

# Introduction to the MAMC Pain Clinic

Daniel Wenzell, MD

# Objectives

- Identify the MAMC pain clinic location, staff, and critical numbers
- Identify what procedures are most commonly performed by the clinic providers
- Give a better understanding of how a patient should be prepared prior to referral to the pain clinic

# Staff

- 4 MD's
  - One physician in the clinic per day
- 1 Nurse Practitioner
- 1 Nurse Manager
- 2 MSA's

# Location

- 2<sup>nd</sup> Floor, Nursing Tower
- Around the corner from the elevator banks and surgical services



# Clinic Population

- >1000 active patients
  - Active Duty 70%
  - AD Dependents 9%
  - Retirees 10%
  - Ret Dependents 11%
- Patients not seen for 12 months are considered inactive and charts are purged

# Who Refers to US?

- Madigan Providers
  - IM, FP, PM&R, Neurology, NS, Rheum, GI, Urology
- Outside MAMC
  - McChord AFB, Bremerton Naval, Everett, Whidbey Island, Subbase Bangor, VAMC, etc.

# Common Procedures Performed

- Diagnostic and therapeutic nerve blocks
- Local injections (MF trigger points)
- Sacroiliac joint injections
- Neurolytic blocks
- Sympathetic blocks (stellate, lumbar etc)
- Epidural steroid injections
- Implantable spinal cord stimulators
- Implantable pumps and catheters

# Misc Services

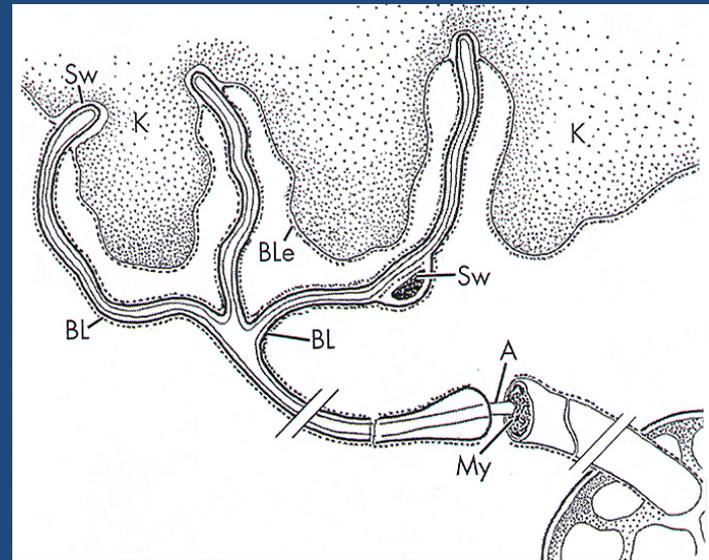
- Inpatient consultations
  - Pre and Post surgical recommendations
  - Patients for conversions (iv – po etc)
  - Difficult/complicated patients with “out of control” pain
- Outpatient
  - Recommendations for initiating medical management
  - Recommendations for alternative pain therapies
  - Medication management for difficult patients
    - Up/down titration, switching meds etc

# Low Back Pain

- Most common issue we evaluate
- Leading cause of lost work productivity
- 2<sup>nd</sup> only to URI for time lost from work
- LBP accounts for 14% of new patient visits
- Health care cost attributed to lbp in '98 est to be 26.3 billion

# Causes of LBP

- Muscle strain
- Muscle spasm
- Arthritis
- Scoliosis
- Discogenic source
- Facet disease
- Sacroiliitis
- Muscle detachment
- Ligament pain
- Etc.



# Evaluation and Management

- Little consensus between specialties
- Numerous studies
  - Large variations in diagnostic tests and treatments
- Patient outcomes are broadly similar

# What to Do

- Focused history and physical exam
- 3 broad categories
  - Nonspecific low back pain
  - Back pain potentially associated with radiculopathy or spinal stenosis
  - Back pain potentially associated with another specific spinal cause
- Conservative therapy
- Appropriate referral

# Physical Therapy

- Treatment for low back pain
- Correct Sitting Posture
- Core strength exercises
  - Lumbar stabilization
  - Abdominal wall
- Restore range of motion
- Assist with muscle spasm/strain
- Develop exercise program

# Physical Medicine and Rehabilitation (PM&R)

- **Diagnosis and treatment of musculoskeletal injuries and pain syndromes**  
These include sports and/or work injuries to degenerative conditions as common as arthritis or low back pain.
- **Electrodiagnostic medicine**  
These procedures are used for evaluation of various neurologic disorders.
- **Rehabilitation of patients with severe impairments**  
Physiatrists treat neurologic rehabilitation conditions including stroke, brain injury, and spinal cord injury.  
Many other disabling conditions such as amputations, multiple trauma, burns and sports injuries are treated as well.

# PM&R

- Treatment for low back pain
- Diagnostic evaluation
  - Musculoskeletal vs. Neurologic vs. Rheumatologic
  - Electrodiagnostic medicine
- Medication management
- Peripheral joint injections
- Complimentary Alternative Treatments
  - 1 Physician certified in acupuncture
  - TENS /PENS treatment for muscular pain
  - Treatment of myofascial trigger points



### Madigan News

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[CHCS/AHLTA Training available on Wednesday or Thursday - Effective 06 Oct!](#)

[DPALS 2010 Health Care Provider Customer Satisfaction Survey available now!](#)

Please take a moment and do the survey.

[Employee Emergency Response Survey](#)

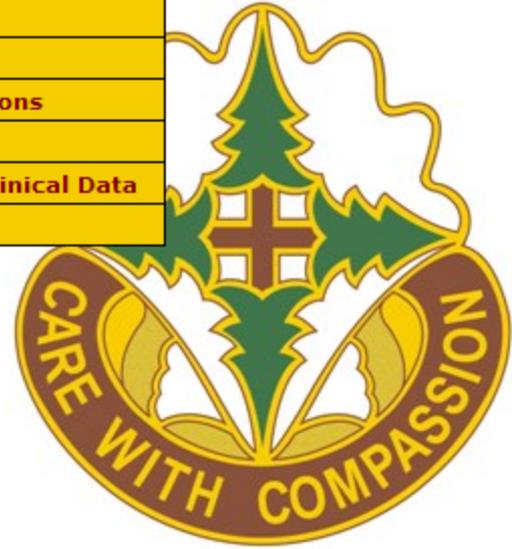
Requesting all Civilian employees to please take this brief survey.

[IM\IT Customer Satisfaction Survey](#)

- [Flu Screening Forms](#)
- [Clinical Guidelines](#)
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- [Share: DoD-VA Shared Patient Clinical Data](#)
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## Healthcare System

Mission, Vision, and Values



Tacoma, Washington 98431

Home - Clinical Guidelines

Windows Internet Explorer

https://portal.mmcamedd.army.mil/mamc/mamcqsdc/clinical\_guidelines/default.aspx

File Edit View Favorites Tools Help

Home - Clinical Guidelines

Madigan SharePoint Portal > Quality Services Division > Clinical Guidelines

 **Clinical Guidelines**

Home

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**Madigan Guidelines**

[MAMC Clinical Practice Guidelines](#)  
MAMC Clinical Practice Guidelines are derived from best practice recommendations and represent the expected care for a patient with a particular problem. The standards represent minimal elements to which providers must adhere. As clinical standards represent the essential elements of care for a particular problem, they will be used as a monitoring tool for quality assessment and improvement. [MAMC Referral Guidelines](#)

[MAMC Referral Guidelines](#)  
Care providers should use MAMC referral guidelines to help determine the best approach to treatment of patients, as well as when to refer to a specialist. If the patient's diagnosis meets the criteria for specialty care referral, then strong consideration should be given for consultation with the appropriate specialty care clinic. This section explains the goals of the specialty care clinic, and at what point the management of this condition will be returned to the primary care physician.

[MAMC Pharmacy Guidelines](#)  
MAMC pharmacy guidelines serve as an education tool for the use of medications in the treatment of specific disease states. While general prescribing guidelines can be written, not every patient will fit these guidelines. The physician, in light of all circumstances presented by an individual patient, must make the ultimate judgment regarding the appropriateness of any specific therapy.

[Musculoskeletal Treatment Guidelines](#)  
The Musculoskeletal Treatment Guidelines were created to assist health care providers (Medics, LPN's, RN's, Physicians, etc.) in providing care. These guidelines aid in establishing basic standards of care, assist in ensuring all patients receive the same care and information, provides easy access to information for the provider and help prevent multiple variations of treatment.

**Announcements**

**Low Back Pain Tools**  
by Burke, Stephen P Mr MAMC  
OSD has the following US Army Quality Management Office Low Back Pain tools available for providers and for patient education. Please contact

11/17/2010 12:51 PM



## U.S. ARMY MEDICAL DEPARTMENT MADIGAN ARMY MEDICAL CENTER

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MEDCOM Guidelines

Provider Resources

### Madigan Army Medical Center Referral Guidelines



### Madigan Army Medical Center Referral Guidelines



The MAMC Referral Guidelines are documents developed by primary care physicians and specialists to facilitate the process of referral from primary care portals to specialty care. These guidelines can also be used as a tool to ensure better use of resources by adjusting the threshold for referral, depending on specific types of care.

It should be stressed that the MAMC referral guidelines are only tools for the provider. The ultimate judgment regarding the appropriateness of any specific therapy or referral must be made by the physician in light of all circumstances presented by an individual patient. Referral guidelines are indexed on separate pages by [alphabetical order](#) or by [specialty](#) to facilitate finding the one you are

looking for. Each index page also includes a search tool.

**MAMC referral guidelines are uniformly formatted to include:**

1. Diagnosis/Definition
2. Initial Diagnosis and Management
3. Ongoing Management and Objectives
4. Indications for Specialty Care
5. Criteria for Return to Primary Care

The care provider may use these guidelines to help determine the best approach to treatment of patients, as well as when to refer to a specialist. If the patient's diagnosis meets the criteria for specialty care referral, then

Asthma, pediatric  
 Asthma, exercise induced-pediatric  
 Asthma, exercise induced-adult  
 Atrial fibrillation  
 Attention deficit hyperactivity disorder

**B**

**Back Pain**  
 -Acute low back pain  
 -Back pain  
 -Lumbar disc syndrome  
**Basal cell carcinoma**  
**Bee sting allergy** (hymenoptera)  
**BPH** (prostatic hypertrophy, benign)  
**Bradycardia** - see **heart block & bradycardia**  
**Branchial cleft cyst**  
**Breast cancer** - see **breast reconstruction**  
**Breast mass** - see also **mammography**  
**Breast reconstruction**  
**Bunions & tailor's bunions**

**C**

Callouses - see **corns, callouses & hammertoes**  
**Carotid artery occlusive disease**  
**Carotid stenosis** - see **carotid artery occlusive disease**  
**Carpal tunnel syndrome**  
**Cataract**  
 Cellulitis of lower extremity

**Hernias**  
**Hernia (adult)** - see **hernias**  
**Hernia (diaphragmatic)** - see **hernias**  
**Hernia (incisional)** - see **hernias**  
**Hernia (spigelian)** - see **hernias**  
**Hernia (ventral)** - see **hernias**  
**Herniated disc** - see **cervical disc syndrome, lumbar disc syndrome, or acute low back pain**  
**High blood pressure** - see **hypertension**  
**High risk diabetic foot evaluation**  
**HIV (pediatric)**  
**HIV (perinatal)**  
**Hives** - see **urticaria**  
**Hoarseness**  
**Hospice care**  
**Hydrocephalus** - see **ventriculoperitoneal shunts**  
**Hymenoptera (bee sting) allergy**  
**Hyperactivity (pediatric)** - see **attention deficit hyperactivity disorder**  
**Hypertension**  
**Hypothyroidism** - also, see **thyrotoxicosis**

**I**

**Immunodeficiency, pediatric (non-HIV)**  
**Impingement syndrome** - see **shoulder bursitis - tendinitis - impingement syndrome**  
**Impotence (organic)** - see **erectile dysfunction**  
**Incontinence, anal** - see **anal incontinence**  
**Incontinence, stress (female)**

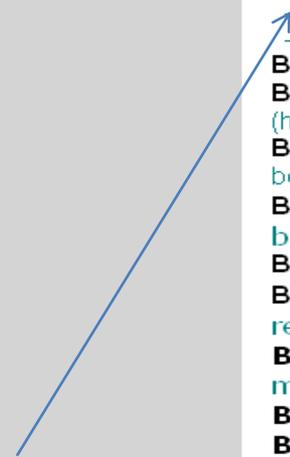
**Post menopausal bleeding** - see **uterine bleeding (abnormal)**  
**Prostatic hypertrophy (benign)**  
**Proteinuria**  
**Psoriasis**  
**Pulmonary nodule, solitary (SPN)**

**R**

**Reactive airways disease** - see **asthma**  
**Recurrent UTIs in women (recurrent cystitis)**  
**Rectal prolapse**  
**Renal disease** - see **proteinuria**  
**Renal colic** - see **urolithiasis and renal colic**  
**Rhinitis, allergic** - see **allergic rhinoconjunctivitis**  
**Rhinoconjunctivitis**  
**Rosacea**  
**Rotator cuff syndrome** - see **shoulder bursitis - tendinitis - impingement syndrome**  
**Runny nose, chronic** - see **allergic rhinoconjunctivitis**  
**Ruptured disc, cervical** - see **cervical disc syndrome**

**S**

**Salivary gland mass**  
**Schizophrenia**  
**Sciatica** - see **acute low back pain**  
**Seborrheic dermatitis** - see **dermatitis (seborrheic)**  
**Serous otitis media** - see **otitis media**  
**Shin splints** - see **tibial stress fracture**  
**Shoulder bursitis - tendinitis - impingement syndrome**





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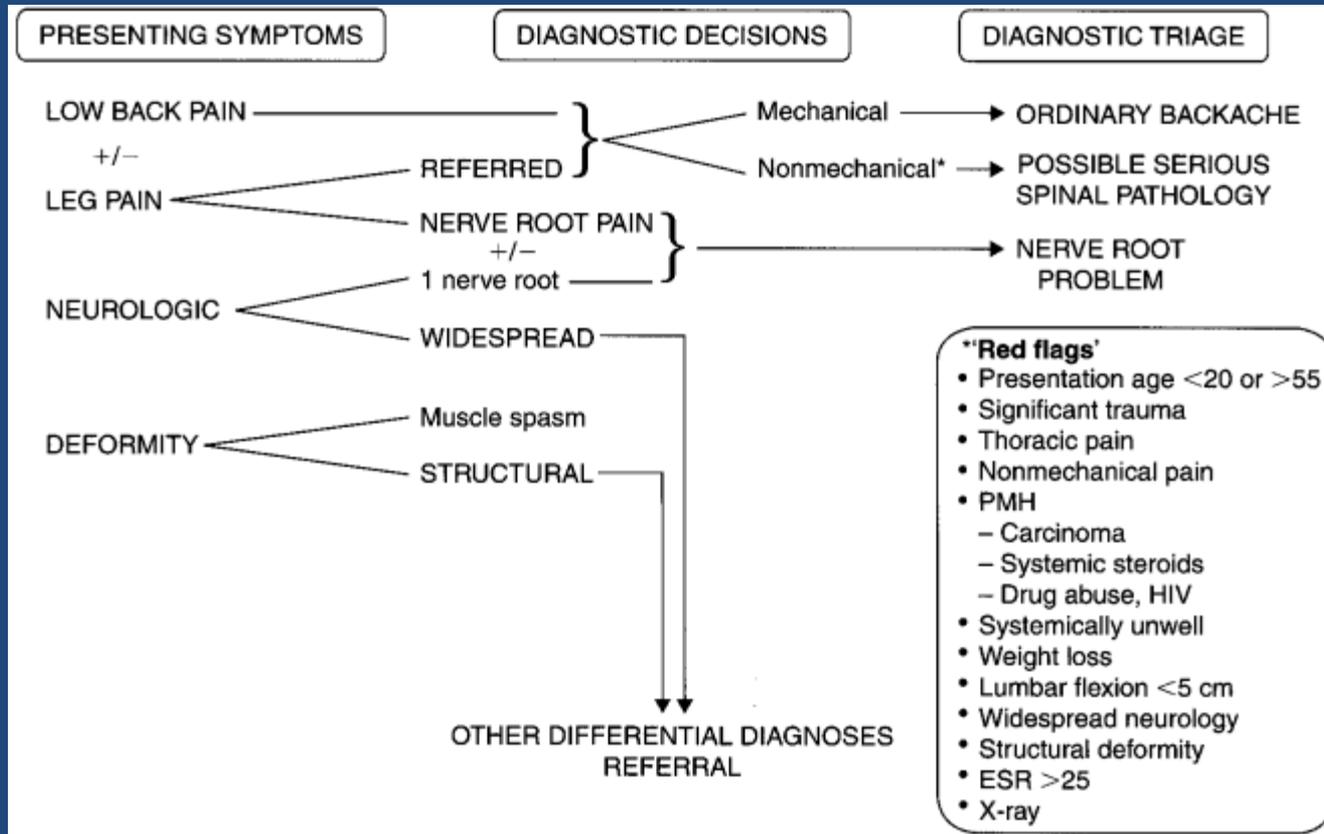
# Referrals

- Consults reviewed
  - Receive over 100 per month
  - Prefer as much detail as possible
  - Reviewed to determine if appropriate w/u has been completed
- Majority of patients accepted are from subspecialty clinics (NS, PM&R, Ortho Spine)
- This is not preferential!

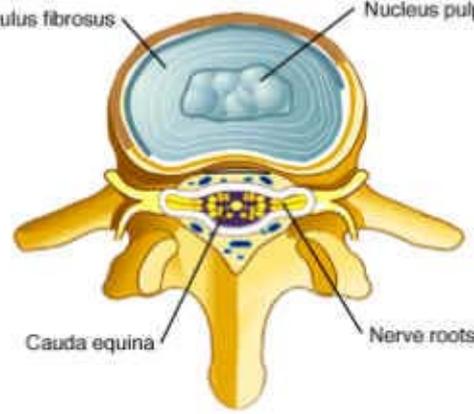
# Some Criteria for Consult Acceptance

- Can we help the patient with procedures offered by the clinic?
- Can the patient be treated in a reasonable amount of time?
  - ETS, PCS, deployment
- Is the consult placed to the correct clinic?
  - In error 10% (Detox, PT, PM&R etc)
- Tricare access standards
- WTB patients

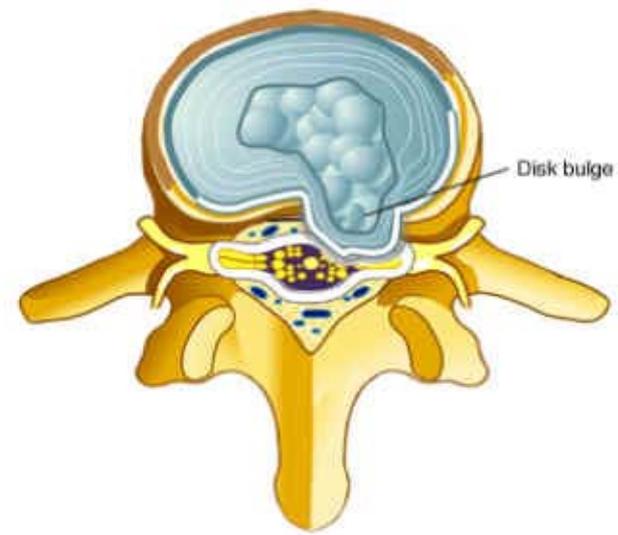
# Back Pain



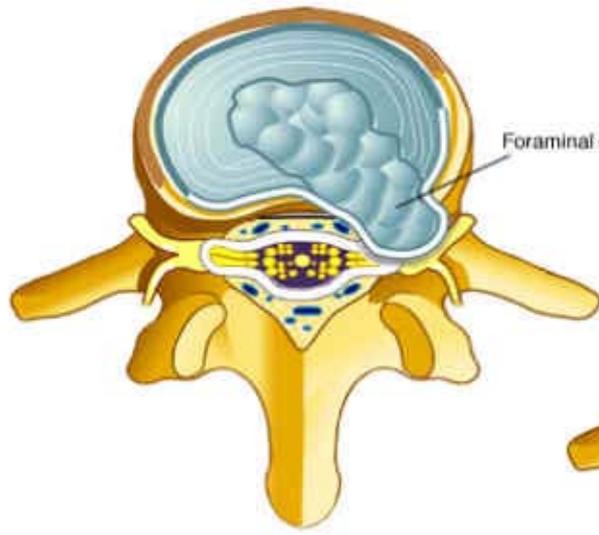
Annulus fibrosus      Nucleus pulposus



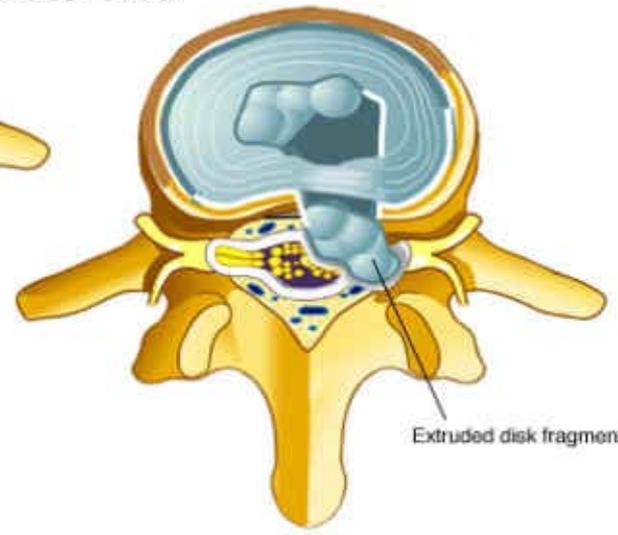
Cauda equina      Nerve roots



Disk bulge



Foraminal disk herniation



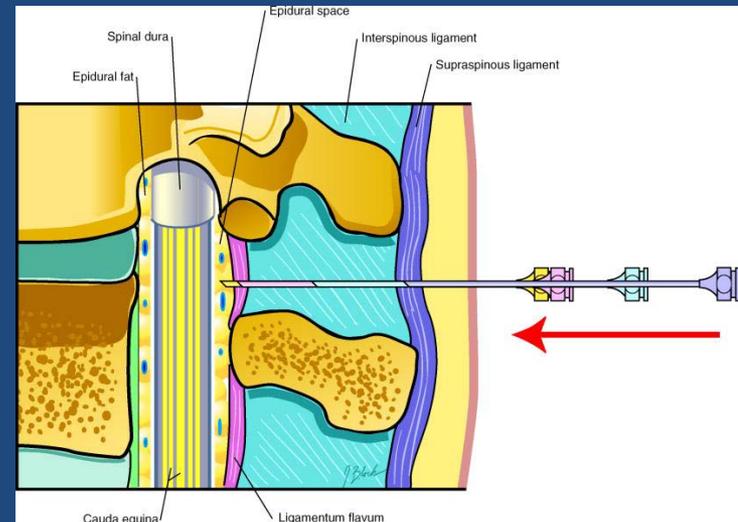
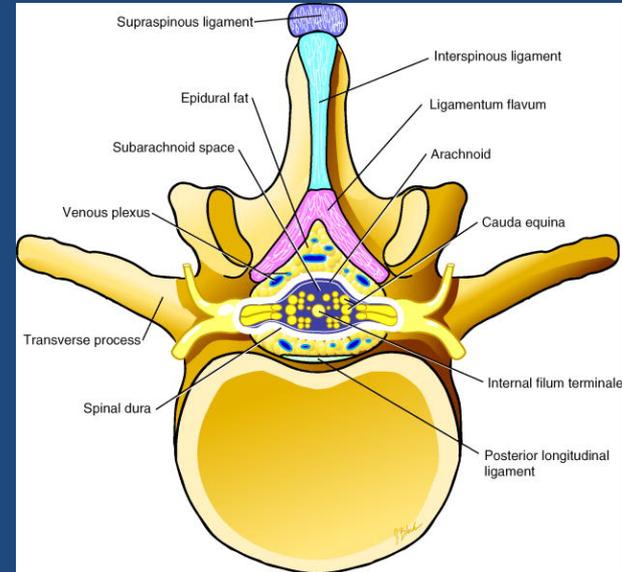
Extruded disk fragment

# Image-guided procedure using fluoroscopy

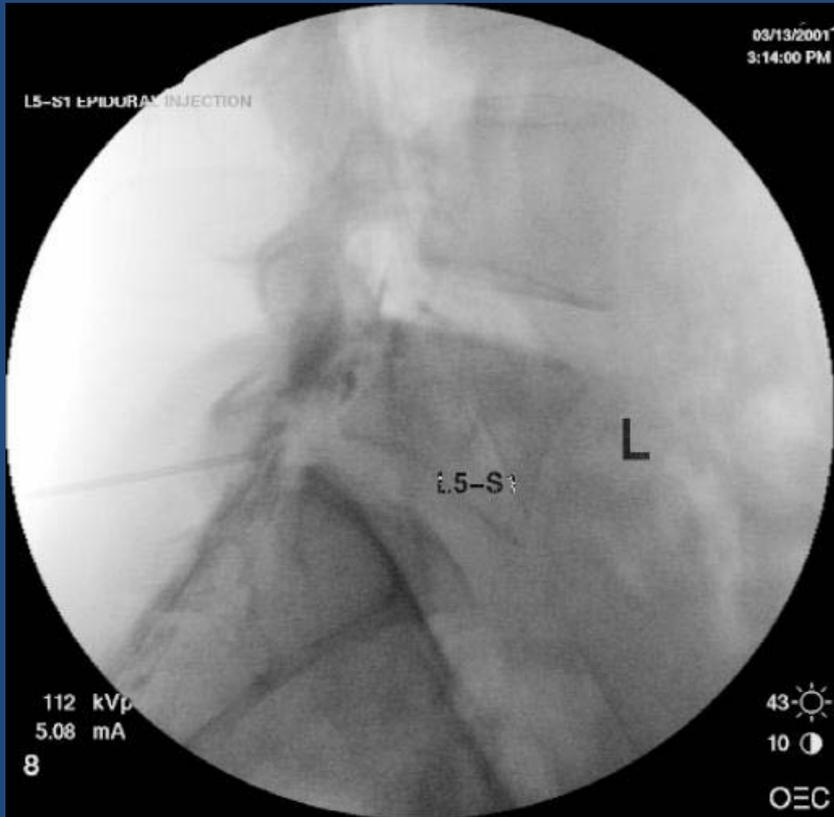


# Epidural Steroid Injections

- For treatment of low back pain and neck pain
- Usually best response in patients with concurrent radicular symptoms
- DDD



# Fluoroscopy for a lumbar epidural steroid injection



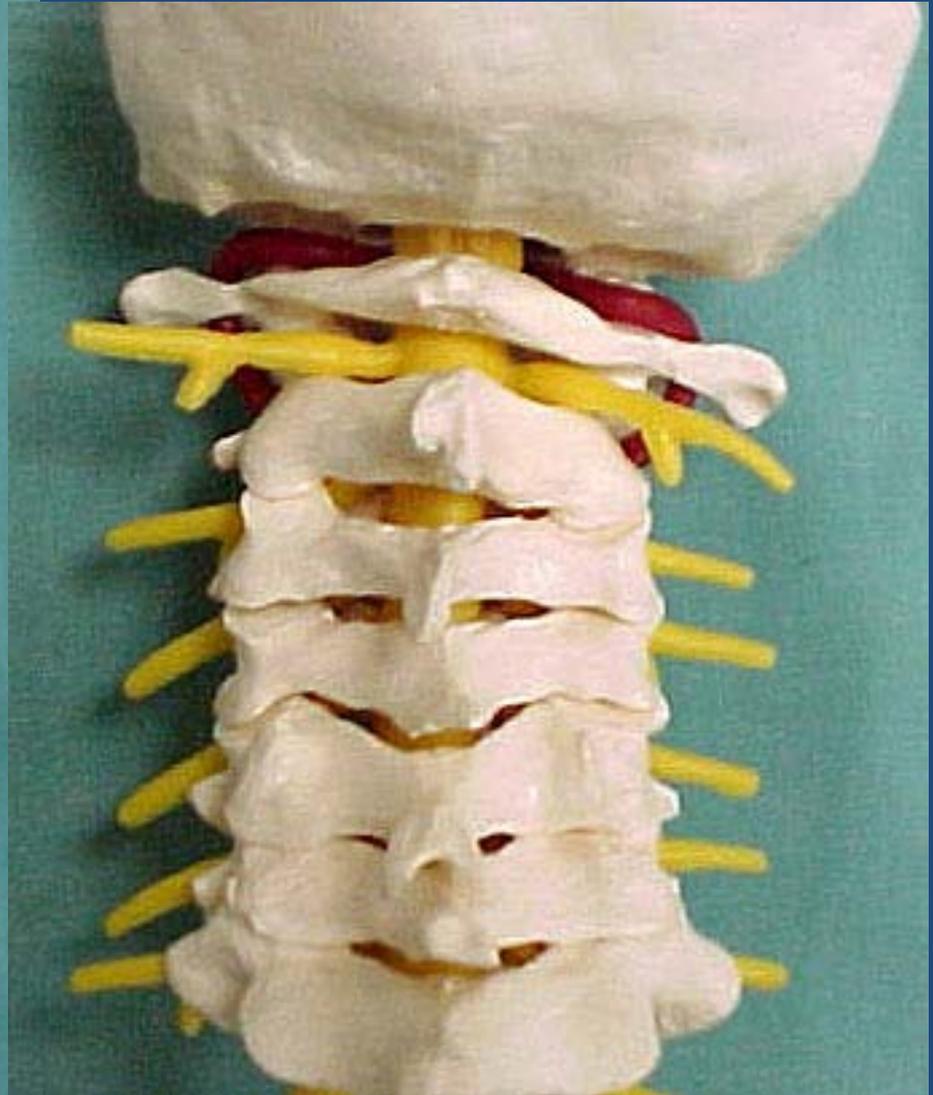
# Transforaminal Technique

- Sometimes used instead of translaminar approach for pts with discrete radiculopathy or prior surgical procedures
- Goal is to introduce the needle into the intervertebral foramen



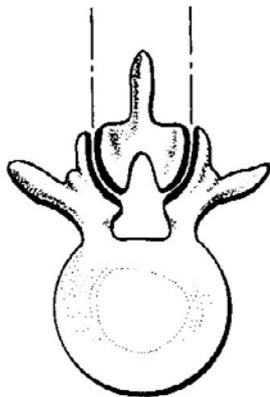
# Facet Joints of Spine

- Facet joints are almost exclusively synovial sliding joints ( joint space, cartilage, capsule)
- They contain a rich supply of blood vessels and nerves
- Synovium and joint capsules can develop pleats and folds

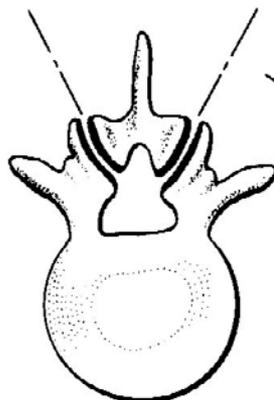


# Anatomy and Function

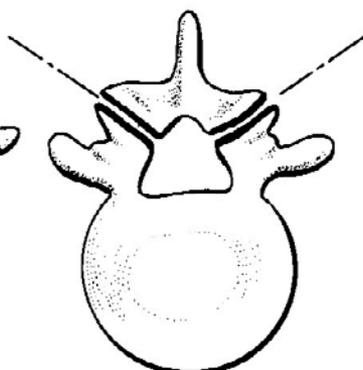
- Joints are curved
  - Can develop cupping or “clam shape”
  - Large % of patients with lbp demonstrate tropism
- Joints resist shear force upon spine
- With rotation, stress upon capsule is great
- Can carry upwards of 40% of axial load with DDD



L2-3-4

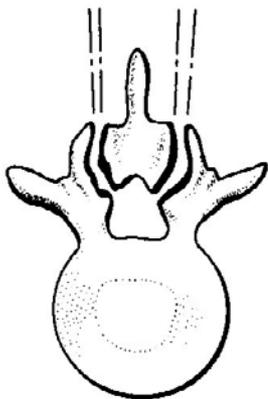


L4-5

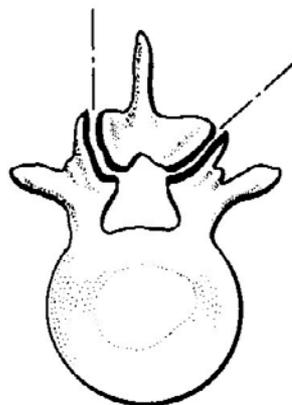


L5-S1

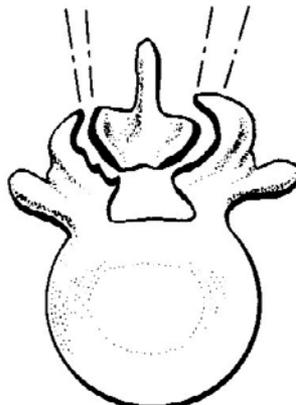
Q. NORMAL FACET ORIENTATION



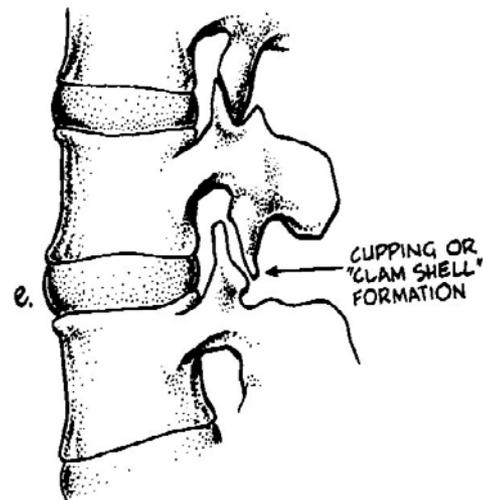
b. CUPPING AND DEGENERATION



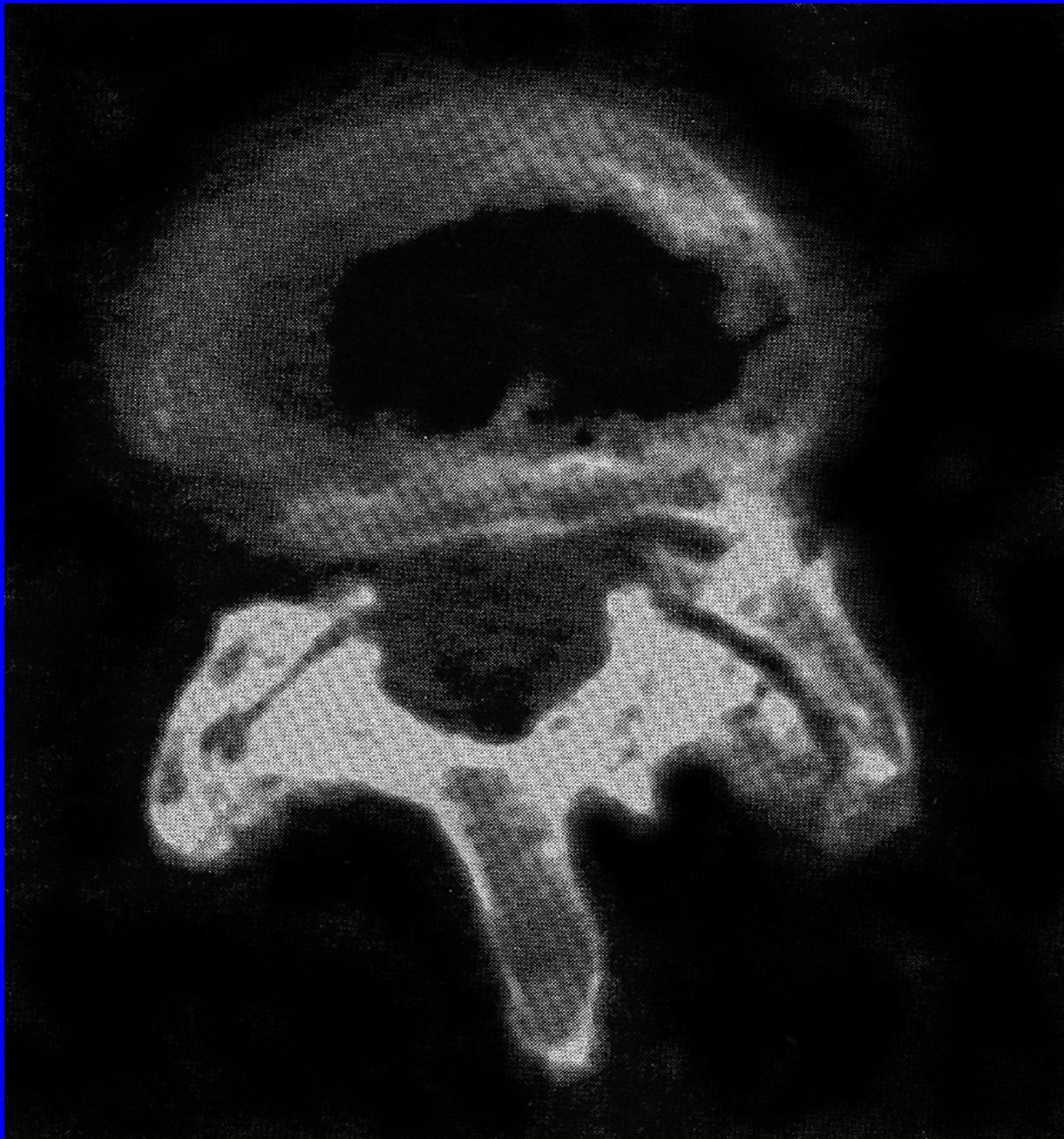
c. TROPISM



d. HYPERTROPHY AND DEGENERATION

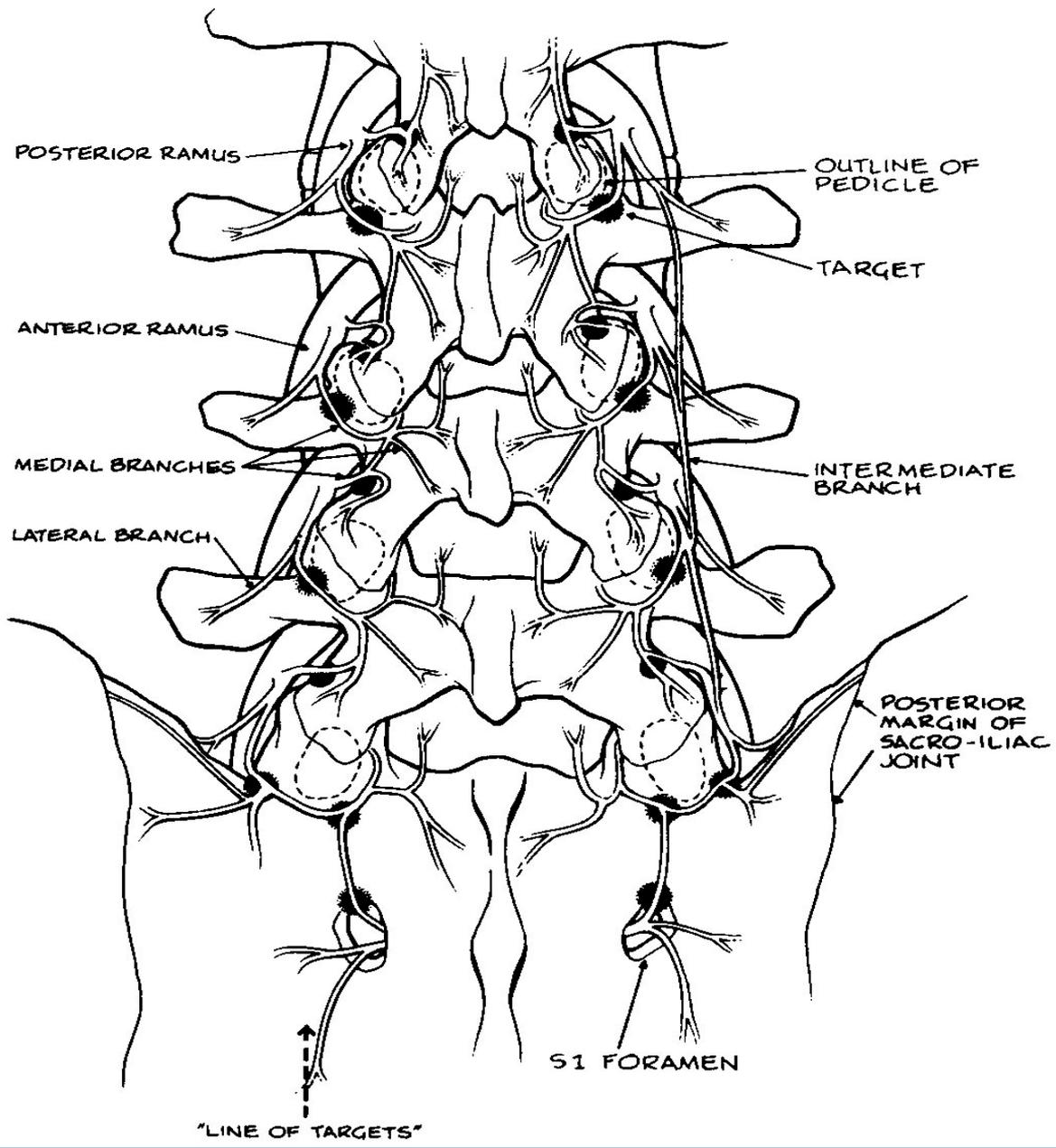


CUPPING OR "CLAM SHELL" FORMATION



# Neuroanatomy

- Joint innervation arises from the posterior ramus that splits from the dorsal root ganglion just lateral to the pedicle
- Posterior ramus divides into medial and lateral branches
  - Lateral branch supplies paraspinous muscles and overlying skin
  - Medial branch cross the transverse process to the inferior facet joint area

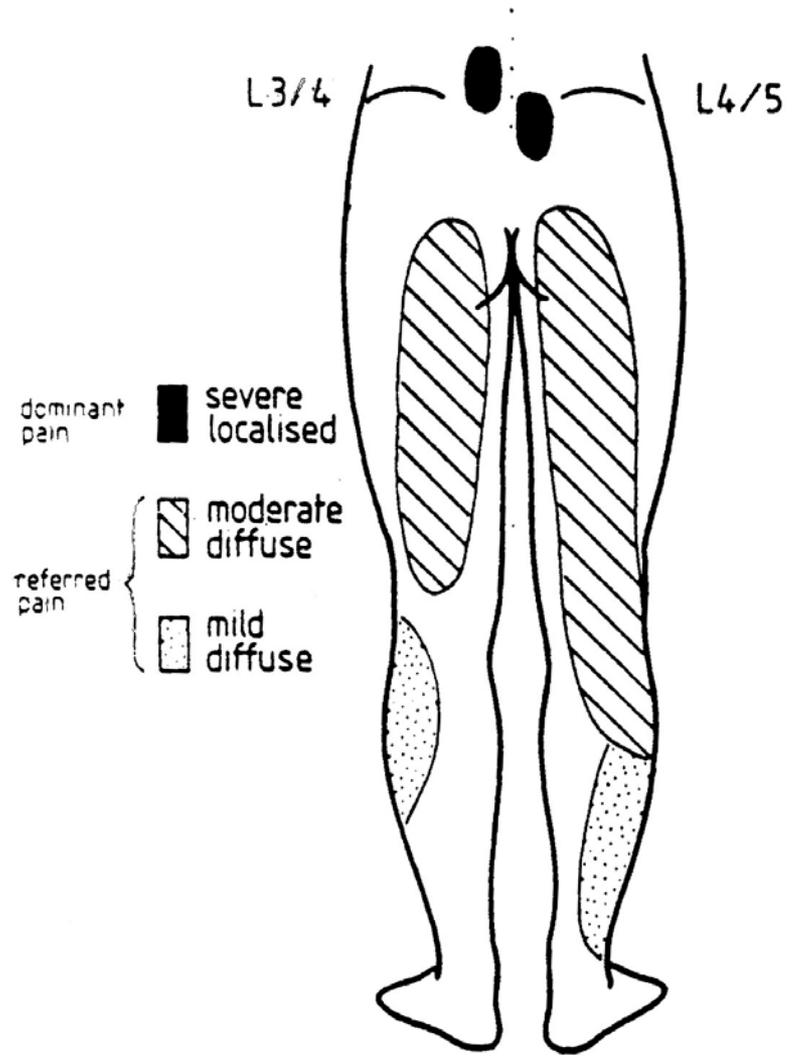


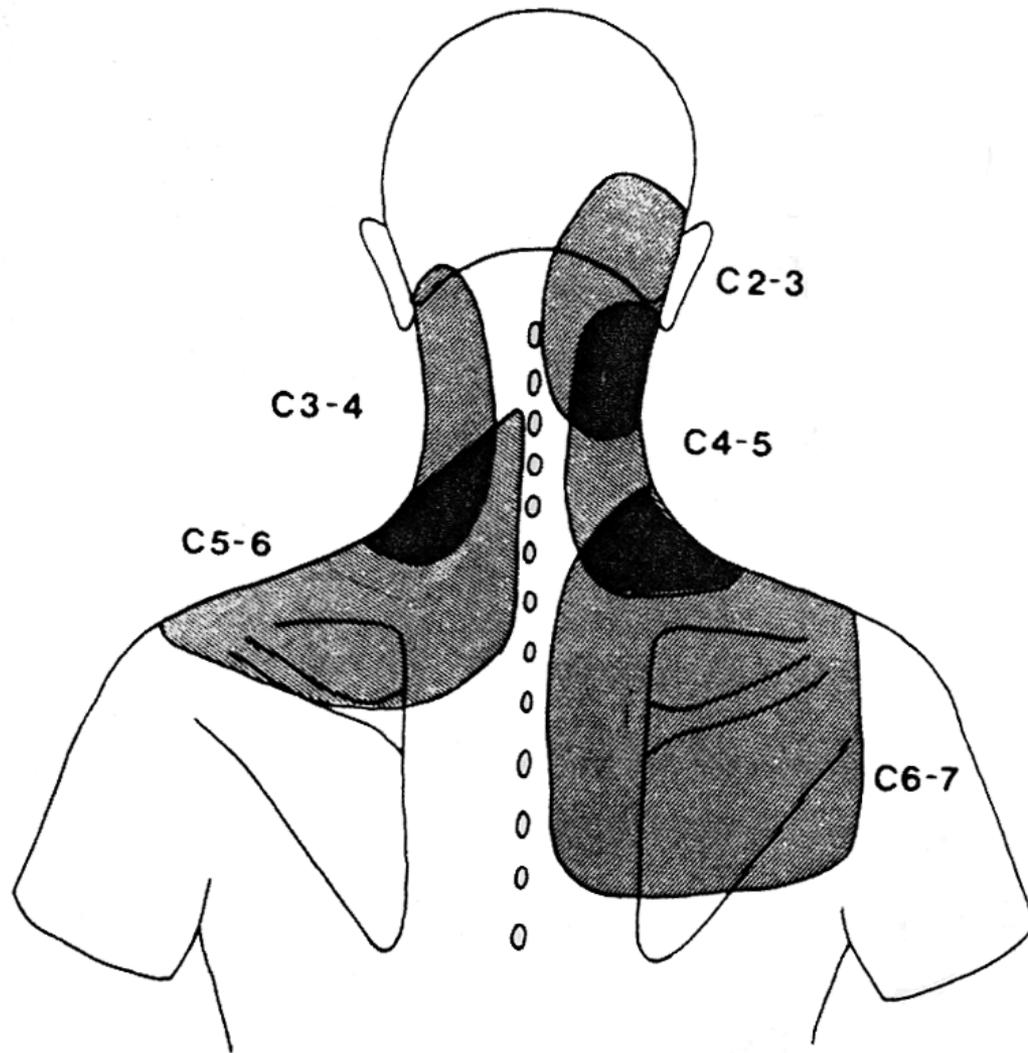
# Pathophysiology of Facet Pain

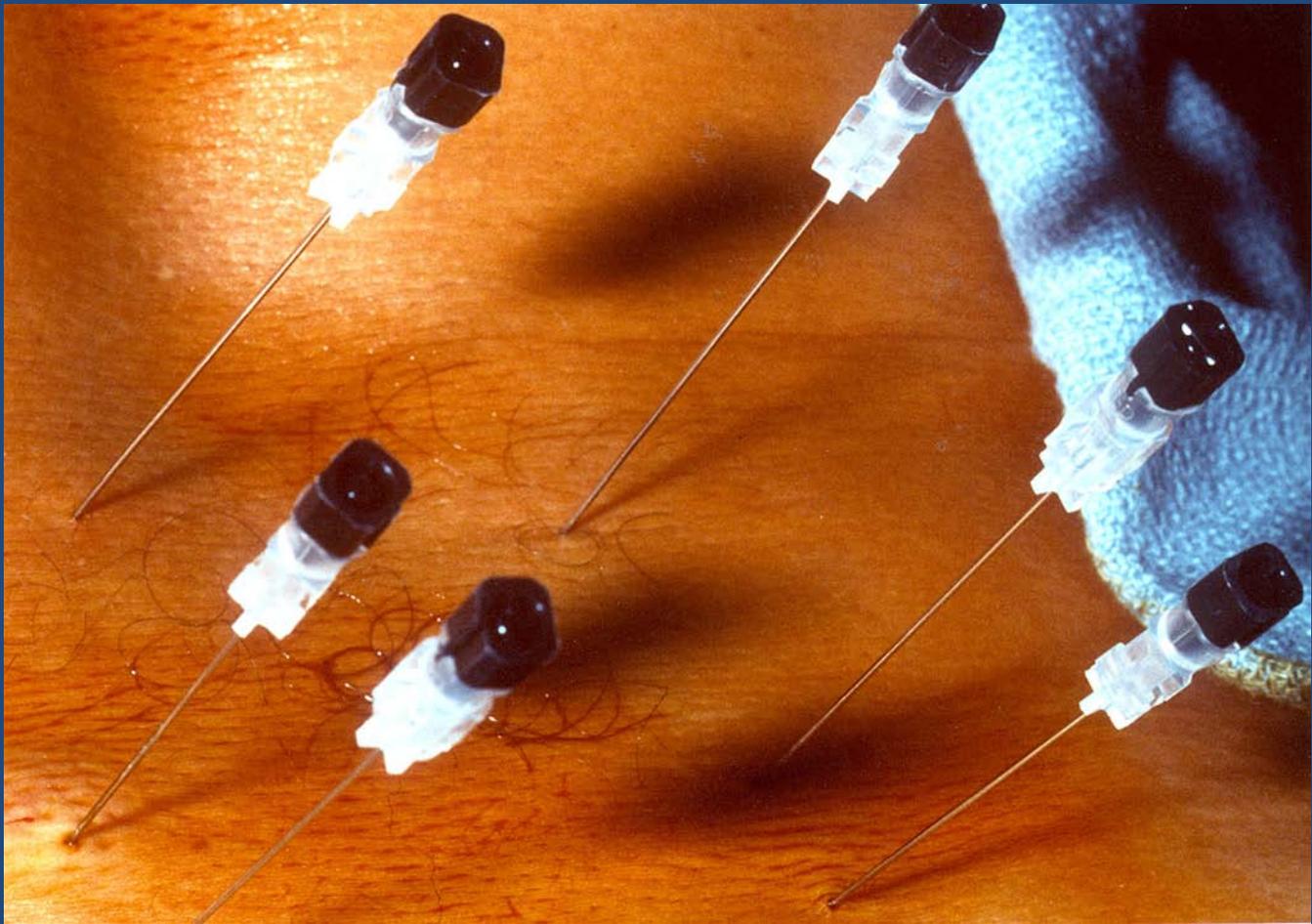
- Arthritic change occurs naturally – typically after age 30
- Trauma, “lifestyle”, dz processes (scoliosis)
- Chronic microtrauma at articular surface
  - Bone formation
  - Limitation of ROM
- Can cause spinal stenosis, foraminal narrowing

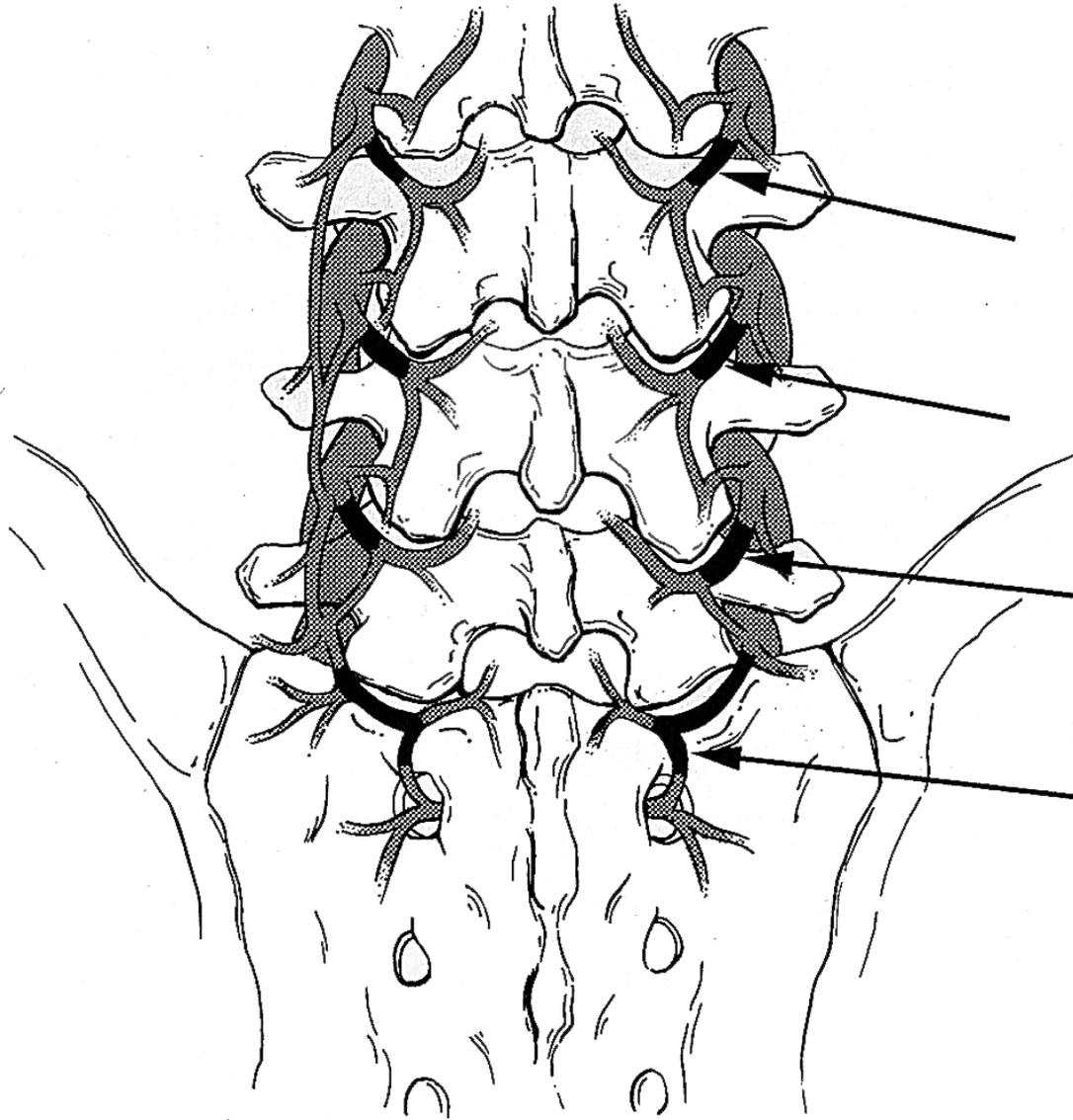
# Clinical Features

- Low lumbar pain
- Dull, achy referred pain to post thigh or post – lat
- Tenderness over facets
- Pain
  - Rotation, extension of spine
  - Prolonged sitting or standing
  - Negative slr





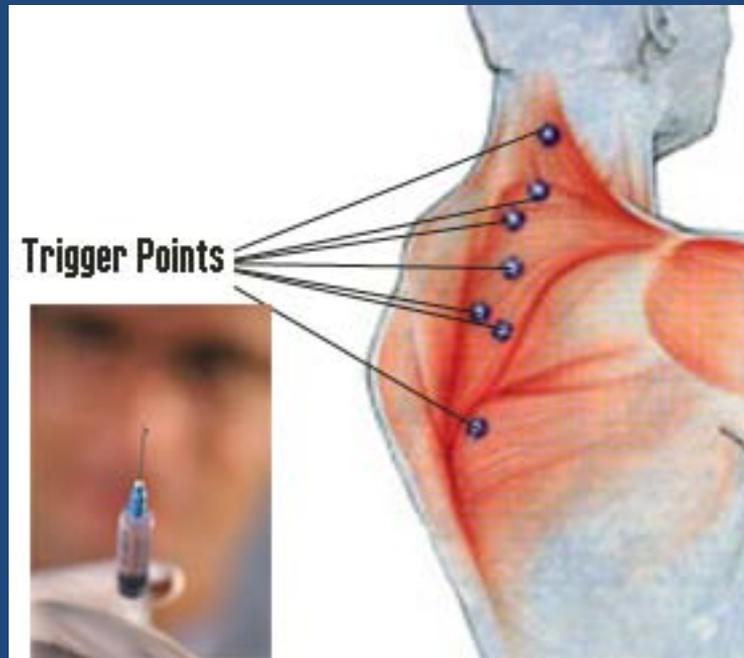




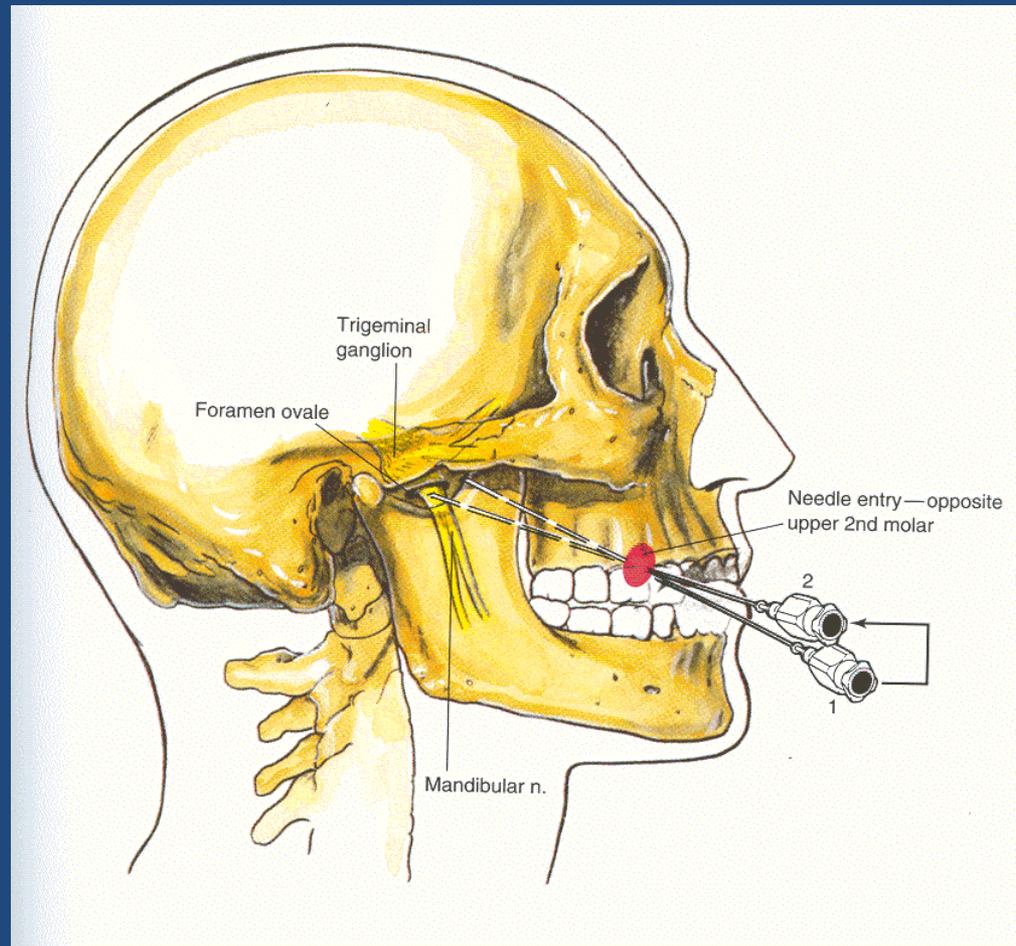
# RF Technique



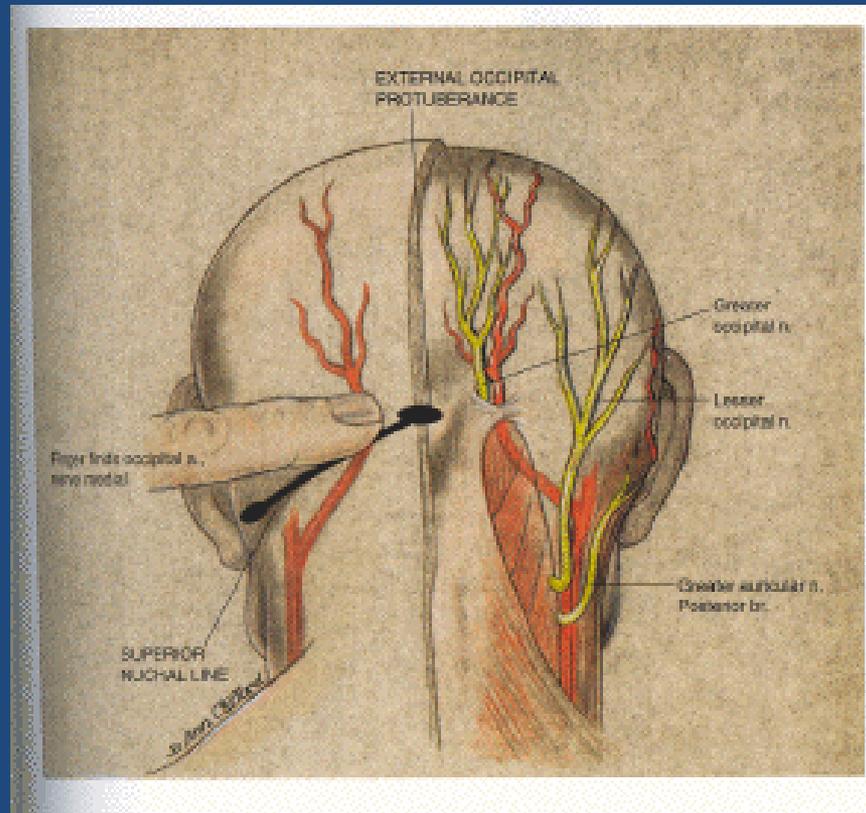
# Local injections – trigger points, scar injections, et al



# Trigeminal Nerve Blocks



# Occipital Nerve Block

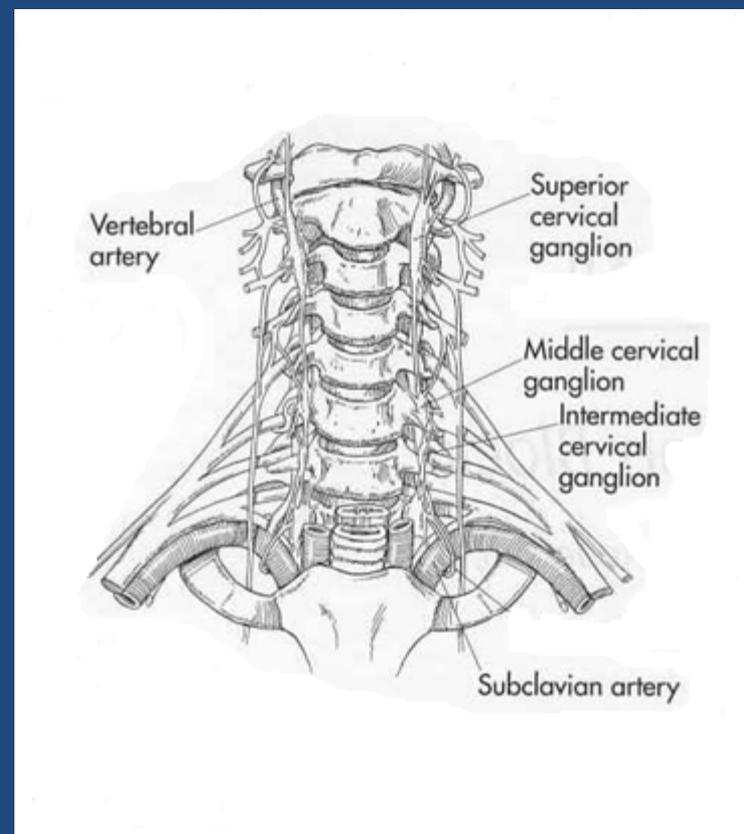


# Sympathetic Blocks

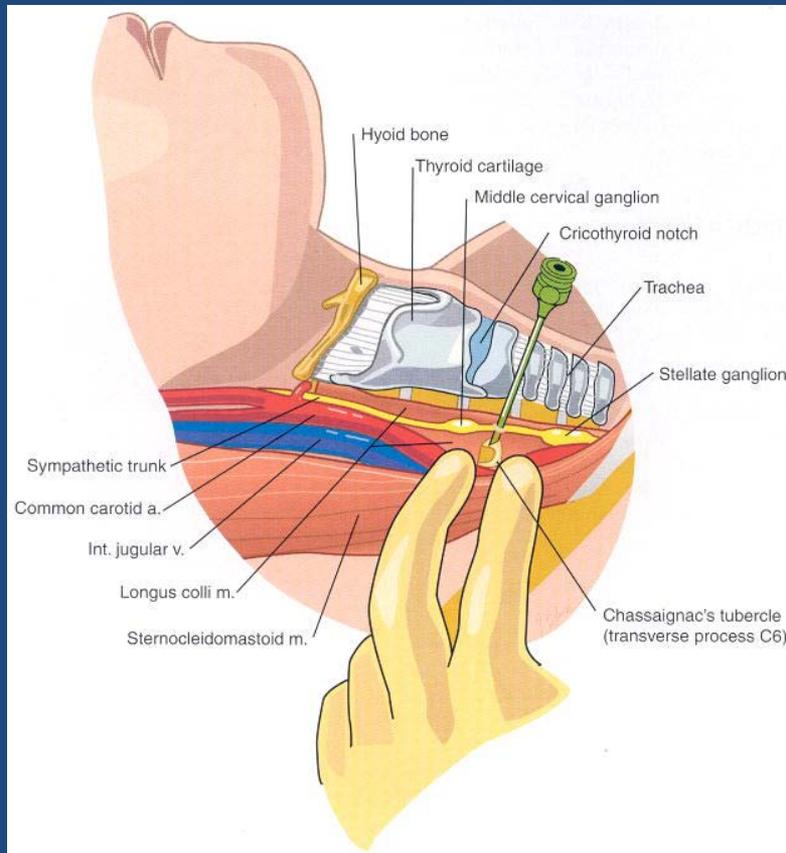
- Used to determine the role of the sympathetic nervous system in a patient's pain syndrome.
- May provide long term therapeutic benefit.
- Common indications include: CRPS, PHN, PVD, visceral pain (especially related to malignancy)

# Stellate Ganglion Block

- Block of sympathetic fibers innervating the upper extremities
- Target ganglion near the cervico-thoracic junction
- Block usually placed at the medial portion of C6 or C7 transverse process

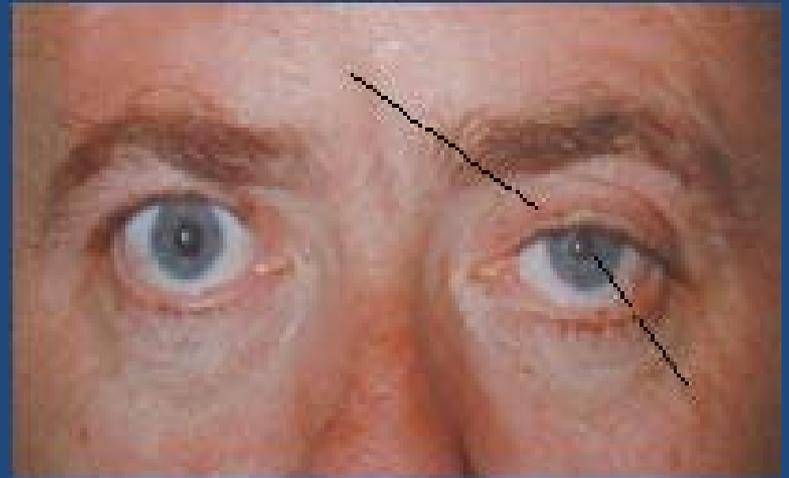


# Technique



# Goal is to induce a sympathectomy

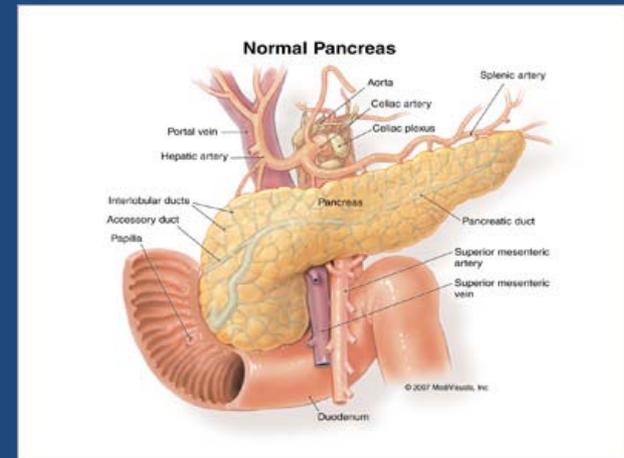
- Horner's syndrome:  
miosis, ptosis,  
enophthalmos
- Temperature change  
on affected side
- Several sequential  
blocks may be  
needed





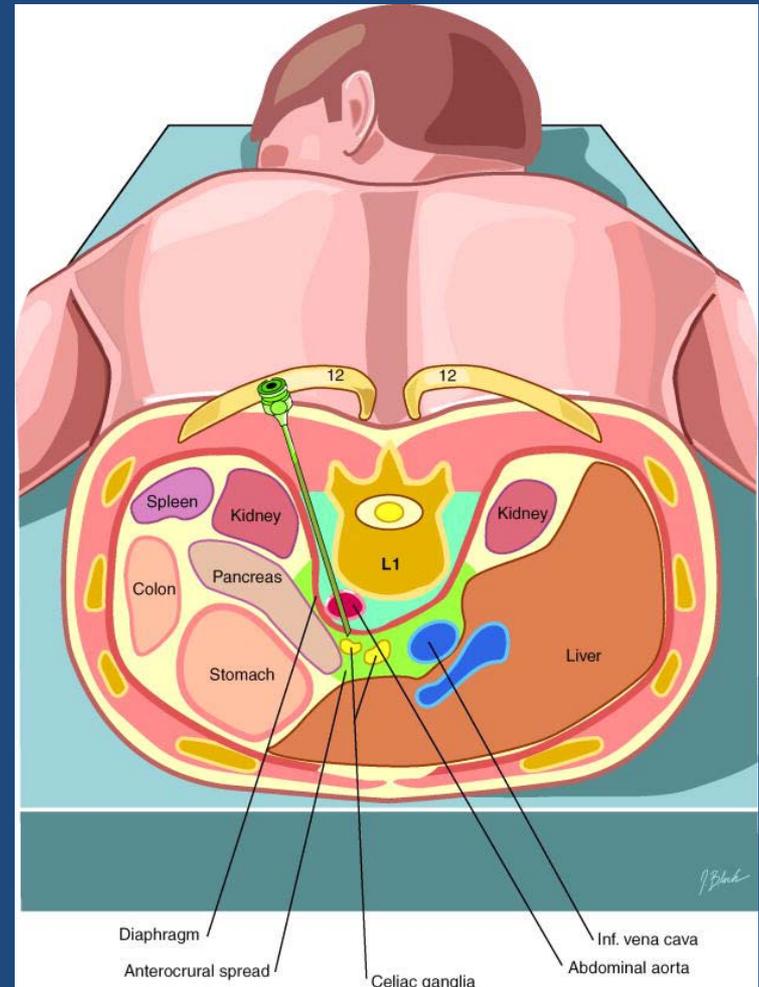
# Celiac Plexus Block

- Used for visceral pain
- Usually performed for pancreatic cancer
- Local block first, if successful, neurolytic
- Located at T12-L1 level

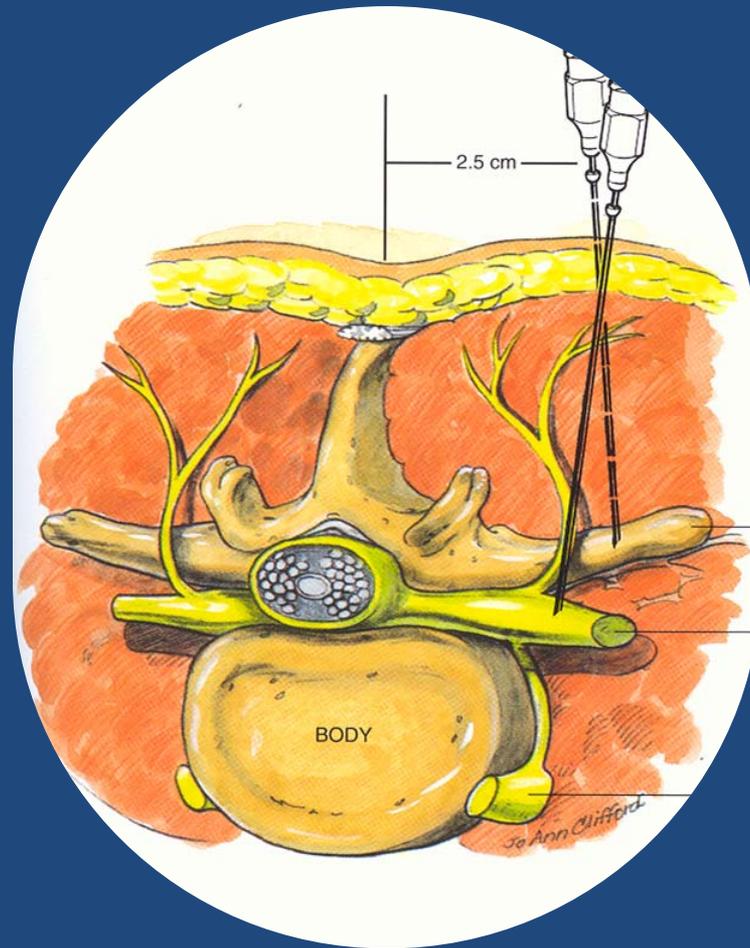


# Technique

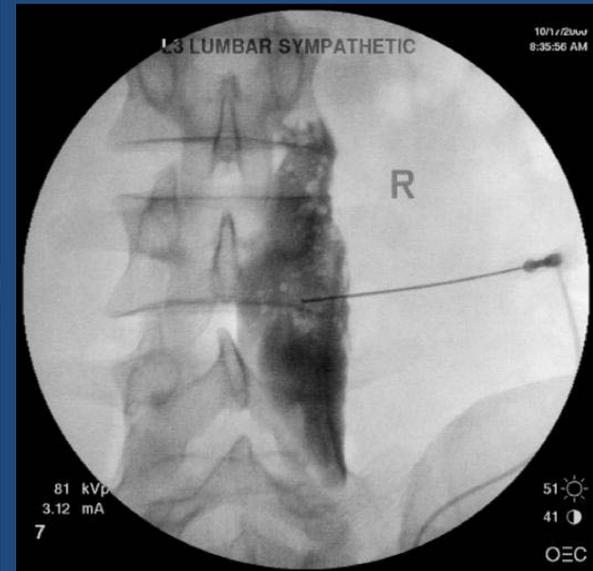
- Celiac Plexus is located anterior to the aorta
- Many techniques used, tend to use the transaortic approach
- Left side with needle approaching T12-L1 junction



# Lumbar Sympathetic Block



# Technique



# Neurolytic Blocks

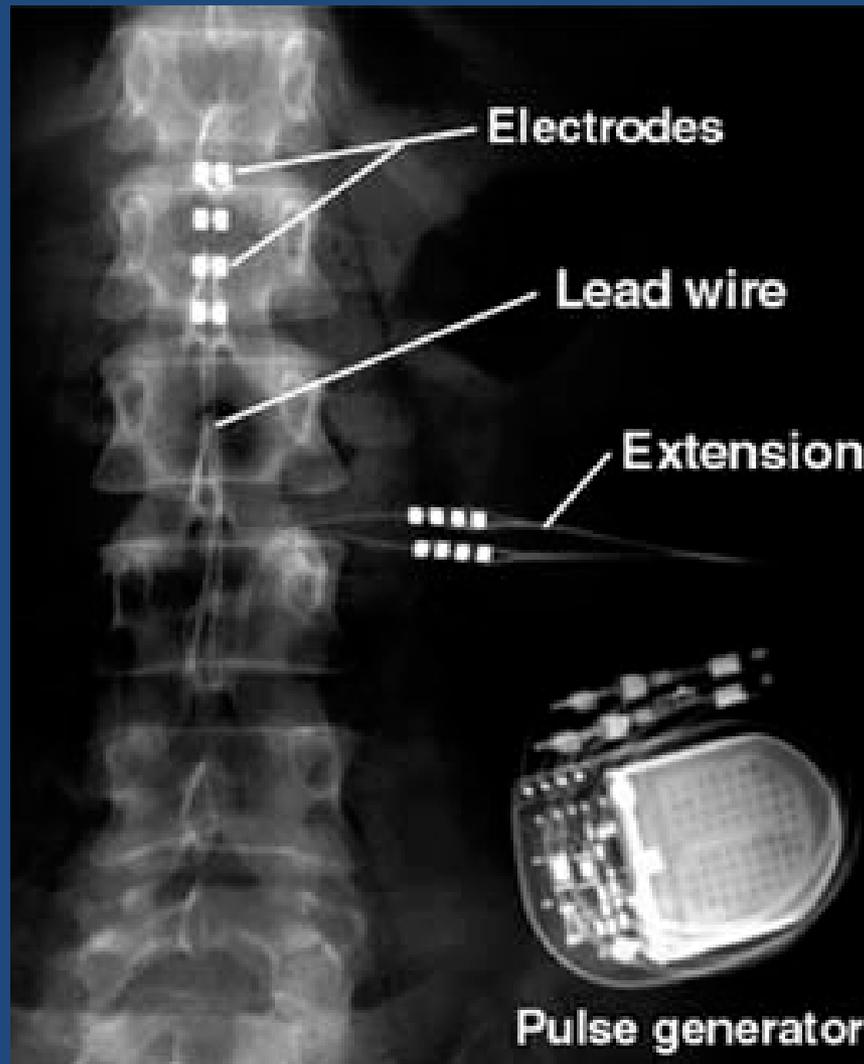
- Indicated for severe intractable cancer pain
- Also used for refractory neuralgia.
- Associated with considerable morbidity, careful patient selection is mandatory.
- Must perform at least one diagnostic block with LA
- The blocks are **NOT** permanent, original pain recurs or new (central) pain develops.
- Chemical neurolysis accomplished via alcohol or phenol injection
- Cryoablation or Radiofrequency Denervation are other alternatives.

# Spinal Cord Stimulation

- Also called dorsal column stimulation.
- In theory, produces analgesia by stimulating large A-beta descending via dorsal columns to inhibit afferent nociceptive input.
- Most effective for neuropathic pain.
- Stimulation trial precedes implantation of full stimulator system.

# Spinal Cord Stimulators

- Most commonly for:
  - Failed back surgery
  - CRPS
  - Severe radiculopathies
  - Severe neuropathies (diabetic)
  - Rarely phantom limb pain



# CRPS I Diagnostic Criteria - IASP

1. The presence of an initiating noxious event or a cause of immobilization.
2. Continuing pain, allodynia or hyperalgesia with which the pain is disproportionate to the inciting event.
3. Evidence at some time of edema, changes in skin blood flow or abnormal sudomotor activity in the painful region.
4. The diagnosis is excluded by the existence of conditions that would otherwise account for the degree of pain and dysfunction.
  - note: *Criteria 2,3 and 4 are necessary for a **diagnosis** of complex regional pain syndrome.*

- *International Association for the Study of Pain: Diagnostic Criteria for Complex Regional Pain Syndrome with 1997 ICD Codes*
- *Merskey H, **Bodguk** N, eds. Classification of chronic pain, descriptions of chronic pain syndromes and definitions of pain terms. 1d ed. Seattle: IASP Press, 1994:40-3.*

# CRPS II (Causalgia) - IASP

1. The presence of continuing pain, allodynia or hyperalgesia after a nerve injury, not necessarily limited to the distribution of the injured nerve.
2. Evidence at some time of edema, changes in skin blood flow or abnormal sudomotor activity in the region of the pain.
3. The diagnosis is excluded by the existence of conditions that would otherwise account for the degree of pain and dysfunction.

*note: All three criteria must be satisfied.*

*International Association for the Study of Pain: Diagnostic Criteria for Complex Regional Pain Syndrome with 1997 ICD Codes*  
Merskey H, **Bodguk** N, eds. *Classification of chronic pain, descriptions of chronic pain syndromes and definitions of pain terms. 1st ed.* Seattle: IASP Press, 1994:40-3.

# CRPS Clinical Features

Pain, allodynia, hyperalgesia

Autonomic abnormalities

- Edema

- Hypohidrosis or hyperhidrosis (most common)

Trophic changes

- abnormal nail growth

- increased or decreased hair growth

- thin glossy skin

- osteoporosis (diffuse and spotty on x-ray)

Motor dysfunction

- weakness

- atrophy

# CRPS Causes

- Minor/Major trauma to hands or feet
- Sprains
- Iatrogenic complication of surgeries
- Idiopathic
- Neurological events (brain lesions)

# CRPS Pain

- Constant
- Burning
- Aching
- Throbbing
- Due to mechanical or thermal stimulus
  - Especially cold
- Exaggerated response to stimulus
- Abnormal response to stimulus, repetitive stimulus

# CRPS Pain (Cont)

- Persists beyond normal healing time
- Not in a specific nerve or dermatome
- Covers anatomical regions (entire foot, hand, leg, etc)
- Can advance proximally to cover entire limb (contiguous spread)
- Can affect the opposite extremity (mirror-image)
- Can affect sites distant and noncontiguous from initial site (independent spread)

# CRPS Phase I (acute)

- Pain
- Erythematous
- Dry
- Soft Puffy edema
- Accelerated hair and nail growth



# CRPS Phase II (dystrophic)

- Cool
- Moist
- Cyanotic
- Tight/Shiny swelling
- Sparse Hair
- Brittle Nails
- Muscle and Bone Atrophy



# CRPS Phase III (atrophic)

- Pain is less, with passive motion
- Trophic cold limb
- Difficult to treat
- Poor outcomes





# Pathophysiology

- CRPS is most likely not reflective of a single pathophysiologic event but rather is a heterogenous disorder with several different underlying pathophysiologic mechanisms that result in similar clinical symptoms and signs.
- In short – nobody has a good explanation

# Pathophysiology – possible causes

- Peripheral Sensitization
- Central Sensitization
- Sympathetic hypersensitivity
- Denervation supersensitivity
- Central autonomic dysregulation
- Neurogenic inflammation

