Evaluation and Treatment of Acute Back Pain in the Emergency Department

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KEYWORDS

• Back pain • Epidural compression • Epidural abscess • Herniated disc
• Vertebral osteomyelitis

KEY POINTS

- Back pain is a common presenting complaint in the emergency department (ED).
- Most patients have a benign etiology for their symptoms, requiring only a red flag focused history and physical examination without any diagnostic testing or imaging.
- Most patients with a herniated disc do not require emergent imaging in the ED.
- Suspected spinal infection and epidural compression syndromes are emergent conditions that require imaging with MRI in the ED.

INTRODUCTION: NATURE OF THE PROBLEM

Low back pain is a significant problem that has an annual incidence of 5% and affects up to 90% of the population at some point in their lives. It is the fifth most common cause for physician visits and accounts for approximately 3% of emergency department (ED) visits in the United States.[1–4] Approximately 30% of patients who present to the ED with back pain undergo diagnostic imaging with plain radiography; 10% undergo CT (Computed Tomography) or MRI.[5] Low back pain is the most common cause of work-related disability in persons younger than 45 years and the second most common cause of temporary disability for all ages. Approximately 2% of the US work force is compensated for back pain annually.

Most studies show that up to 85% to 90% of patients with acute low back pain resolve their symptoms in 4 to 6 weeks without any clear cause determined for their symptoms.[1–3,6] Because it is such a common complaint with a benign outcome for most, the provider can be lulled into a false sense of security and potentially miss clues to more serious disease that can have significant morbidity and mortality. To help

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prevent this, the provider should approach every patient with a complaint of back pain systematically, with a focus on "red flags" in the history and physical examination that are markers for more serious disease, and use the presence or absence of these to drive the diagnostic and treatment plan.

The "red flags" of back pain are important historical and physical features that point to potentially dangerous conditions. Identification of a red flag warrants close attention and potentially further evaluation with diagnostic testing. These red flags were defined in a set of guidelines on acute low back pain published by the Agency for Health Care Policy and Research.[6]

PATIENT HISTORY

A focused history is the most critical tool for identifying risk factors for serious disease in a patient who presents with low back pain. Directing the history toward the red flags allows for an efficient, cost-effective assessment (Table 1).

Duration of Symptoms

- Low back pain falls into 3 categories based on duration:
  - *Acute pain* lasts less than 6 weeks;
  - *Subacute pain* continues for 6 to 12 weeks; and
  - *Chronic pain* persists for longer than 12 weeks.
- Pain lasting longer than 6 weeks is a red flag because 80% to 90% of episodes have resolved by that time.

Table 1
Clues in the history that raise a "red flag" in the evaluation of low back pain

Red Flags	Possible Cause
Duration >6 wk	Tumor, infection, rheumatologic
Age <18 y	Congenital defect, tumor, infection, spondylolysis, spondylolisthesis
Age >50 y	Tumor, infection, intra-abdominal process (abdominal aortic aneurysm, pancreatitis, kidney stone)
Major trauma, or minor trauma in elderly	Fracture
Cancer	Tumor
Fever, chills, night sweats	Tumor, infection
Weight loss	Tumor, infection
Injection drug use	Infection
Immunocompromised status	Infection
Recent genitourinary or gastrointestinal procedure	Infection
Night pain	Tumor, infection
Unremitting pain	Tumor, infection
Pain worsened by coughing, sitting, or Valsalva maneuver	Herniated disc
Pain radiating below knee	Herniated disc or nerve root compression below the L3 nerve root
Incontinence	Epidural compression syndrome
Saddle anesthesia	Epidural compression syndrome
Severe or rapidly progressive neurologic deficit	Epidural compression syndrome