

ACUTE AND CHRONIC NEUROPATHIES

American College of Osteopathic Internists
Internal Medicine Board Review Course 2019
Baltimore Marriott Waterfront Hotel
Baltimore, Maryland
May 8-May 12,2019
Scott Spradlin D.O. ,FACP,FACOI

I have no **relevant financial or nonfinancial relationships** in the products or services described, reviewed, evaluated or compared in this presentation.

Acute and Chronic Neuropathies

- **Mononeuropathy**

- *one nerve with one point of impingement*

- **Mononeuropathy multiplex**

- *one nerve with multiple points impingement*

- **Polyneuropathy**

- *multiple nerves and multiple points impingement*

Board Exam Sample

72-year-old man presents to your outpatient clinic with the complaint of recurrent spells of hand numbness. On exam, he has weakness of finger spreading. He also has sensory loss in the last two fingers splitting the ring finger. The most likely etiology for his symptoms is

- A. Recurrent transient ischemic attacks (TIAs)
- B. C6 radiculopathy
- C. C7 radiculopathy
- D. Ulnar neuropathy

Board Exam Sample

72-year-old man presents to your outpatient clinic with the complaint of recurrent spells of hand numbness. On exam he has weakness of finger spreading. He also has sensory loss in the last two fingers splitting the ring finger. The most likely etiology for his symptoms is

- A. Recurrent transient ischemic attacks (TIAs)
- B. C6 radiculopathy
- C. C7 radiculopathy
- **D. Ulnar neuropathy**

• Answer:

• *Ulnar Neuropathy(D)*

Acute and Chronic Neuropathies

- **Clinical Workup:**

- Personal/Family History
- Glucose
- Sedimentation rate
- Creatinine
- Thyroxine
- Complete Blood Count
- Pertinent Radiographic films
- EMG-NCV
- Age appropriate cancer screening

Acute and Chronic Neuropathies

Focal Compressive Radiculopathies:

- Localized peripheral nerve is involved
- Usually from compression
- Must differentiate from multiplex
- Examples:
 - Radial neuropathy- *radial n.*
 - Carpal tunnel syndrome- *median/radial n.*
 - Ulnar neuropathy- *ulnar n.*
 - Sciatica- *sciatic n.*
 - Peroneal nerve compression- *peroneal n.*
 - Brachial neuritis- *brachial n.*

Acute and Chronic Neuropathies

Mononeuropathy Multiplex

- *Single nerve involving greater than 2 sites on the nerve*
- *Tends to evolve from unsymmetrical to symmetrical*
- Diabetic Neuropathy- MOST COMMON

Examples-

Alcoholic Neuropathy-

Bell's Palsy-

Multiple Sclerosis (MS)-

Acute and Chronic Neuropathies

Polyneuropathies

- Landry-Guillain-Barre- *most common* autoimmune
- Diabetic Peripheral Neuropathy- *most common* overall
- Hereditary Motor and Sensory Neuropathy
- Chronic Inflammatory Demyelinating Polyneuropathy (CIDP) - steroids make it better
- Other
 - HIV
 - Metal toxicity- usually sensory-
 - (Thallium, Organophosphates, Lead)
 - Nutritional- Thiamine, B6, or B12 Deficiencies
 - Paraneoplastic Syndromes
 - Rheumatologic such as Lupus

Acute and Chronic Neuropathies

Hereditary Motor and Sensory Neuropathy

- Also known as “Charcot-Marie-Tooth”
- *Most common inherited polyneuropathy*
- Two main types: Type I and Type II
- Autosomal recessive or autosomal dominant
- *Slow onset- gradual onset over years*
- *Foot drop/weakness*
- *Sensory loss in a stocking distribution*

Acute and Chronic Neuropathies

• Landry-Guillain-Barre

- Most common inflammatory polyneuropathy
- Ascending paralysis/weakness limbs
- Areflexia
- Causes: Preceding infectious illness (2/3)
 - Usually gastroenteritis
 - CMV EBV VARICELLA
 - Campylobacter Swine influenza Rabies
- CSF: elevated protein and slight increase cell count
- Treatment:
 - Plasmaphoresis
 - Intravenous Immunoglobulin(IVIG)
 - Steroids of no use

Acute and Chronic Neuropathies

- **Case 1**

A 52-year-old man presents with 2 years of gradual progressive burning, stinging, and tingling in the feet and fingertips

Shoes, socks, and even the light touch of bed sheets are very irritating and limit his ability to rest.

When walking the pain becomes severe like an electrical shock pain in the feet.

The examination shows:

Decreased sensation in a stocking-glove pattern bilaterally.

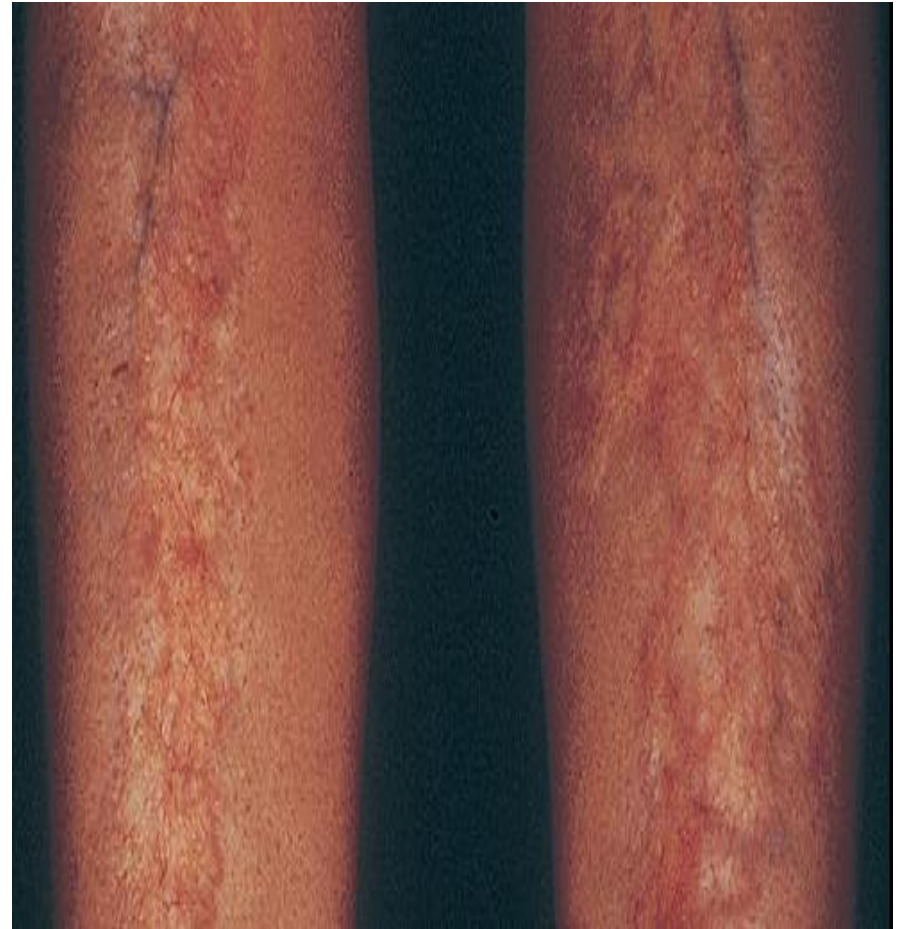
Muscle strength is normal.

Noted generalized atrophy of calf muscles

The muscle stretch reflexes are absent at the ankles otherwise normal.

Lab:

Glucose 169 and Creatinine 1.6



Acute and Chronic Neuropathies

Diagnosis:

Chronic Progressive Sensory Neuropathy

Metabolic- Diabetes, HIV, Sarcoidosis, Myeloma, or Porphyrria

Alcohol- chronic alcohol use

Nutritional- poor nutritional status or deficiency

Vascular- atherosclerosis or Berger's disease

Toxicity- environmental exposure

Rheumatologic- Lupus, rheumatoid arthritis

Acute and Chronic Neuropathies

• **Diagnostics**

- Glucose, Creatinine, Liver profile
- Sedimentation rate (ESR)
- Electrolyte profile
- TSH
- CBC
- Radiography- (Pertinent area based on history and exam)
- Nerve conduction studies /EMG
- Vascular Studies-(Pertinent area base on history and exam)
- Consider:
- SPEP,HIV,ANA,ACE, B12, B1,

Treatment of Neuropathic pain

- **Trigeminal neuralgia (sharp stabbing face pain)**
 - **Carbamazepine/Oxcarbazepine**
 - Gabapentin
 - Lamotrigine
 - Baclofen
- **Limb neuralgia (sharp, stabbing, zinging, lightning, bee-sting pain)**
 - Gabapentin**
 - Pregabalin**
 - Duloxetine (only diabetic)
 - Lamotrigine
 - Topomax
 - Lidocaine/Capsaicin
- **Continuous burning dysesthesias and supersensitivity (as in a diabetic)**
 - Pregabalin**
 - Gabapentin**
 - SSRI
 - Tricyclic Antidepressants such as Nortriptyline and Amitriptyline
 - Topical Lidocaine
 - Lamotrigine
 - Topomax
 - Tramadol
 - Opioid Analgesics

Acute and Chronic Neuropathies

- **Case 2**

- A 24-year-old man presents with 5 days of progressive burning, stinging, and tingling in the feet, gradually ascending up the legs and hands
- Today, he has difficulty walking because of the development of bilateral foreleg weakness with foot drop.
- A few days before the onset of his sensory symptoms he had a severe 24-hour gastrointestinal syndrome
- Examination:
- Distal sensory loss in a stocking-glove pattern of the extremities , muscle stretch reflexes are absent, and foot drop bilaterally
- Hands as shown to the right



Acute and Chronic Neuropathies

- Answer:
- Heavy Metal Poisoning-
 - probably Arsenic or Thallium
 - *This is a progressive symmetrical neuropathy and the picture show Mee's lines which are associated with metal toxicity.*

Acute and Chronic Neuropathies

- **Case 3**

29-year-old man presents after waking up with intense aching pain in the right jaw and ear.

He has sagging of the right side of the face.

Examination shows:

Face at rest, smiling, raised eyebrows with deficit otherwise normal exam

Sensation is mildly increased

The examination of the ear is normal.

- What is the diagnosis?
- How much work-up is appropriate?



Acute and Chronic Neuropathies

- **Answer: Bell's Palsy**
- *No lab/procedure test needed and diagnosis is made by physical exam only*
- What if a vesicular lesion was found on ear exam?
- What would the diagnosis be?

Acute and Chronic Neuropathies

- **Answer: Bell's Palsy**

- *No lab/procedure test needed and diagnosis is made by physical exam only*

What if a vesicular lesion was found on ear exam?

- What would the diagnosis be?
 - Ramsay-Hunt Syndrome
(Herpes zoster Oticus)

Acute and Chronic Neuropathies

Case 4

A 25-year-old man presents with 3 days of gradual progressive difficulty walking. He has weakness of his arms and his legs feel heavy and now his feet feel numb.

- No history other than the Flu last week

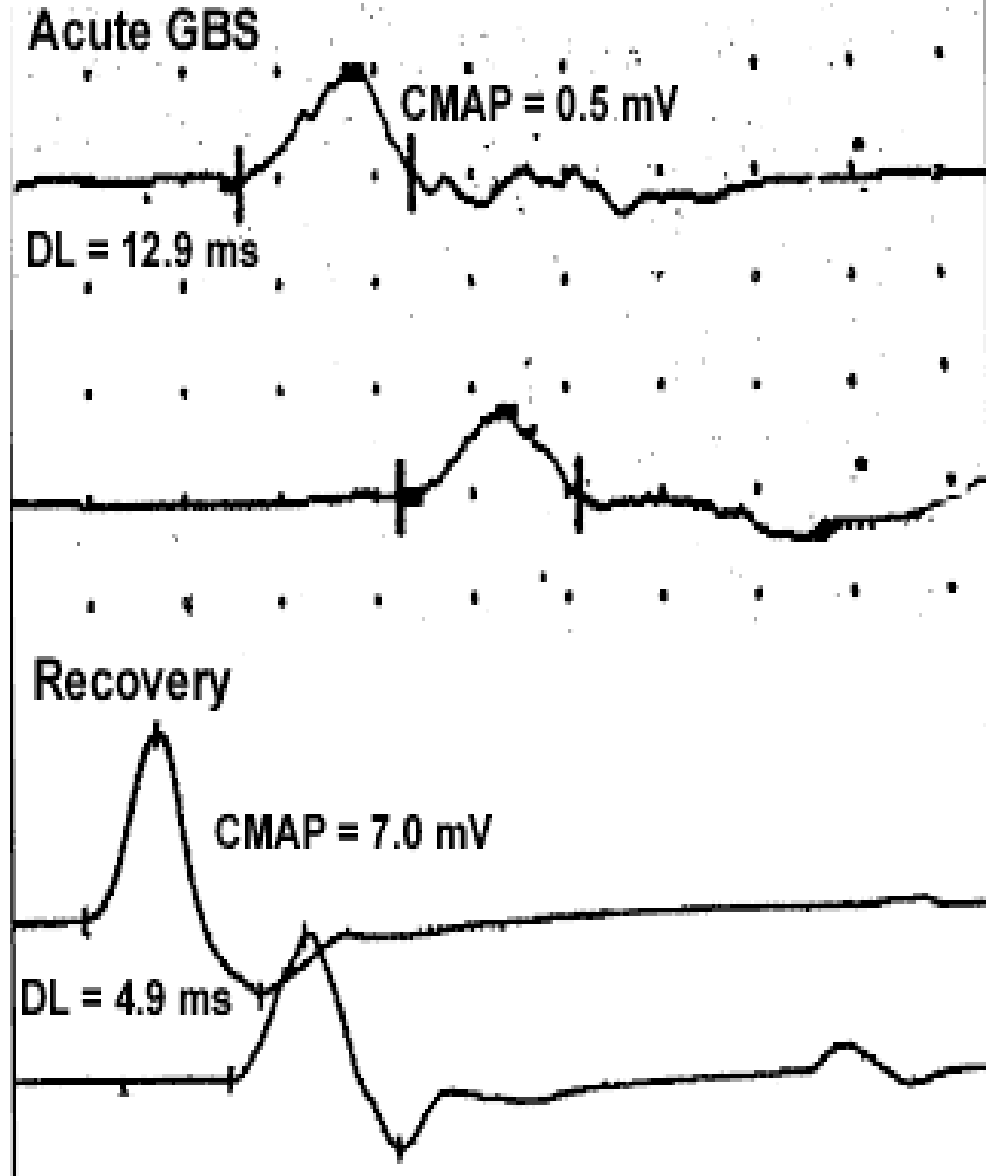
Examination shows:

Moderate weakness of proximal and distal muscle groups (shoulders, arms, and legs in symmetric fashion).

There is mild decrease in position and vibration sense in the toes.

The muscle stretch reflexes are absent in the arms and legs.

- **What is the diagnosis?**



Acute and Chronic Neuropathy

- **Answer:**
- **Landry-Guillain-Barre**

Acute and Chronic Neuropathies

Case 6

40-year-old woman presents with 15 years of gradual progressive difficulty with ambulation

Tendency to stumble easily;

Most recent difficulty with hand function including grip, strength, opening jars, and grasping fine objects.

The symptoms are symmetric.

There is minimal tingling in the toes but no sensory loss in the hands.

The examination shows the presence of atrophy in the foreleg muscles

Prominent tibial bones; atrophy of the intrinsic hand muscles and pes cavus.

The muscle stretch reflexes are absent

There is decreased vibration sense in the toes and fingertips, and slightly decreased pin prick in the toes.

There is associated foot drop bilaterally.

Proximal strength is normal.



Diagnosis?

Acute and Chronic Neuropathies

- Answer:
- Charcot-Marie-Tooth Disease
(Hereditary Motor Sensory Neuropathy)

Acute and Chronic Neuropathies

• Case 7

A 51-year-old man presents with 3 weeks of continuous burning, stinging, and intense discomfort in the side of the leg as shown.

He has no other past medical history, takes no medications, and has no back pain or leg weakness, and no recent viral symptoms.

Examination shows:

Super sensitivity in the circle area whether touched with a pin or with cotton, all stimuli are equally noxious.

Strength in the legs is normal as are the muscle stretch reflexes.

What is the diagnosis? Treatment?



Acute and Chronic Neuropathies

- **Answer:**
- Lateral femoral cutaneous neuropathy syndrome
 - *meralgia paresthetica*
 - Meralgia paresthetica, also called *Bernhardt-Roth syndrome*, is a neurological condition that causes numbness, tingling, and sometimes pain in the outer thigh
 - From tight fitting clothes or belts or standing too long
 - Treatment: conservative usually resolves in 3 months

Acute and Chronic Neuropathies

• Case 8

53-year-old woman presents with 5 days of burning pain in the left posterior chest

It radiates around her side to the anterior chest in a band-like pattern.

She reports recent malaise, nausea, and vomiting.

In the last 24 hours she has developed clusters of vesicles on a red base in the area of burning pain.



What is the diagnosis?

Acute and Chronic Neuropathies

Amyotrophic Lateral Sclerosis (ALS)

- Also known as “*Lou Gehrig’s Disease*”
- Progressive Degenerative with muscle wasting
- Sensory and Cognitive changes
- Affects men more than women ages 40-60

Acute and Chronic Neuropathies

Clinical Manifestations:

➤ Musculoskeletal

- Weakness/fasciculations/spasticity/paresis/hyper-reflexia

➤ Respiratory

- Dyspnea/Difficulty clearing airway

➤ Nutrition

- Difficulty chewing/Dysphagia

➤ Emotion

- Loss of control/ liability

➤ Cognitive

- Intellect intact

Acute and Chronic Neuropathies

Prognosis/Treatment:

- Diagnosis is with EMG
- Death is usually resultant of pneumonia/respiratory failure
- Treatment (slows down decline of physical ability)
 - Radicava(Edaravone)
 - Riluzole(Rilutek)
- Supportive nutrition/ventilation/communication/mobility