Facet and Axial Spine Pain

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Objectives

• Participant will be able to state incidence of back and neck pain in the US.
• Participant will be able to distinguish symptoms of axial and facet spine pain.
• Participant will identify key exam components when assessing neck and back for pain.

Disclosures

• I have nothing to disclose.

Incidence of Back and Neck Pain

• Range is inconsistent but in careful review of a lot of literature at ¼ to over 1/3 of US population report back and neck pain
• ½ as many neck as back
• Women more neck pain – found in multiple studies
• Computer and office jobs more neck pain
• Upper class more neck pain
• The United States’ National Center for Health Statistics reported 7.0% of men and 9.4% of women had neck pain in the period between 1976-1980.

Incidence of Pain Compared to other Major Conditions

Pain affects more Americans than diabetes, heart disease and cancer combined:
• Chronic Pain - 100 million (Institute of Medicine of The National Academies)
• Diabetes (diagnosed and estimated undiagnosed) - 25.8 million (American Diabetes Association)
• Coronary Heart Disease (heart attack and chest pain) - 16.3 million (Americans American Heart Association)
• Stroke - 7.0 million (National Stroke Association)
• Cancer - 11.9 million (American Cancer Society)

Low Back Pain (LBP)

3 things that account for 80% of chronic LBP

#1 disc pain– annular tear; inflammatory process causing pain. (Not herniated which irritates nerve causing leg and buttock symptoms). No nerve fibers in center of disc have nerves in the outside of the disc.

#2 facet joints – become arthritic and painful better with sitting and worse with standing because facets are loaded. After age 65 facet pain is more likely.

#3 SI joint - pain in lower portion and buttock 10-20% of lower back pain.

Facet Joints in Motion

Facet Pain - Definition

- Deterioration of facet joint
- Lined with cartilage and in a capsule
- Damage from wear and tear, injury, degeneration of inter vertebral disc
- Can lead to growth of bone spurs
- Cervical – pain in neck, shoulders, upper or middle back and headaches
- Lumbar - pain in low back, buttocks and posterior thigh

Facet Pain - Symptoms

- Acute episodes of lumbar and cervical facet joint pain are typically intermittent, generally unpredictable
- Persisting point tenderness overlying the inflamed facet joints and some degree of loss in the spinal muscle flexibility (guarding)
- Typically more discomfort bending backward than forward (closing up the space)
- LBP from facet joints often radiates down into the buttocks and back of the upper leg.
- Rarely presents in the front of the leg, or rarely radiates below the knee or into the foot, as pain from a disc herniation often does.
- Cervical facet joint problems radiate pain locally or into the shoulders or upper back, and rarely radiate in the front or down an arm into the fingers as a herniated disc might
- Lumbar, standing may be somewhat limited but sitting or riding in a car is the worst.
- Muscle spasm can be constant and fatigue the muscle

Cervical facet pain map
Figure 3 Cervical and lumbar facet joint pain referral patterns

Do you agree?

Acute Low Back Pain - Axial

- Presence of an anatomical lesion that can be seen on an MRI scan, such as a herniated disc, may have nothing to do with the low back pain episode, making diagnosis difficult.
- Structures in the low back that can cause axial or mechanical lower back pain:
  - degenerated disc
  - facet joint problems
  - damage to soft tissues – muscles, ligaments, and tendons
- Can not overlook possible serious conditions, such as an infection, tumor or fracture.

Axial Pain - Symptoms

- Varies widely: Sharp or dull pain, constant or intermittent, mild to severe
- Worse with certain activities
- Worse with certain position (eg sitting for long periods)
- Relieved by rest
- Confined to the central area (back or neck)
- Often describes as “mechanical”

Back Assessment and Exam

Observation:
- General : skin (attention to scars), teeth, hair
- Facial characteristics
- Body position and posture
- Standing posture
- Sitting posture
- Muscle Atrophy
- Fasciculations
- Involuntary movements
- Deformity

Strength
- Unilateral vs. bilateral complaints
- Compare to opposite side
- Describe strength if 0-5/5 is not presenting the picture

Acute Low Back Pain - Axial

- If self limiting, the diagnosis as to which structure is causing the low back pain rarely has significance to treatment.
- Only in chronic and severe cases is further evaluation and diagnosis helpful.

Do you agree?
**Back Assessment and Exam**

**Palpation:**
- Hips
- SI joint
- Sciatic notch
- Tenderness: exact location and amount of pressure
- Patient’s response: withdrawal, grimacing, guarding

**Back Assessment and Exam**

**Strength**
- Unilateral vs. bilateral complaints
- Compare to opposite side
- Describe strength if 0-5/5 is not presenting the picture
- Transition movements

**Back Assessment and Exam**

**Reflex:**
- Normal: DTR
- Abnormal:
  - Hoffman’s
  - Spurling
  - Babinski
  - Others as appropriate pending exam and history

**Cervical Assessment and Exam**

**Observation:**
- General: skin, teeth, hair
- Facial characteristics
- Head position and posture
- Muscle Atrophy
- Fasciculations
- Involuntary movements
- Deformity of neck, body, extremities
- Note voice and scars

**Cervical Assessment and Exam**

**Palpation:**
Tenderness: exact location and amount of pressure
Patient’s response: withdrawal, grimacing, guarding

**Cervical Assessment and Exam**

**Sensory:**
- Dull/sharp
- Change in temperature

**Cervical Assessment and Exam**

**ROM:**
- Smooth and painless
Cervical Assessment and Exam

Strength
- Unilateral vs. bilateral complaints
- Compare to opposite side
- Describe strength if 0-5/5 is not presenting the picture.

Reflex:
- Normal: DTR
- Abnormal:
  - Hoffman's
  - Spurling's
  - Babinski
  - Others as appropriate pending exam findings and history

Axial Pain - Diagnostics

- X-ray: These images show the alignment of your bones and whether you have arthritis or broken bones. X-ray images won't directly show problems with your spinal cord, muscles, nerves or disks....include flexion and extension
- Magnetic resonance imaging (MRI) or computerized tomography (CT) scans: These scans can generate images that may reveal herniated disks or problems with bones, muscles, tissue, tendons, nerves, ligaments and blood vessels.
- Bone scan: In rare cases, your doctor may use a bone scan to look for bone tumors or compression fractures caused by osteoporosis.
- Nerve studies (electromyography, or EMG): This test measures the electrical impulses produced by the nerves and the responses of your muscles. This test can confirm nerve compression caused by herniated disks or narrowing of your spinal canal (spinal stenosis).
- Myelogram and post myelogram CT
- Some literature supports very little diagnostics.

Axial Pain - Treatment

- Rest
- Ice/heat
- NSAIDs/Cox2 Inhibitors
- Oral Meds
- Steroids
- Acupuncture
- Therapy
- ESI
- Fusion
- Spinal Cord Stimulator

Facet Pain - Diagnostics

- X-ray: include oblique and flexion/extension views
- CT scan: visualize facet joints and other structures of the spinal segment
- MRI: not quite as useful for diagnosing this particular spinal problem, but is extremely helpful when investigating possible disc or abdominal pain contributors
- Myelogram and post myelo CT
- Bone scan
- Facet joint injection (or facet joint block): perhaps the most definitive diagnosis of facet joint. Relief of the acute or chronic problem during the time of action of this combination of drugs is diagnostic

Facet Pain - Treatment

- Rest
- Posture (try cervical collar)
- Ice/heat
- NSAIDs/Cox2 Inhibitors
- Oral meds
- PT
- Manipulation
- Facet joint block (diagnose and treat)
- Facet rhizotomy (Radiofrequency Ablation-RFA)
- Fusion
Facet Injection

References


Definitions

- Vertebral body: bony building blocks of the spine
- Facet joint: small stabilizing joints located between and behind adjacent vertebrae
- "small faces" at every spinal level (except top C1) and provide about 20% of the torsional (twisting) stability in the neck and low back. Thoracic less mobile with ribs.
- Intervertebral disc: cushion between each of the vertebral bodies and bindds them together
- Facet pain
- Axial (midline) discs
- Axial pain

Neck Pain

- Neck pain is common in the general population and even more common in a chronic pain management practice.
- Far less common than LBP
- Some epidemiologic studies mostly done in Europe identify about 1/3 of the population have neck pain but only about 14% have neck pain lasting longer than 6 months.