

An Urgent Care Approach to Low Back Pain

Urgent message: To better evaluate and treat patients with low back pain, urgent care providers need a good understanding of the anatomy of the back and they must be vigilant for “red flags” that signal a potentially serious condition.

SHAILENDRA K. SAXENA, MD, PHD, MIKAYLA SPANGLER, PHARM D, BCPS, and SANJEEV K. SHARMA, MD, MBA

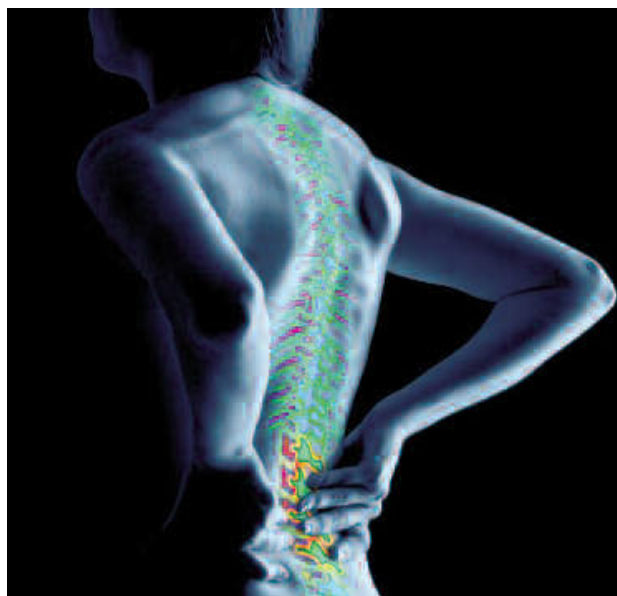
Introduction

Acute low back pain is a common condition often seen by urgent care providers. An episode of acute low back pain is usually of short duration and many patients will recover without any therapeutic intervention. The challenge for a provider is to manage low back pain effectively while limiting diagnostic evaluations and providing adequate conservative treatment. At the same time the provider needs to be vigilant about red flags associated with low back pain that may require further work up and referral to a spine specialist. This article is a comprehensive review of evaluation and treatment of low back pain and red flags associated with it. It should be noted that red flags may not necessarily indicate serious pathology, but providers should rely on a comprehensive clinical approach to evaluation of the condition.

Incidence and Anatomy of Low Back Pain

Lifetime prevalence of low back pain is as high as 84%, and it is reported to be the second most common reason for office visits in the United States.¹ Most patients are likely to experience one episode of low back pain

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Shailendra K. Saxena is an Associate Professor in the Department of Family Medicine, Creighton University School of Medicine, Omaha, NE. **Mikayla Spangler** is an Assistant Professor in the Creighton University School of Pharmacy and Health Professions and School of Medicine, Department of Family Medicine. **Sanjeev K. Sharma** is an Associate Professor in the Department of Family Medicine at Creighton University School of Medicine.



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during their adult lives.² It can affect individuals at any age, but it is most often seen between ages 20 and 40, with an equal gender distribution.²

The anatomy of the back is complex. To understand the pathophysiology of low back pain, a thorough knowledge of the anatomy is necessary.

A typical vertebra consists of a vertebral body, a vertebral arch and seven processes (a spinous process, two transverse processes and four articular pillars).³ The

Table 1 . Signs Associated with Systemic Disease
History of cancer
Age >50 years
Unexplained weight loss
Pain duration >1 month
Nighttime pain
Pain unresponsive to previous therapies
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Table 2. Social and Psychological Stresses Leading to Low Back Pain ⁵
Anxiety
Depression
Job dissatisfaction
Somatization disorder
Low educational attainment
Psychologically strenuous work

Table 3. Red Flags to Recognize in Patients with Low Back Pain ⁶
Recent trauma
Unexplained weight loss
Unexplained fever
Immunosuppression
History of cancer
IV drug use
Osteoporosis, prolonged use of glucocorticoids
Age >70 years
Focal neurologic deficit or disabling symptoms
Pain duration >6 weeks
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intervertebral disc is interposed between the vertebral bodies. The outer ring of the disc is fibrocartilage (annulus fibrosus) while the central core is fleshy (nucleus pulposus). Herniation or protrusion of the nucleus pulposus into or through the annulus fibrosus and compressing the nerve roots is a well-recognized cause of low back pain (Sciatica). The laminae of adjacent vertebral arches are joined by the yellow ligament, the ligamen-

tum flavum, which assists with straightening of the vertebral column after flexing. Hypertrophy of the ligamentum flavum is another common cause of low back pain (lumbar stenosis).

Several ligaments and extrinsic and intrinsic back muscles are attached to the spinous and transverse processes. They are necessary to support and move the vertebral column. Minor sprains of these ligaments and muscles are also a common cause of low back pain (muscle sprain). The spinal nerve roots of the lumbar and sacral spinal nerves are the longest and descend in the lumbar cisterns before exiting through the intervertebral foramina. Compression of these nerve roots may cause low back pain and saddle anesthesia in the perineum (Cauda Equina Syndrome).

Preparation for Clinical Evaluation

Acute low back pain often is non-specific but urgent care providers should nonetheless be prepared to take a detailed history aimed at identifying specific causes, especially those associated with systemic and anatomical pathology. They should look specifically for signs and symptoms associated with systemic diseases (Table 1), social and psychological stresses (Table 2), and risk factors that may be contributing to a patient's low back pain. In addition, red flags (Table 3) that may be indicative of a serious cause of low back pain also should be evaluated.

Evaluation of Symptoms and Correlation with Anatomy

Patient evaluation begins with characterization of the pain (Table 4) to establish the diagnosis. It should be noted that before presenting in the urgent care setting, many patients will have already tried non-steroidal anti-inflammatory (NSAID) medications and heat or cold packs. Patients often report pain radiating to the leg (radiculopathy) but pain radiating below the knee is a more important sign of true radiculopathy than that radiating to the thigh.⁷

Physical Examination

Physical examination of the back should be an important part in the evaluation of low back pain. Inspection of the back should be done to look for rash (Herpes Zoster), scoliosis or asymmetry of muscle mass and tone (muscle spasm). It may be possible to elicit point tenderness (compression fracture) or costovertebral angle tenderness (urinary tract infection/pyelonephritis). Most patients may be unable to perform movements of the spine. Attempts should be made, however, to check spinal movement

Table 4. Characterization of Low Back Pain
Is it gradual or sudden?
What is the duration of pain?
What is the severity of the pain?
Where does it hurt?
When does it hurt?
How does activity affect the pain?
Does the pain radiate?
What relieves the pain?
Is pain associated with a rash?

Table 5. Differential Diagnosis as per Pain History	
<ul style="list-style-type: none"> Dull or sharp shooting lower back pain Symptoms worsen when patient sits or stands for extended periods Pain increases with coughing or sneezing Pain radiates down the leg Pain increases with forward flexion of the spine Leg pain is greater than back pain Usually unilateral 	Herniated Disc
<ul style="list-style-type: none"> Dull, aching lower back pain Pain increases with standing and walking Pain improves with rest and forward flexion of spine Pain may be unilateral or bilateral 	Spinal stenosis
<ul style="list-style-type: none"> Diffuse back pain with or without buttock pain Pain increases with movement Pain improves with rest Pain does not radiate to leg 	Lumbar strain/sprain (muscular)
<ul style="list-style-type: none"> Diffuse lower back pain Bladder or bowel incontinence Urinary retention Saddle anesthesia Progressive motor or sensory loss 	Cauda Equina Syndrome
<ul style="list-style-type: none"> History of trauma or osteoporosis Point tenderness Pain increases with flexion of spine Pain increases with change in posture from supine to sitting or from sitting to standing position 	Compression fracture
<ul style="list-style-type: none"> Gradual onset of low back pain in early adolescents Pain located at the center of the spine Pain increases with backward bending (extension) and remits with rest Pain may extend into the buttocks and posterior thigh 	Spondylolisthesis/spondylolysis/spondylosis

(whatever possible) to determine whether pain is related to vertebral discs (pain in forward movement), spinal stenosis (pain in backward movement) or related to mus-

Table 6. Signs and Symptoms of Nerve Root Compression	
L3 and L4	<ul style="list-style-type: none"> Decreased strength in quadriceps (unable to perform extension at the knee) Unable to squat and rise Diminished knee jerk Numbness (dysesthesias) over thigh/knee
L5	<ul style="list-style-type: none"> Decreased strength in extensor hallucis longus muscle Inability to do heel walking Inability to do dorsiflexion of great toe and foot Numbness over big toe and medial foot
S1	<ul style="list-style-type: none"> Decreased strength in toe flexors Inability to do plantar flexion of great toe and foot Inability to walk on toes Numbness over fifth toe and lateral foot Diminished ankle jerk
S2-S4 (Cauda Equina)	<ul style="list-style-type: none"> Progressive motor or sensory deficit New onset bowel and bladder dysfunction Numbness over perineum (saddle dysesthesia) Loss of anal sphincter tone

Table 7. Laboratory Tests to Consider in Evaluation of Low Back Pain*
Erythrocyte sedimentation rate
C-reactive protein
White blood cell count*
*Use these blood tests only when the history and physical exam indicate the potential for an infectious, autoimmune, or systemic cause.

cle spasm (pain in all movements).

A straight-leg raise (SLR) test—also known as Lasegue’s sign/test—should be performed to determine whether disc herniation is the cause of low back pain. With the patient supine position on the table and the uninvolved knee bent to 45°, the provider should hold the involved leg straight, hold the heel with the other hand in the dorsiflexed position, and gently raise the leg. The SLR test is positive if the patient has pain in the distal leg with leg elevation between 30° and 70°. A crossed SLR also should be performed. The test is positive when the physician lifts the unaffected leg and the patient has pain that radiates below the knee in the affected leg.² All efforts should be made to determine the site of nerve root compression in the lumbar area (Table 6). However, it should be noted that the value of these tests declines with advancing age.

Laboratory and Radiographic Testing

Patients with low back pain of less than 6 weeks’ duration should be treated conservatively unless red flags are present.⁶ Imaging is not warranted for most patients with acute

low back pain. Without signs and symptoms indicating a serious underlying condition, imaging does not improve clinical outcomes in these patients. For even patients with a few of the weaker red flags, 4 to 6 weeks of treatment is appropriate before imaging studies are considered. Several laboratory studies and radiographic tests, however, can be used to evaluate low back pain. Tables 7 and 8 list these studies and tests but urgent care providers are advised to consult published guidelines to determine when they are appropriate for a particular patient.^{8,9}

Management

Numerous treatments have been recommended for acute low back pain. Each has its own merits and demerits. It is, however, good news for urgent care providers to know that the prognosis for acute low back pain is excellent and up to 90% of patients will improve on their own.⁹ Treatment protocols for acute low back pain are summarized in Table 9.

Discussion

Acute low back pain that is uncomplicated (i.e., no red flags)

Table 8. Considerations for Radiographic Testing in Low Back Pain

Plain x-rays	<ul style="list-style-type: none"> Used to evaluate for fracture, malignancy, degenerative changes, disc space narrowing and prior surgery Usually has little diagnostic value because of its low sensitivity and specificity
Magnetic resonance imaging (MRI)	<ul style="list-style-type: none"> Without contrast is recommended Used to evaluate disc herniation, spinal stenosis, osteomyelitis, spinal epidural abscess, bone metastases and neural tube defects Clinical correlation of MRI findings is essential because the likelihood of false-positive results increases with age
Computed tomography (CT) scan	<ul style="list-style-type: none"> CT is superior to MRI for detection of bony abnormalities, fractures, abnormal facet joints, degenerative changes, and congenital abnormalities CT is also superior to plain x-rays to detect changes in sacroiliac joints of ankylosing spondylitis
Myelogram	<ul style="list-style-type: none"> Not routinely recommended Used to evaluate multiple disc abnormalities, multilevel radiculopathies or previous lumbar surgery

is a self-limiting condition that does not require imaging or laboratory studies. In our opinion, urgent care providers



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Table 9. Treatment of Acute Low Back Pain	
Bed rest and modification of physical activities	<ul style="list-style-type: none"> • Bed rest used to be the standard of care for acute low back pain. Early ambulation, modification of physical activities, and return to normal activities are now known to produce better outcomes.¹⁰ • Return to work recommendations should be individualized.¹⁰
NSAIDs	<ul style="list-style-type: none"> • Symptoms of low back pain were improved with NSAIDs compared to placebo after 1 week.¹¹ • Recommended for 2-4 weeks • Physicians should be aware of the nephrotoxicity and GI toxicity associated with NSAIDs¹¹
Muscle relaxants	<ul style="list-style-type: none"> • Muscle relaxants are more effective than placebo.¹² • A combination of a muscle relaxant and an NSAID provides effective symptom control • Muscle relaxants are associated with dizziness and sedation.¹² • Muscle relaxants may be abused.
Opioids	<ul style="list-style-type: none"> • Misuse and abuse are common with opiates.¹³ • Use should be short term and based on clinical judgment. • Opioids may only be used at bedtime to limit side effects.
Glucocorticoids	<ul style="list-style-type: none"> • A short course of oral corticosteroids has not been shown to benefit patients with radicular leg pain.¹⁴ • A bolus dose of intravenous methylprednisolone has shown transient pain reduction with radicular leg pain.¹⁵ • The American College of Physicians and the American Pain Society do not recommend the use of systemic glucocorticoids because of the lack of significant benefit over placebo.¹⁶
Exercise and physical therapy	<ul style="list-style-type: none"> • Results are conflicting regarding the significance of early physical therapy.¹⁷ • Exercise and physical therapy may help to prevent recurrence of low back pain.
Cold and heat	<ul style="list-style-type: none"> • There is no evidence that cold or heat benefits low back pain¹⁸
Patient education	<ul style="list-style-type: none"> • Patient education is necessary and important in improving outcomes.

need a good understanding of the anatomy of the back to better evaluate and treat patients with acute low back pain. They should also be vigilant to note red flags associated with a patient's low back pain.

Besides the treatments mentioned in table 10, many other strategies have been recommended for acute low back pain. These include spinal manipulation, massage and yoga, acupuncture, traction, and braces.¹⁹ Unfortunately, none of these has been shown to improve back pain significantly over placebo. Epidural steroid injections also have been used to treat low back pain but. However, they have only been shown to improve symptoms for a short duration and have not been shown to be more effective than systemic corticosteroids.^{20,21} In conclusion, it appears that short-term treatment with nonsteroidal anti-inflammatory drugs with or without muscle relaxants and patient education are key in the management of acute low back pain in urgent care. ■

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