An Approach to Low Back Pain - Handout
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Differential Diagnosis

Table 1. Syndrome based scheme

<table>
<thead>
<tr>
<th></th>
<th>Discogenic</th>
<th>Facetogenic</th>
<th>Stenosis</th>
<th>Neuroforaminal</th>
<th>Myofascial</th>
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</thead>
</table>
| **History**  | • Worse with flexion  
• Worse with prolonged sitting, long car rides | • Worse with extension  
• Worse with side bending, twisting | • Worse with ambulation  
• Improved by leaning forward (shopping cart sign) | • Variable presentations, but typically unilateral, radicular  
• Motor/sensory dermatomal distribution | • History is nonspecific, but may involve recent strain  
• Sensation of muscle spasms  
• Dx of exclusion |
| **Physical** | • Extension improvement (+LR 2.6-6.7; -LR 0.12-0.63)  
• Straight leg raise (+LR 1.03-2.23; -LR 0.05-0.9)  
• Cross straight leg raise (+LR 1.9-14.3; -LR 0.59-0.86)  
• Seated straight leg raise (+LR 1.82; -LR 0.32) | • Twisting extension test/ (sensitivity 70%) | • Nonspecific exam  
• Straight leg raise (+LR 1.03-2.23; -LR 0.05-0.9)  
• Cross straight leg raise (+LR 1.9-14.3; -LR 0.59-0.86)  
• Seated straight leg raise (+LR 1.82; -LR 0.32)  
• Motor/sensory dermatomal distribution (esp. pin-prick), also reflexes for L4 and S1 | • Nonspecific exam  
• Possibly muscle spasm |
| **Potential Intervention** | • Epidural steroid injection | • Median branch block/ Radiofrequency ablation  
• Facet injection | • Intralaminar steroid injection | • Epidural steroid injection | • Trigger point injection (rarely) |
Red flag history (points to systemic cause and requires more aggressive workup and treatment):
- Bowel or bladder dysfunction
- Progressive weakness
- Saddle anesthesia
- History of cancer, risk factors for cancer (i.e. unexplained weight loss)
- History of osteoporosis and low impact mechanism
- Other systemic symptoms, fevers, history of IVDU

Imaging:
- If severe or progressive neurologic findings
- If concern for systemic processes
- Otherwise, routine imaging not typically useful initially
- Consider imaging after trial of 6 weeks of conservative therapy only if patient is a candidate for injection procedures or surgery, or if there is concern for fracture or spinal stenosis

Management:
In the absence of red flags or systemic signs, treatment usually consists of conservative management:
- Counseling:
  - 50-75% spontaneously recover completely by 4 weeks
  - 90% spontaneously recover completely by 6 weeks
  - Okay to continue usual activities (but don't overdo it)
    - 2010 systematic review established that bedrest compared to usual activities leads to worse outcomes
- Acute (symptoms<4 weeks):
  - Analgesics/non-pharmacologic interventions
    - NSAIDs
    - Acetaminophen
    - Topicals (capsaicin, lidocaine)
    - Muscle relaxers (usually most effective in the first week)
      - Cyclobenzaprine 5-10mg TID (careful with other serotonergic drugs)
      - Methocarbamol 500-1000mg QID
- Subacute/chronic (If symptoms persist >4 weeks, >12 weeks is chronic)
  - Long-acting analgesia
    - NSAIDs (careful in the elderly), acetaminophen, topicals, muscle relaxers
    - Gabapentin (start 300mg QHS, up titrate to 300mg TID, max 3600mg/day)
    - Amitriptyline (start 10-25mg QHS)
    - Duloxetine (start 30mg daily, can up titrate to 60mg daily)
    - No evidence, negative evidence:
      - Opiates (significant risks, no data to suggest benefit beyond 6 months)
      - Steroids (good quality evidence that they are not effective)
  - Non-pharmacologic interventions:
    - Physical therapy
      - More useful to have a specific treatment prescription, rather than the usual "evaluate and treat" say "Patient with discogenic low back pain with L5 distribution radiculopathy"
      - You may also ask for a biomechanical evaluation to further elucidate the etiology of a patient's back pain ("Please evaluate activity for biomechanics of household/work activities, correct as needed."
      - TENS unit (better for axial pain)
      - Aquatic therapy
- Chiropractor (*similar efficacy to physical therapy and standard care*)
- Massage (*moderate evidence*)
- Acupuncture (*moderate evidence*)
- Cognitive behavioral therapy (*moderate-good quality evidence*)

**Follow-up:**
- Usually check-in after ~6 weeks of conservative therapy
  - If no improvement, consider reevaluation for systemic causes
  - Consider imaging at this time, especially if patient is a candidate for pain procedures or surgery
  - Consider referral for to spine clinic (PM&R) diagnosis clarification, possible pain procedures
  - Consider referral to spine surgery if pain is severe or intractable

**When to refer:**
- Spine specialist referral (PM&R):
  - Failure of conservative management
  - Consideration of injection therapy
  - When diagnosis is in question
- Urgent surgical referral:
  - If cauda equina suspected
  - Neurologic deficits that are severe or progressive
- Non-urgent surgical referral:
  - Worsening suspected spinal stenosis
  - Mild neurologic deficits
  - Intractable pain nonresponsive to conservative management
- Outcomes are mixed:
  - Some evidence lumbar stenosis and disk herniation repair surgeries are helpful:

**Reference diagrams:**

Anatomy:
Dermatomes:

Facet pain referral patterns:

Dermatomal examination:

Guidelines:
  - www.annals.org/cgi/reprint/147/7/478.pdf
- Audio summary of the American College of Physicians/American Pain Society guidelines.
  - www.annals.org/cgi/content/full/147/7/478/DC1
- 2011 Best Practice Advice from the American College of Physicians on imaging for low back pain.
- U.S. Preventive Services Task Force recommendations on primary care interventions to prevent low back pain in adults.
  - www.uspreventiveservicestaskforce.org/3rduspdf/lbwback/lbwbackrs.htm

References:
1. In the Clinic: Low Back Pain, Annals of Internal Medicine, June 2014