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

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2) **6 emergent causes of back pain:**

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

<table>
<thead>
<tr>
<th>Emergent causes of back pain:</th>
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<tbody>
<tr>
<td>1. Aortic dissection</td>
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<td>2. Cauda equina syndrome</td>
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<tr>
<td>3. Epidural abscess / HEMATOMA</td>
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<td>4. Meningitis</td>
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<tr>
<td>5. Ruptured or expanding abdominal aortic aneurysm</td>
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<tr>
<td>6. Spinal fracture <strong>with</strong> subluxation causing CORD or ROOT impingement</td>
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</tbody>
</table>
**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
- ⅔ 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

Empirical management
- Depends on presenting vitals 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

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

Empirical management
- Depends on presenting vitals 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!