



Chapter 35 – Back Pain

Episode overview:

- 1) List 10 historical red flags for back pain
- 2) List 6 Emergent Diagnosis for back pain

Wisecracks:

- 1) Describe the most common sites of disc protrusion with their associated neurologic findings
- 2) Outline your approach to acute undifferentiated back pain
- 3) Describe your treatment approach for acute musculoskeletal low back pain

Red flags on History and Physical Exam

- **History**
 - Fracture risks:
 - Trauma history
 - Prolonged steroid use
 - Frail, old, osteoporotic, over 70 years with or without MINOR trauma
 - Smoking guns (historical)
 - Syncope
 - Children
 - Acute onset with flank, testicular, or abdominal/back pain
 - Diaphoresis
 - Neurological deficits
 - Cancer risks:
 - Cancer history, weight loss, constitutional symptoms
 - Worse at night or at REST
 - Infection risks
 - Immunocompromised, IVDU
 - FEVER
- **Physical exam**
 - **Vitals**
 - Hypo or hypertension, tachycardia, fever
 - Unequal blood pressures in extremities
 - **Stethoscope**
 - Aortic insufficiency murmur - diastolic
 - **Palpation**
 - **Circulatory** compromise in lower extremities or pulse deficits
 - Pulsatile abdominal mass



- Focal bony tenderness
- **Neurological exam**
 - Urinary retention
 - Loss of rectal sphincter tone (incontinence)
 - Focal lower extremity weakness

Box 35-2 Important Elements of History and Physical Examination

Historical Information

- Recent significant trauma
- Recent mild trauma in patients older than 50 years
- History of prolonged steroid use
- History of osteoporosis
- Patients older than 70 years
- Children without clear mechanism
- Syncope
- Acute onset of back, flank, or testicular pain
- Diaphoresis or nausea associated with pain
- History of cancer
- Low back pain worse at rest or night pain
- Unexplained weight loss
- Recent bacterial infection
- Unexplained fever $>38^{\circ}\text{C}$ ($>100^{\circ}\text{F}$)
- Intravenous drug use
- Immunocompromised status
- Failure to improve after 6 weeks of conservative therapy

Physical Examination

- Abnormal vital signs—hypotension, hypertension, tachycardia, fever
- Unequal blood pressure readings in the upper extremities
- Murmur of aortic insufficiency
- Pulse deficit or circulatory compromise of the lower extremities
- Pulsatile abdominal mass
- Urinary retention, loss of rectal sphincter tone
- Focal lower extremity weakness
- Focal back pain with fever

2) 6 emergent causes of back pain:

See box 35-1 in Rosen's (listed below)

Emergent causes of back pain:

1. Aortic dissection
2. Cauda equina syndrome
3. Epidural abscess / HEMATOMA
4. Meningitis
5. Ruptured or expanding abdominal aortic aneurysm
6. Spinal fracture with subluxation causing CORD or ROOT impingement



Box 35-1 Differential Considerations in Acute Low Back Pain

Emergent

- Aortic dissection
- Cauda equina syndrome
- Epidural abscess or hematoma
- Meningitis
- Ruptured or expanding aortic aneurysm
- Spinal fracture or subluxation with cord or root impingement

Urgent

- Back pain with neurologic deficits
- Disk herniation causing neurologic compromise
- Malignancy
- Sciatica with motor nerve root compression
- Spinal fractures without cord impingement
- Spinal stenosis
- Transverse myelitis
- Vertebral osteomyelitis

Common or Stable

- Acute ligamentous injury
- Acute muscle strain
- Ankylosing spondylitis
- Degenerative joint disease
- Herpes zoster
- Intervertebral disk disease without impingement
- Pathologic fracture without impingement
- Seropositive arthritis
- Spondylolisthesis

Referred or Visceral

- Cholecystitis or biliary colic
- Esophageal disease
- Nephrolithiasis
- Ovarian torsion, mass, or tumor
- Pancreatitis
- Peptic ulcer disease
- Pelvic inflammatory disease, endometriosis
- Pleural effusion
- Pneumonia
- Prostatitis
- Pulmonary embolism
- Pyelonephritis
- Retroperitoneal hemorrhage or tumor



Wisecracks:

- 1) Describe the most common sites of disc protrusion with their associated neurologic findings
- 2) Outline your approach to acute undifferentiated back pain
- 3) Describe your treatment approach for acute musculoskeletal low back pain

1) Disc protrusion and signs:

Pathophysiology

- Systems involved:
 - Vascular
 - Visceral
 - Infectious
 - Mechanical
 - Rheumatologic
- Anatomy to think through: spinal column, cord, root, muscles,
 - Spinal cord ends at L1

Disc herniation:

Normally the nucleus pulposus (gelatinous) is enclosed by the annulus fibrosus. With aging the annulus thins posteriorly which can lead to HERNIATION.

- **Protrusion -- extrusion -- sequestration**
- 95% of herniation occur at L4-S1 spaces - with associated radicular symptoms
 - L5: decreased sensation to first webspace in foot
 - Weak extension of the great toe and **NORMAL** reflexes
 - S1
 - Decreased sensation to lateral foot and small toe
 - Weak plantar flexion and +/- ankle jerk reflex loss
 - Disk extrusion - is usually symptomatic, the others usually are NOT
- $\frac{2}{3}$ resolve in 6 months on MRI
- 75% of people's symptoms improve in 6 weeks
- If spinal stenosis, it *worsens* over time
- Imaging is **NOT** indicated unless cauda equina suspected / other risks / long course
 - Compression above L1 = UMN findings
 - Compression below L1 = LMN findings



2) Outline your approach to acute undifferentiated back pain

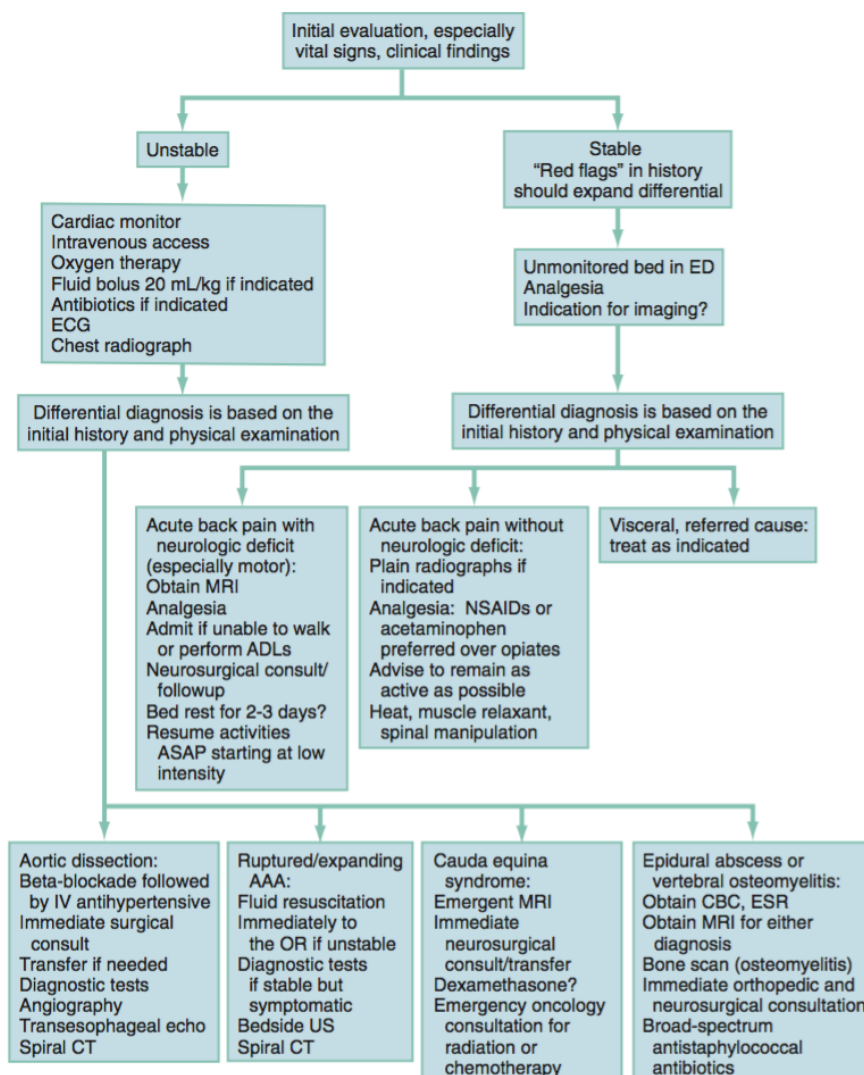


Figure 35-1. Management of acute low back pain. AAA, abdominal aortic aneurysm; ADLs, activities of daily living; ASAP, as soon as possible; CBC, complete blood count; CT, computed tomography; ECG, electrocardiogram; echo, echocardiogram; ED, emergency department; ESR, erythrocyte sedimentation rate; IV, intravenous; MRI, magnetic resonance imaging; NSAIDs, nonsteroidal anti-inflammatory drugs; US, ultrasound.

3) Describe your treatment approach for acute musculoskeletal low back pain

Empirical management

- Depends on presenting vital signs and degree of illness - see fig 35-2
 - If unstable: based on fig 35-1
 - If stable:
 - Severe pain:
 - IV narcotics
 - With transition to PO narcotics
 - Moderate pain
 - Tylenol and advil



- NSAIDS are NOT superior to tylenol and risks must be considered (patient factors!)

- Benzo's:
 - “Anxiolytic and sedative properties may promote sleep and synergize pain relief...”
 - But dangerous
- Muscle relaxants:
 - NO credible evidence supporting muscle relaxants or antispasmodic agents
 - Methocarbamol or cyclobenzaprine
- Heat, spinal therapy, acupuncture, TENS
- Other therapies through family doctor:
 - Gabapentin, TCAs, injections
- NEED a multidisciplinary approach to acute on chronic spells of back pain!