

Block 2 CAT
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BLUF: The data suggest that ED imaging of patients presenting with nontraumatic pain is of extremely low yield, resulting in few acute positive findings that require immediate attention in the ED.

Objective: The authors hypothesized that plain radiographs performed for a complaint of pain in the absence of trauma or signs and symptoms of infection were of low yield.

Background: Few data exist that correlate acute radiographic findings of extremity imaging with patients' complaints in the acute care setting.

Methods: The authors retrospectively analyzed the imaging and charts of 1331 patients who presented to the emergency department and received extremity radiographs with complaints related to limb trauma, infection, and pain alone. Imaging and outcomes of cases interpreted as positive for acute pathology and those interpreted as indeterminate were analyzed using Fisher's exact tests to evaluate the value of extremity radiographs in the setting of isolated limb pain.

Results: Of the patients analyzed, 935 presented with trauma, 234 presented with nontraumatic pain, and 161 presented with signs or symptoms of infection. The rate of definitively positive cases was 30.6% for trauma, 20.6% for infection, and 1.3% for pain. When indeterminate cases were included in the analysis, the rate of acutely positive cases rose to 33.4% for trauma, 28.0% for infection, and 3.0% for pain. Among the three definitively positive pain cases, all three were fractures, none of which resulted in emergent surgery or orthopedic consults. Among the four indeterminately positive pain cases, three proved to be false positives.

Discussion: In this study, > 30% of patients imaged in the emergency setting with a complaint of trauma to the extremity and close to 22% of those imaged with a complaint pertaining to infection showed acute radiographic findings. On the other hand, approximately 1% of those imaged for pain in the extremity without a history of trauma or infection showed acute findings. This study was retrospective, limited to a single hospital system and restricted to patients in the ED. Further studies need to be performed to evaluate the utility of extremity radiographs for nontraumatic complaints of pain in other settings. Reduction in imaging in patients with a complaint of pain alone could avoid many unnecessary radiographs, decreasing both economic cost and exposure of patients to ionizing radiation. However, in a medical environment in which the expectation is perfection a medical malpractice suit could arise in the minority of missed fractures.
