

Assessment of Chronic Pain Patients in Neurology Clinic

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Neurological Skills in Pain

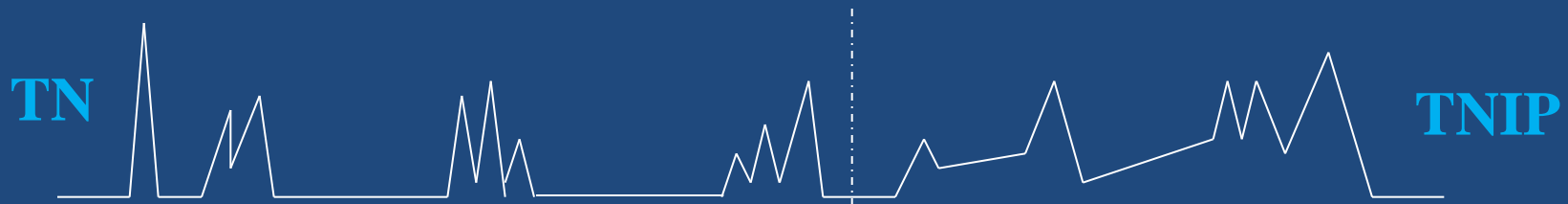
- Pain is a Neurological Symptom:
 - Assessment of underlying cause
- Not all Neuropathic Pain is the same
- Other Neurological symptoms associated with pain
- Treatment Strategies:
 - New therapies: drugs and stimulation
 - Combinations
- Research

Diagnosis: Clinical Assessment

- History
 - Picking up positives, significant negatives and information misfits
 - Tempo of development of symptoms
 - Thoracic spinal pain
 - Back pain worse on lying down
 - Postural headaches
- Examination
 - Full Neurological. Positive and Negative Signs

Trigeminal Neuralgia Pain

- Character: sharp shooting, stabbing, lancinating and electric shock-like
- Timing: pain abrupt and equally abrupt termination with spontaneous remission

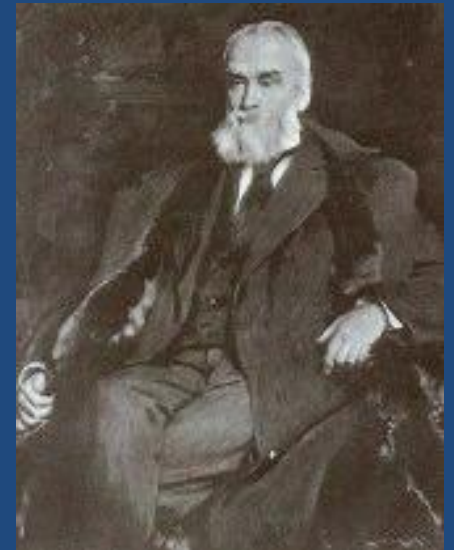


- Site & Radiations: within trigeminal nerve territory. Mouth to ear or nose to orbit pattern
- Triggers: Mechanical or thermal in majority

Neurological Examination

Positive + Negative Symptoms/Signs:

- Sir John Russell Reynolds (1828–1896)
- Hughlings Jackson:
 - Negative: “dissolution of neural function”
 - Positive: “excitation or the release of lower levels from higher inhibitory control”

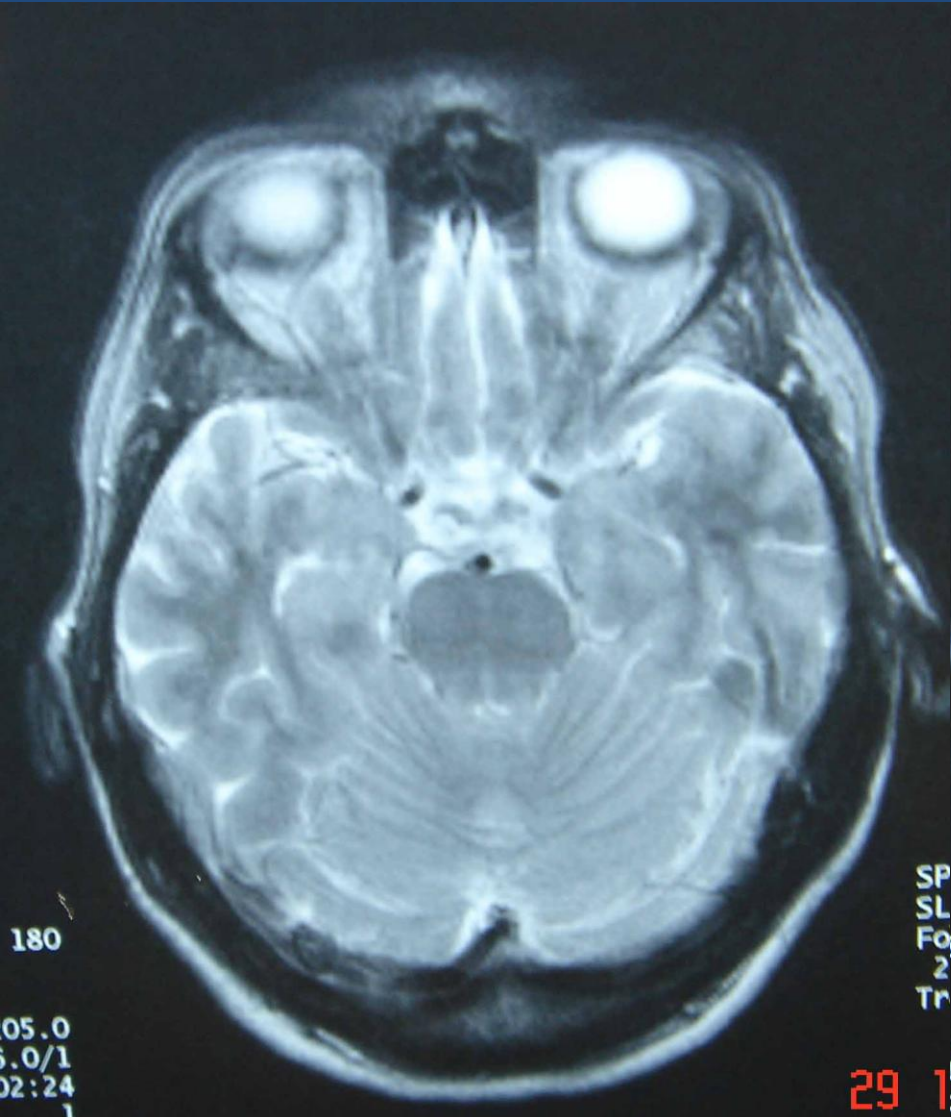


Positive Phenomena

- Allodynia:
 - Static: orange stick/ von Frey hairs
 - Dynamic: brush
- Hyperalgesia:
 - Mechanical: increase sensitivity to pin prick
 - Thermal: reduced thresholds to cold and warm pain
- Hyperpathia:
 - Repeated stimulation with orange stick

Diagnosis: Investigations

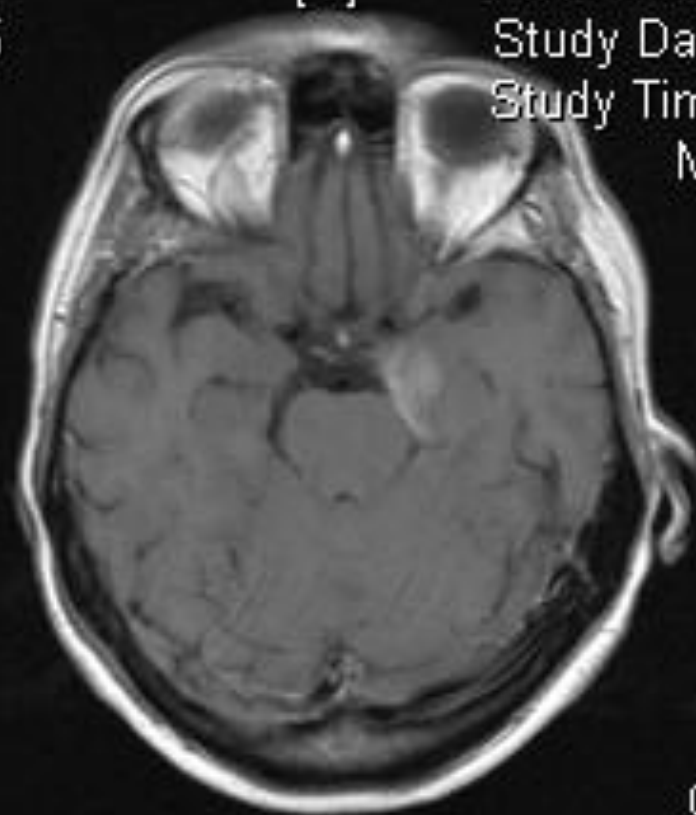
- Many patients with pain undergo:
 - “Unusual Blood” tests:
 - Antiganglioside antibodies
 - Anti-Neuronal antibodies
 - Neuroimaging
 - Neurophysiology Tests



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Study Date:..
Study Time:..
MRN



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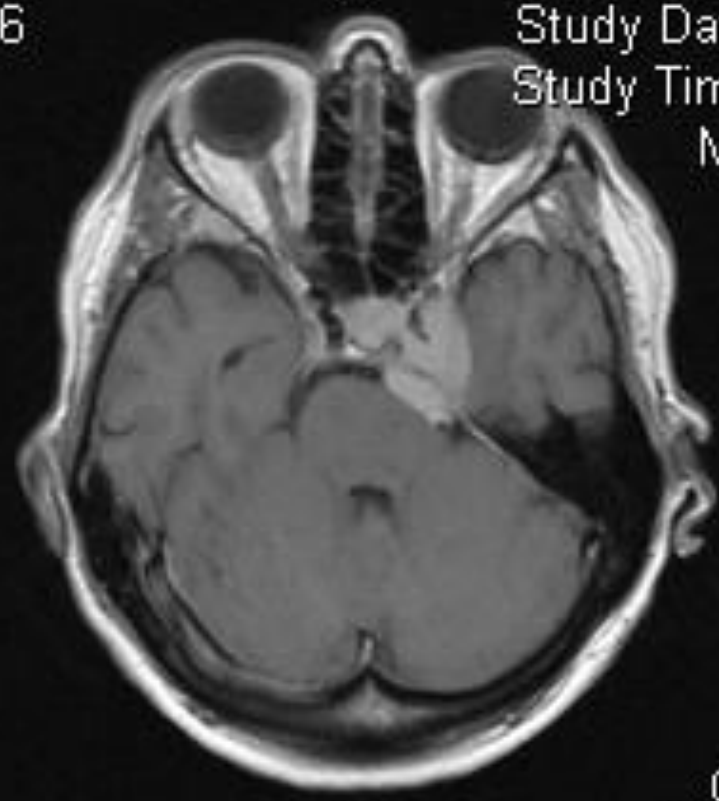
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Neurological Skills in Pain

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Diagnosis: Syndromic vs Mechanistic ?

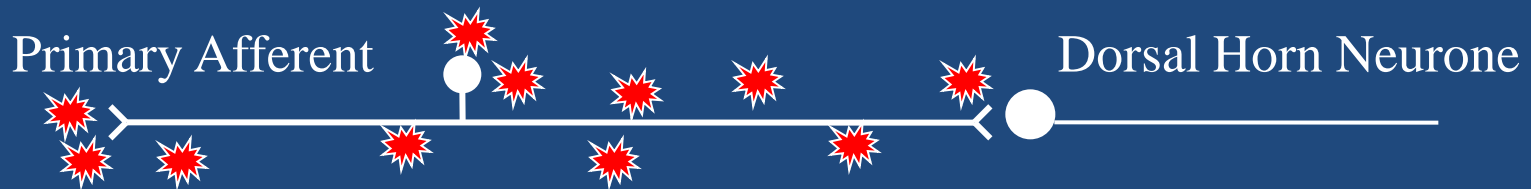
Syndromic

- Known disease entity
- Predictable natural history
- Tailored therapy
- Associated symptoms:
 - Autonomic features
 - Involuntary Movements

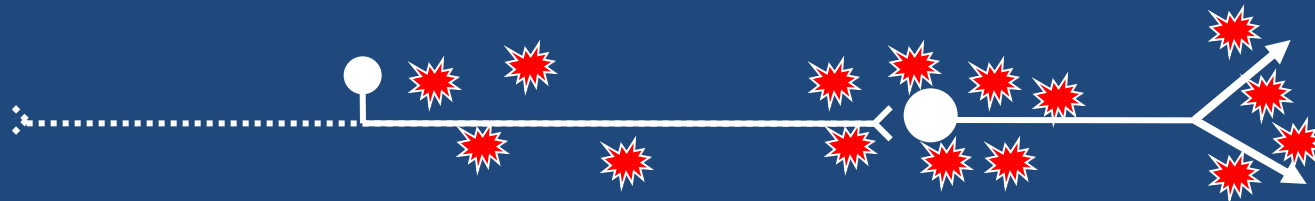
Mechanistic

- Predict generator of pain
- Same pathogenesis may have different symptoms
- Same syndrome may need different management

Mechanistic Classification: PHN



Irritable Nociceptor: No Sensory Loss and Severe Allodynia



Deafferented Allodynic: Sensory Loss and Allodynia



Deafferented Non-Allodynic: Sensory loss and No Allodynia



**Spectrum
of PHN
Subtypes**



Mechanism based treatment

5% Lignocaine patches:

- 28 patients with DPN:
 - QST, Epidermal Nerve Fibre (ENF) density and distal sensory nerve conduction were performed
 - None were predictive of response to patch

Muscle and Nerve 2006; 33: 42-48

- 18 patients with PHN area of max. pain:
 - 6 with irritable nociceptors, 12 completely damaged: placebo blinded crossover
 - All gained benefit: ↓ ongoing pain & allodynia

Wasner G et. al., J Neurol. 2005; 252: 677

Are all Neuropathic Pain the same?

- Amitriptyline ineffective for:
 - HIV Neuropathy¹
 - Cancer Neuropathic Pain²
 - Phantom Limb Pain³
- Pregabalin not useful for:
 - Lumbosacral radiculopathy⁴

1. Kiertburtz et. al., Neurology 1998; 51:1682

2. Mercadante et. al., Tumori. 2002 May-Jun;88(3):239-42

3. Robinson et. al., Arch Phys Med Rehab 2004; 85: 1-6

4. Remmers et. al., American Pain Soc Meeting Atlanta Georgia 2000 Poster 660

Neuropathic Cancer Pain: Is it all the same?

- Painful peripheral neuropathy from chemotherapy:
vinca/platinum/taxanes
 - Amitriptyline (50mg) DB/PC¹
 - Nortriptyline (100mg) DB/PC/Crossover²
 - Lamotrigine (300mg) DB/PC³
 - Gabapentin (2.7g) DB/PC⁴

1. Kautio et. al., J Pain Symp. Management 2008; 35:31-39

2. Hammack et. al., Pain 2002; 98: 195-203

3. Rao et.al., Cancer 2008; 112: 2802-8

4. Rao et. al., Cancer 2007; 110:2110-8

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Associated Symptoms

- Sensory:
 - Hypoaesthesia
 - Hyperaesthesia
- Motor:
 - Reduced Power
 - Involuntary movements
- Generalised:
 - Fatigued
 - Loss of awareness

Diagnostic Associations

- Waldenstrom's Macroglobulinaemia:
 - Painful peripheral neuropathy
 - Dusky cold peripheries
 - Tremor hands
- Lyme Disease:
 - Painful Neuropathy
 - Rash
 - Fatigue

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Treatment for Specific Syndromes

- Trigeminal Neuralgia
- Central Pain
- Paroxysmal Hemicrania
- SUNCT

Nortriptyline & Gabapentin

- Crossover 3 arms of nortriptyline, gabapentin or combination 6 weeks each with 2 week washouts
- 56 randomised (PHN 16, DPN 40) 45 completed
- Mean Pain Scores:
Baseline 5.4 Gabapentin 3.2 Nortriptyline 2.9
Combined 2.3 (Statistically significant)
- Interesting findings:
 - Some patients failed prior therapy with tricyclics/gabapentin
 - Side-effects more with gabapentin than nortriptyline
 - Lower mean doses used in combination gabapentin 2.4g/2.1g and nortriptyline 62 mg/50mg

Combinations Best?

- Randomised controlled study 52 patients
1/52:
 - Neuropathy, plexopathy, radiculopathy
- Adjunct to opioids:
 - Gabapentin 400mg/d and Imipramine 10mg/d
 - Gabapentin 400mg/d and 800mg/d
 - Imipramine alone 10mg/d
- Combination treatment best pain relieve:
 - Total Pain Score halved
 - Daily Paroxysmal Pain Intensity reduced by 1/3
 - Rescue Opioids: 1/3 reduction frequency

Assistance in Management

- Different sub-specialities
 - Other Neuroscience Colleagues:
 - Neurosurgeons, Neurophysiologists, Neuropsychiatrists, Nurses, Neurophysiotherapists
- Adoption of drugs but less familiar...
- Use of stimulation analgesia:
 - Transcranial Magnetic Stimulation
 - Other stimulation analgesia

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Example of Neuroscience Research in Pain

- NGF gene mutations:
 - Congenital insensitivity to pain
- NaV 1.7 gene mutations:
 - Gain of function in erythromelalgia
 - Paroxysmal Extremity Pain Syndrome
 - Other syndromes?

Research

- Pathophysiology of chronic pain
- Predisposed individuals ?genetic
- Pre-emption in chronic pain?
- Animal models of chronic pain
- Role of nerve regeneration
- Channelopathies in pain

Education

- The population: pain without injury is not synonymous with malingering
- Patients: simplified models
- Medical and paramedical staff

Pre-emption always better than cure.



Pain is Inevitable BUT Suffering is Optional