-time radiographic consultation, if required? If there was high suspicion for a fracture despite negative x-rays, did the physician splint the extremity, have the patient refrain from weight bearing, and arrange a timely orthopedic referral? In the case of open fracture, were appropriate orthopedic referrals made? Was the wound appropriately treated to prevent further contamination? Was the tetanus status checked? Were appropriate antibiotics ordered and administered? Was neurovascular compromise assessed and appropriate treatment provided? Remember, immediate reduction of the ankle is required by the emergency room physician in the presence of compromised blood flow to the area. Did the physician provide appropriate after-care and discharge instructions to the patient? Was splint care detailed in writing? Were after-care symptoms that warranted immediate physician notification listed in writing?

Summary

The legal nurse consultant provides important initial screening for ankle fracture cases. Understanding ankle pathophysiology, mechanism of injury and accepted treatment protocols is essential to efficiently process these cases and recommend further development as warranted.

Causes of malpractice claims include ***inadequate exams, acceptance of inadequate films, lack of real-time radiology consultation, failure to promptly treat or consult when evidence of vascular compromise exists, failure to explain limits of initial radiographic interpretation, failure to immobilize and prevent further injury, and failure to arrange follow-up care***.

Ankle fracture cases that have been properly diagnosed and treated in the emergency room may warrant additional analysis. Many claims arise from the treatment rendered by orthopedic surgeons in the operating room. Our next article will discuss common operative complications and specific areas that legal nurse consultants should analyze to determine merit for these claims.

References

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