



### Regional Pain Syndromes: Neck and Low Back

Srinivas Nalamachu, MD



---

---

---

---

---

---

---

---

### Disclosures

- Srinivas Nalamachu, MD  
 Mid America PolyClinic, Overland Park KS  
 Clinical Associate Professor  
 Kansas City University of Medicine and Biosciences, Kansas City MO
- Consultant/Independent Contractor: BDSI, Collegium, DSI
  - Grant/Research Support: Collegium
  - Honoraria: BDSI, Collegium, DSI, Ferring, Lilly, Pernix, Pfizer, Purdue
  - Speakers Bureau: Ferring, BDSI, Collegium, Purdue, Pernix



---

---

---

---

---

---

---

---

### Learning Objectives

- Identify the most common painful conditions in the neck and back region
- Improve history taking skills and learn about the most useful diagnostic tests that can help diagnose the disease state
- Review current recommendations from professional societies on diagnosis and treatment
- Explain how to improve patient care by incorporating evidence based medicine



---

---

---

---

---

---

---

---

### Chronic Pain is an Epidemic

- More than 100 million people suffer from chronic pain
- Demographics are changing as the healthcare delivery improves
- Average life expectancy has risen except for the last 2 years
- Obesity is on the rise, leading to more musculoskeletal and metabolic disorders
- Most common musculoskeletal pain is primarily in spine and major weight bearing joints
- Pain is inevitable, misery is optional




---

---

---

---

---

---

---

---

### Low Back Pain

- Defined as pain between T12 and S1 area
- Classification:
  - Acute vs chronic
  - Axial vs radicular
  - Nociceptive, neuropathic, and mixed
  - Chronic pain can be central neuropathic pain
  - Cancer pain is not different from noncancer pain, other than the underlying pathology




---

---

---

---

---

---

---

---

### Acute Low Back Pain

- Acute low back pain is the most common reason for clinician visits in the US
- Usual course of acute low back pain is resolution in 2 to 3 weeks without any deficits
- Undertreatment of acute pain is one of the most common causes of chronic pain
- Guidelines call for the use of APAP, NSAIDs, muscle relaxants, and physical therapy as the first line treatment
- No diagnostic testing is recommended unless there is neurologic compromise




---

---

---

---

---

---

---

---

### Acute Low Back Pain (cont'd)

- Guidelines call for further investigation when there is sensory loss, motor strength deficits and bowel/bladder incontinence
- Diagnostic testing includes plain films, MRI, EMG/NCS
- EMG/NCS are not positive for at least 3 weeks
- Uncontrolled pain after 2 to 3 weeks probably needs further workup and a referral to the specialist



---

---

---

---

---

---

---

### Chronic Low Back Pain

- Less than 10% of acute LBP will progress to chronic LBP
- Direct and indirect costs exceed \$600 billion
- One of the most common reasons for disability claims in middle aged men
- Surveys consistently show that more than 50% of chronic pain patients who are on opiates are low back pain sufferers



---

---

---

---

---

---

---

### Differential Diagnosis

- Lumbosacral radiculopathy
- Facet joint arthritis
- Sacroiliac dysfunction
- Piriformis syndrome
- Ankylosing spondylitis
- Although rare, pelvic pathology and ischial bursitis have to be kept in mind



---

---

---

---

---

---

---

### Evaluation of Low Back Pain

- History of onset including any injury, duration, radiation, and paresthesias. VAS scales are subjective and of minimal value
- Functional history including sleep
- Previous diagnostic testing
- Previous interventions (pharmacologic and nonpharmacologic) including interventional procedures
- Focused but thorough exam is critical for diagnosis and management




---

---

---

---

---

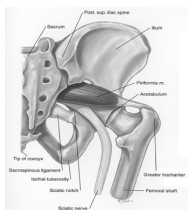
---

---

---

### Piriformis Syndrome

Piriformis syndrome is a condition where the piriformis muscle that attaches your hip to your pelvis becomes tight and inflamed, and traps your sciatic nerve, which in turn inflames the nerve




---

---

---

---

---

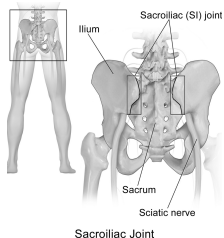
---

---

---

### Sacroiliac Dysfunction

- Sacroiliac (SI) joint is between the sacrum and ilium of the pelvis, which are joined by strong ligaments
- Common problems of the SI joint collectively referred to as SI dysfunction
- One of the most common reasons for unilateral low back pain
- Pain can be referred into the buttock or thigh, but rarely below the knee




---

---

---

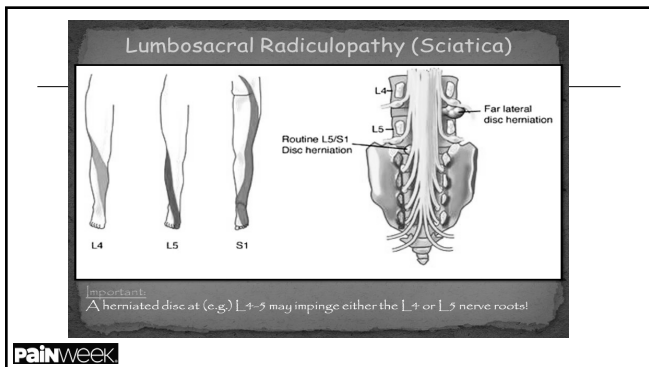
---

---

---

---

---




---

---

---

---

---

---

---

---

**Neck Pain**

- Neck pain is only secondary to low back pain among the musculoskeletal diagnoses for office visits (1 in 6 in the US reported having neck pain)
- Neck pain is on the rise, secondary to the sedentary life styles and poor posturing with increased use of personal computers
- Associated with significant disability and rising direct and indirect costs

**PainWeek**

---

---

---

---

---

---

---

---

**Common Painful Neck Conditions**

- Most common among the working age population is regional myofascial pain syndrome
- Cervical degenerative disk disease
- One of the most common reasons for neck pain is “whiplash” (acceleration-deceleration injury), following a motor vehicle accident

**PainWeek**

---

---

---

---

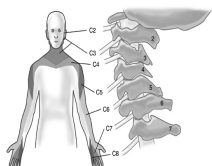
---

---

---

---

### Cervical Radiculopathy



- Neck pain radiating to upper extremity along the distribution of the affected root
- Associated with paresthesias
- Often confused with peripheral nerve entrapment such as carpal tunnel syndrome and ulnar nerve entrapment. Remember, those patients rarely have symptoms proximally
- Not every radiating pain is radicular

Painweek

---

---

---

---

---

---

---

---

### Cervical Dystonia

- Cervical dystonia, also called spasmodic torticollis, is a chronic, often painful neurological disorder
- Cervical dystonia is a type of movement disorder – conditions that are characterized by loss of control over ≥1 parts of the body

Painweek

---

---

---

---

---

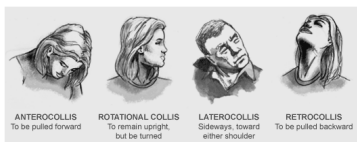
---

---

---

### Cervical Dystonia (cont'd)

Types:



Painweek

---

---

---

---

---

---

---

---

### History

---

- Pain location
- History of onset and duration including any trauma
- Aggravating and relieving factors including positional variation
- Radiation, paresthesias, and weakness
- Medications (including OTC) and allergies



---

---

---

---

---

---

---

### Physical Examination

---

- Thorough history taking with good but focused physical exam can lead to right diagnosis majority of the times
- Focused exam should include ROM, sensory, and motor exam as well as deep tendon reflexes plus special tests like Spurling's tests
- Localizing tenderness and nerve tension testing (Tinel's) can be useful



---

---

---

---

---

---

---

### Diagnostic Testing

---

- Plain films
- MRI or CT
- EMG/NCS: No positive findings for 3-4 weeks postinjury. Useful to differentiate peripheral entrapments v spinal pathology
- Myelogram and discogram can help evaluate the spinal cord along with roots and disc respectively



---

---

---

---

---

---

---

### Nonpharmacologic Management

- Physical therapy
- Therapeutic massage
- Chiropractic manipulation
- Acupuncture
- Modalities such as cryotherapy, phonophoresis, iontophoresis
- Bracing



---

---

---

---

---

---

---

### Pharmacologic Intervention

- OTC meds (APAP, NSAIDs)
- Prescription NSAIDs
- Skeletal muscle relaxants
- Adjuvants (anticonvulsants, SSRIs, SNRIs)
- Opiates are the last resort



---

---

---

---

---

---

---

### Interventional Procedures

- Steroid injections: facet blocks, SI joint injections, ESIs
- Radiofrequency ablation
- Spinal cord stimulators
- Botulinum toxin injections for piriformis syndrome



---

---

---

---

---

---

---



### Radiofrequency Ablation

- Radiofrequency ablation (or RFA): a procedure to reduce pain. An electrical current produced by a radio wave is used to heat up a small area of nerve tissue, thereby decreasing pain signals from that specific area
- The degree of pain relief varies, depending on the cause and location of the pain. Pain relief from RFA can last from 6 to 12 months and in some cases longer. >70% of patients treated with RFA experience pain relief
- RFA has proven to be a safe and effective way to treat some forms of pain. It also is generally well-tolerated with few complications. There is a slight risk of infection and bleeding at the insertion site




---

---

---

---

---

---

---

---

### Spinal Cord Stimulators

- Approved by the FDA in 1989, spinal cord stimulation (SCS) has become a standard treatment for patients with chronic pain in their back, neck, and/or limbs who have failed conservative treatments
- In general, neurostimulation works by applying an electrical current to the source of chronic pain. This creates a pleasant sensation that blocks the brain's ability to sense the previously perceived pain




---

---

---

---

---

---

---

---

### Peripheral Nerve Field Stimulation

- Peripheral nerve field stimulation (PNFS) is very similar to spinal cord stimulation and involves placing the leads just under the skin in an area near to the nerves involved in pain
- When conservative therapies fail to treat pain, patient may be a candidate for peripheral nerve field stimulation. Pain is associated with nerve injury, nerve entrapments, complex regional pain syndrome and occipital neuralgia
- Commonly treated disorders also include movement disorders such as dystonia and Parkinson's, etc




---

---

---

---

---

---

---

---

### Surgical Options

- Surgery has to be carefully considered
- High failure rate (failed back syndrome is one of the common reasons for chronic low back pain)
- Addresses structural problem, but doesn't always address the pain (remember central sensitization?)
- Severe uncontrollable pain, neurological deficits, and function has to be the deciding factors




---

---

---

---

---

---

---

---

### Spinal Surgery

- There are 2 general types of spine surgery that comprise the most common surgical procedures for the back
- Decompression: Goal of a decompression surgery is usually to relieve pain caused by nerve root pinching. There are 2 common causes of lumbar nerve root pressure: from a herniated disc or spinal stenosis
- Fusion: Goal of a fusion is to stop the pain at a painful motion segment in the lower back. Most commonly, this type of surgery is performed for pain and disability caused by DDD or spondylolisthesis




---

---

---

---

---

---

---

---

### References

- Diagnosis and treatment of low back pain: A joint clinical practice guideline from the ACP and APS: Ann Intern Med 2007;147:478-491
- Fishman et al., (March 2002): Piriformis Syndrome: Diagnosis, treatment and outcomes- a 10 year study: Archives of PM&R 83(3)295-301
- Jankovic J (2007): Prevalence of Cervical Dystonia and Spasmodic Torticollis in the US; Parkinsonism and related disorders 13 (7) 411-416
- Guidelines in electrodiagnostic medicine. Practice parameters for needle electromyographic evaluation of patients with suspected cervical radiculopathy. Muscle and Nerve Supplement 8: S209-221, 1999
- Eck, Jason C. "Radiculopathy", Medicine Net.com
- Pictures: Courtesy of Netter's digital library of human anatomy, ADAM, epainassist.com
- Improving the safety of epidural injections, JAMA 2015
- New ACP guidelines for non radicular low back pain, Feb 2017




---

---

---

---

---

---

---

---