

NPAM Conference

Back Exam Workshop (Student Handout)

Goals

- Learn how to perform a history and physical exam on a patient with acute back pain
- Review cases to demonstrate common presentations of low back pain in primary care

Anatomy review

Relationship of vertebrae to:

- Each other- at vertebral bodies, neural foramina, facet joints
- Spinal cord
- Intervertebral discs
- Lower extremity dermatomes
- Sacroiliac joints
- Paraspinal muscles

History

1. Rule out "red flags" for serious conditions:

Fracture:

Major trauma (or minor trauma in elderly patient)

Tumor or Infection:

- History of cancer
- Constitutional symptoms (fever, chills, weight loss)
- Age over 50 or under 20
- Recent UTI, or immune suppression

Pain that worsens at night or in supine position

Neurologic compromise: cauda equina syndrome (compression of sacral roots)

- Saddle anesthesia (buttocks, posterior thighs, perineum)
- Onset of bladder dysfunction (retention, overflow incontinence)
- Progressive lower extremity neurologic deficit

IV drug use

2. Attempt to diagnose the problem

Precipitates or Palliates pain: flexion, extension, sitting, walking

Quality of pain

Region and Radiation: back, buttock, leg?

Severity: how does it limit activity

Temporal qualities: onset/duration sudden, gradual? What was patient doing at time of onset/injury? History of intermittent pain in past?

Physical Exam

1. Rule out potentially serious conditions

General observation: limping, coordination problems, severe guarding

Regional back exam: vertebral point tenderness (not a very specific finding)

Neurologic screening:

Test muscle strength, reflexes, sensation

Concerning findings:

Decreased perineal sensation and anal tone:

Cauda Equina syndrome

Inability to walk on heels or toes:

Lumbar nerve root

compromise

(see figure on page 3 for quick guide to lumbar nerve root tests)

Tests for sciatic nerve tension:

Straight Leg Raise (**SLR**) (best for L5-S1)

Passive leg raise, positive test is sciatic pain at 30-70°

Dorsiflexion of foot may aggravate

Ipsilateral findings: 80% sensitive, 40% specific

Contralateral: 25% sensitive, 75% specific

Femoral Stretch Test (better for L2-4)

Flex knee with patient prone, or extend hip with straight knee

Positive test is sciatic pain in distribution on anterior thigh

2. Attempt to diagnose the problem

Other maneuvers which may be helpful:

Back range of motion

Repetitive flexion/extension

Palpation of paraspinal muscles and SI joint

SI joint maneuvers, that bring on pain over the SI area:

SI compression test: pelvic compression while pt on side

Flexion, **A**Bduction, **E**xternal **R**otation of hip (FABER)

Posterior shear stress: flex knee, hip 90° while supine,

Push from knee along axis of femur down toward table

3. One possible exam sequence:

Standing

Inspection:

- Watch gait
- Walk on heels, then walk on toes
- Range of motion

Palpation:

- Spinous processes
- Paraspinal muscles
- SI joint

Seated

Inspection:

- Watch patient get on exam table

Neurologic screening:

Sensation

- L4 Distal thigh
- L5 Lateral calf
- S1 Posterior calf, lateral foot

Reflexes

- L4 Patellar
- S1 Achilles

Strength

- L4 Quadriceps extension
- L5 Dorsiflexion of great toe and foot
- S1 Plantar flexion

Supine

SLR

SI joint: FABER, SI compression

Some Causes of Acute Low Back Pain

Lumbosacral strain

History: Acute/subacute onset in low back, patient can't get comfortable
Findings: Muscle tenderness/spasm
Straightening of normal lumbar lordosis
Loss of flexion lateral bending
Normal neurologic exam

Discogenic pain (annulus of disc is injured, inflamed)

History: Acute/subacute onset of back/buttock pain
Worse with flexion
Findings: Loss of flexion/increased pain with repetitive flexion
Normal neurologic exam

Herniated Nucleus Pulposus (HNP)

History: Acute/subacute onset of back/buttock and down-the-leg pain
May have history of minor acute episodes, then sudden onset with
minimal trauma e.g. just bending over
Worse with flexion, cough,Valsalva
Findings: Local tenderness/spasm
Abnormal SLR
Radicular findings on neurologic exam

Facet Joint Pain

History: Acute onset of back/buttock pain
Worse with extension/lateral bending
Findings: +/- muscle tenderness
Pain worse with extension, especially toward affected side
Normal neurologic exam

Sacroiliac Sprain

History: Acute/subacute onset of low back, buttock, or groin pain
May start with straightening up from stooped position
Pregnancy predisposes
Findings: Patient may prefer to sit on affected buttock
Tender over SI joint
FABER and/or SI compression tests and/or posterior shear stress positive

Diagnostic Testing

In the absence of red flags, not helpful in first 4 weeks of symptoms

Common treatment modalities for acute low back pain:

(Cochrane Database of Systematic Reviews, 2003;(2))

Bed rest: At best ineffective, especially if over 2 days
 This also holds in patients with sciatica

Return to light, normal activity: Benefit likely
 (Also see NEJM 1999; 340: 418-23 and Br Jour Gen Prac 1997;47:647)

NSAIDs, muscle relaxants: Benefit likely
 (Also see vanTulder, et.al. Conservative treatment of acute and
 chronic nonspecific low back pain: a systematic review of RCTs
 of the most common interventions. Spine 1997; 22: 2128-2156)

Spinal Manipulation (benefit likely) and Physical Therapy (benefit possible):
 Seems to have some benefit in acute pain
 Is it worth the cost (> \$250)?
 (Spine 1997; 22:2167-77, NEJM 1998; 339: 1021-9)
 One study shows increased patient satisfaction
 May consider for special circumstances or for persistent (>3-4 week) symptoms

Supports and Education:
 Possibly helpful, but not in prevention (JAMA 1998;279: 1789-94)
 Multidisciplinary treatment programs have shown benefit in treatment,
 but time required, high cost, and lack of applicability to
 all situations may limit usefulness (Cochrane)