

Orthopedic Pearls and Pitfalls



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KEYWORDS

- Orthopedic emergencies • Compartment syndrome • Septic arthritis • Fractures • Dislocations

KEY POINTS

- Orthopedic emergencies generate a significant number of visits to emergency departments and are a common source of malpractice claims.
- Prompt identification of orthopedic injuries and illnesses requiring urgent intervention and referral is a key factor in executing proper management.
- Septic arthritis is a crucial diagnostic consideration in the setting of acute joint pain due to potential for rapid joint destruction, resultant permanent function loss, and associated systemic illness.
- Known or suspected compartment syndrome requires urgent orthopedic consultation to prevent permanent tissue damage and/or muscle contracture.

INTRODUCTION

Orthopedic-related injuries and illnesses are commonplace in the emergency department (ED). Orthopedic injuries (especially undiagnosed/missed fractures) are a leading cause of ED malpractice claims and dollars paid.¹⁻³ Although many orthopedic injuries and illnesses are effectively treated by ED staff without orthopedic specialty consultation, prompt and accurate recognition of conditions requiring specialty intervention remains a vital emergency clinician skill. This article's intent is to provide emergency clinicians a cognitive framework of how to best approach the evaluation of potential orthopedic emergencies and to briefly review several critical orthopedic emergencies encountered in the ED. As a result, it is the authors' intent to assist their colleagues in avoiding pitfalls when diagnosing and managing these high-risk emergencies.

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The views expressed are those of the authors and do not reflect the official policy or position of the US Army Medical Department, Department of the Army, Department of Defense or the U.S. Government.

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EVALUATION CONSIDERATIONS

History

As with all emergency cases, a detailed patient history regarding the orthopedic complaint is crucial in achieving an accurate diagnosis. Specifically, ED clinicians must elicit a precise mechanism of injury (whenever possible). The mechanism of injury provides the clinician essential injury severity clues as well as clues for potential underlying or associated injuries.

A general medical history remains imperative as well as a thorough review of systems. Clinicians should specifically inquire of systemic symptoms such as fever in the setting of potential infectious orthopedic emergencies as well as function of affected anatomic regions. Functional assessment questions include signs and symptoms related to range of motion (ROM), resistance/strength, ambulation, weight-bearing, and associated neurologic dysfunction. The patient's past medical history is completed with a baseline functional status, previous injuries/surgeries/therapies and vaccinations, and pertinent family, social, and travel history. The review of systems includes comorbidity inquires, to include coagulopathies, autoimmune disorders, and immunocompromised states.

Physical Examination

A thorough physical examination includes, but is not limited to, the following components.

Inspection

Inspection includes observing for antalgic gait and the presence of the patient's reluctance or compensation in using the affected limb/area. The affected area is completely exposed and inspected for gross deformities, overlying skin lesions, ecchymosis, and overall skin integrity. Visual comparison to the contralateral side, when possible, is recommended.

Neurovascular function

Vascular status is assessed early by palpating correlating vessels and capillary refill. Neurologic evaluation includes associated, bilateral sensory and motor function, to include 2-point discrimination, deep tendon reflexes, and strength.

Palpation

Palpation is performed systematically, with the clinician specifically noting areas of induration, edema, crepitus, bony step-off, skin temperature if concern for infection or vascular compromise, and areas of maximal tenderness. The area of concern/maximal pain is best palpated last to avoid the patient limiting further examination.

Range of motion

The clinician and patient range the joints both proximal and distal to the affected area. Acutely diminished ROM or pain with axial load should increase clinical suspicion of acute bony/orthopedic injury. High-yield functional tests specific to the injured anatomic region may be appropriate.

CONSULTATION CONSIDERATIONS

Urgent orthopedic consultation in the ED is generally indicated in the following circumstances.

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