'to provide excellence in education, management and prevention of trigeminal chronic orofacial pain'
OFP: update on Classification Diagnosis Management

BSOS 2 June 2013
Manchester

Tara.renton@kcl.ac.uk
An update

OFP classification
- Types of pain
- Politics

Differential diagnosis
- Assessment
- Management
Trigeminal nerve pain

Education

Complex region

Consequences

• Social function
• Eating
• Drinking
• Speaking
• Kissing
• Make up / shaving
• Sleeping
Trigeminal nerve

Sensory supply to face, scalp and mouth

Homunculus
Impact of orofacial pain

70% psychological impact
Locker & Grushka 1987

48% psychosocial impact
Richards & Slade 1996

In TMJ pain:

29% high disability resulting in unemployment
Von Korff et al 1992

64% decreased efficiency at work
Dao et al 1994
Impact of chronic V pain
Type of patient.....BSOS
Pain

“An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage” (IASP, 1979).
Pain

“An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage” (IASP, 1979).

Acute pain
Nociceptive

Dysfunctional pain

Chronic pain
Neuropathic pain

Acute pain
Inflammatory pain
Common things happen commonly!
Pus made of dead white cells predominantly macrophages, due to necrotic pulp, leakage through apex ultimately causing an apical abscess.
Manage the Acute Pain Process

Bio psycho social Model

- Social / cultural
  - Age, gender, race, peer support, familial expectation

- Emotional / psychological
  - Depression, anxiety, stress, fear, anger

- Cognitive / conceptual
  - Memories past experience, secondary gain, threat perception

LA, Spinal Block

- Antiinflammatory analgesics

- Membrane stabilising drug

- Sedation, CBT

- CBT
Successful Management of Acute Dental Pain
Ken M. Hargreaves, DDS, PhD
University of Texas Health Science Center at San Antonio
Hargreaves@UTHSCSA.edu

Ibuprofen (400-800mg) + Paracetamol (500-1000mg) QDS PO
Synergism paracetamol + NSAIDs


- Onset of analgesia with sodium ibuprofen, ibuprofen acid incorporating poloxamer and acetaminophen--a single-dose, double-blind, placebo-controlled study in patients with post-operative dental pain.
- 400mg ibuprofen
- With 1000mg
- Paracetamol

- Lowest re-medication rate

Andrew Moore a,⇑, Sebastian Straube b, Jocelyn Paine c, Sheena Derry a, Henry J. McQuay M. PAIN 152 (2011) 982–989

inimum efficacy criteria for comparisons between treatments using individual patient meta-analysis of acute pain trials: Examples of etoricoxib, paracetamol, ibuprofen, and ibuprofen/paracetamol combinations after third molar extraction.
Medical - analgesics

WHO analgesic ladder

Rescue medication
NSAIDs
Tramadol
Pethidine
Morphine
IV lidocaine/LA blocks
Classification of chronic OFP
Summary

Expert Review of Neurotherapeutics
(doi:10.1586/em.12.40)

Theme: Pain - Review

The classification and differential diagnosis of orofacial pain

Tara Renton1, Justin Durham2 and Vishal R Aggarwal3

* Author for correspondence

There are currently four main pain classification systems relevant to orofacial pain (OFP): the International Association for the Study of Pain, International Classification of Headache Disorders, the American Academy of Orofacial Pain and the Research Diagnostic Criteria for Temporomandibular Disorders. Of the four, the Research Diagnostic Criteria for Temporomandibular Disorders is the most biopsychosocial system, with the remaining three focusing more on the biomedical aspects. Unsurprisingly, clinical scientists and clinicians have both reported perceived deficiencies in the published systems and have proposed further modified classifications and nomenclature for OFP. Establishing a standardized biopsychosocial classification of OFP is essential for ensuring continuity for patient care since it creates a standardized language with which to communicate healthcare information, thus enabling improved and more specific (epidemiological) research and patient care. Despite ongoing attempts, an accepted overarching classification of OFP is still a work in progress. There is an urgent need for a robust classification system for OFP. This review aims to highlight the recent debate and continued struggle to
IASP Regional Classification of Localized Syndromes of the Head and Neck

- Neuralgias of the head and face
- Craniofacial pain of musculoskeletal origin
- Lesions of the ear, nose, and oral cavity
- Primary headache syndromes, vascular disorders, and cerebrospinal fluid syndromes
- Pain of psychological origin in the head, face, and neck
- Suboccipital and cervical musculoskeletal disorders
- Visceral pain in the neck
A Hierarchical International headache classification IHCD II

Part I: The Primary Headaches
1. Migraine
2. Tension-type headache
3. Cluster headache and other trigeminal autonomic cephalalgias
4. Other primary headaches

Part II: The Secondary Headaches
5. Headache attributed to head and/or neck trauma
6. Headache attributed to cranial or cervical vascular disorder
7. Headache attributed to non-vascular intracranial disorder
8. Headache attributed to a substance or its withdrawal
9. Headache attributed to infection
10. Headache attributed to disorder of homoeostasis
11. Headache or facial pain attributed to disorder of cranium, neck, eyes, ears, nose, sinuses, teeth, mouth or other facial or cranial structures
12. Headache attributed to psychiatric disorder

Part III: Cranial Neuralgias Central and Primary Facial Pain and Other Headaches
13. Cranial neuralgias and central causes of facial pain
14. Other headache, cranial neuralgia, central or primary facial pain
Chapter 13 IHS Classification of cranial neuralgias and central causes of facial pain 17 (ICD-10 G44.847, G.44.848 or G44.8)

13.1. Trigeminal neuralgia
13.2. Glossopharyngeal neuralgia
13.3. Nervus intermedius neuralgia [G51.80]
13.4. Superior laryngeal neuralgia [G52.20]
13.5. Nasociliary neuralgia [G52.80]
13.6. Supraorbital neuralgia [G52.80]
13.7. Other terminal branch neuralgias [G52.80]
13.8. Occipital neuralgia [G52.80]
13.9. Neck-tongue syndrome
13.10. External compression headache
13.11. Cold-stimulus headache
13.12. Constant pain caused by compression, irritation or distortion of cranial nerves or upper cervical roots by structural lesions [G53.8] + [code to specify aetiology]
13.13. Optic neuritis [H46]
13.15. Head or facial pain attributed to herpes zoster
13.16. Tolosa-Hunt syndrome
13.17. Ophthalmoplegic “migraine”
13.18. Central causes of facial pain
American Academy of Orofacial Pain classification. Taxonomy is based on a mixture of regional, temporal and Axes.
Vascular and Nonvascular Intracranial Disorders
Primary Headache Disorders
Neurogenic pain disorders Episodic and Continuous Neuropathic Pain
PHN
Intraoral Pain Disorders
Temporomandibular Disorders
Cervicogenic Mechanisms of Orofacial Pain and Headaches
Extracranial and Systemic Causes of Head and Facial Pain
Axis II: Bio behavioural Considerations
Temporomandibular Disorders (TMDs) refers to three groups of conditions:

1. Myofascial pain (pain from the masticatory musculature):
   - with limited opening
   - without limited opening

2. Disc displacement (abnormal movement of the articular disc):
   - with reduction of the disc [clicking],
   - without reduction of the disc displacement:
     - with limited opening
     - without limited opening

3. Other joint disorders:
   - arthralgia (pain from the Temporomandibular joint),
**Woda et al 2005** classification for chronic orofacial pain adapted from 20

<table>
<thead>
<tr>
<th>Neurovascular and tension</th>
<th>Neuralgia</th>
<th>Persistent idiopathic</th>
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</thead>
<tbody>
<tr>
<td>Tension headache</td>
<td>Primary trigeminal neuralgia (Classical and Non classical)</td>
<td>Stomatodynia/Burning mouth syndrome BMS</td>
</tr>
<tr>
<td>Migraine</td>
<td>Secondary neuropathy</td>
<td>Persistent idiopathic</td>
</tr>
<tr>
<td>Cluster headache</td>
<td>Post herpetic neuralgia</td>
<td>PIFP (e.g. atypical facial pain)</td>
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<tr>
<td></td>
<td>Diabetes mellitus</td>
<td>Arthromyalgia</td>
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<td></td>
<td>Multiple sclerosis</td>
<td>non clustered</td>
</tr>
<tr>
<td></td>
<td>HIV</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post traumatic neuropathy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lingual alveolar nerve injuries</td>
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20 Woda et al 2005
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<td>PHN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lingual</td>
<td>Post surgical N</td>
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<tr>
<td></td>
<td>inferior alveolar nerve injuries</td>
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Temporomandibular disorders did not cluster
Preferred Classification of Chronic orofacial pain

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<tr>
<td>Trigeminal autonomic cephalgias</td>
<td></td>
<td></td>
</tr>
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Temporomandibular disorders did not cluster
Neurovascular

- Exclude sinister headaches 1%
  - >50 yrs Tumour 1%
  - Subarachnoid haemorrhage – recent trauma LoC

- Migraine 10-17%
  - Five or more lifetime headache attacks lasting 4-72 hours each and symptom-free between attacks
  - Moderate to severe pain, unilateral +/- aura visual signs

- Cluster headaches 5% - SUNCT
  - Male:female ratio 4:1 to 20:1 / 30yrs +
  - Severe episodic pain lasting 15-180 minutes
  - Unilateral Orbital, supraorbital or temporal
  - 8x a day to every other day for a period of 2 -12 weeks

- Tensions type headaches
  - 30-78% population -Highest socioeconomic impact
  - At least 10 episodes occurring <1 day a month on average
  - Infrequent episodes lasting from 30 minutes to 7 days
  - Typically bilateral

- Medication over use headaches 30-78%
### Headaches

<table>
<thead>
<tr>
<th>Sinus:</th>
<th>Cluster:</th>
<th>Tension:</th>
<th>Migraine:</th>
</tr>
</thead>
<tbody>
<tr>
<td>pain is usually behind the forehead and/or cheekbones</td>
<td>pain is in and around one eye</td>
<td>pain is like a band squeezing the head</td>
<td>pain, nausea and visual changes are typical of classic form</td>
</tr>
</tbody>
</table>

*Medication overuse headache*
How does migraine mimic toothache?

Case Series of Four Different Headache Types Presenting as Tooth Pain
Aurelio A. Alonso, DDS* and Donald R. Nixdorf, DDS, MS*
Chronic migraine, Migraine chronique
D. Valade Review Neurologique May 2013
Headaches

Diagnosis and management of headaches in young people and adults

Issued: September 2012

<table>
<thead>
<tr>
<th>ICHD-II</th>
<th>ICD-10</th>
<th>Diagnosis</th>
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<tbody>
<tr>
<td>Primary headaches</td>
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<td></td>
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<tr>
<td>1.</td>
<td>G43</td>
<td>Migraine</td>
</tr>
<tr>
<td>2.</td>
<td>G44.2</td>
<td>Tension-type headache (TTH)</td>
</tr>
<tr>
<td>3.</td>
<td>G44.0</td>
<td>Cluster headache and other trigeminal autonomic cephalalgias (TAC)</td>
</tr>
<tr>
<td>4.</td>
<td>G44.80</td>
<td>Other primary headaches</td>
</tr>
<tr>
<td>Secondary Headaches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>G44.88</td>
<td>Headache attributed to head and/or neck trauma</td>
</tr>
<tr>
<td>6.</td>
<td>G44.81</td>
<td>Headache attributed to cranial or cervical vascular disorder</td>
</tr>
<tr>
<td>7.</td>
<td>G44.82</td>
<td>Headache attributed to non-vascular intracranial disorder</td>
</tr>
<tr>
<td>8.</td>
<td>G44.4 or G44.83</td>
<td>Headache attributed to a substance or its withdrawal</td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td>Headache attributed to infection</td>
</tr>
<tr>
<td>10.</td>
<td>G44.882</td>
<td>Headache attributed to disorder of homoeostasis</td>
</tr>
<tr>
<td>11.</td>
<td>G44.84</td>
<td>Headache or facial pain attributed to disorder of cranium, neck, eyes, ears, nose, sinuses, teeth, mouth or other facial or cranial structures</td>
</tr>
<tr>
<td>12.</td>
<td>R51</td>
<td>Headache attributed to psychiatric disorder</td>
</tr>
<tr>
<td>Cranial neuralgias, central and primary facial pain and other headaches</td>
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<td></td>
</tr>
<tr>
<td>13.</td>
<td>G44.847, G44.848 or G44.85</td>
<td>Cranial neuralgias and central causes of facial pain</td>
</tr>
<tr>
<td>14.</td>
<td>R51</td>
<td>Other headache, cranial neuralgia, central or primary facial pain</td>
</tr>
</tbody>
</table>

Acute headache

- Kids exclude meningitis
- Adults 1% sinister causes
- Stroke
- Sub arachnoid haemorrhage

Headache - Migraine

Rehydration/ Anxiolysis, IV Sumatriptan

Primary headache syndromes

- Migraine
- Cluster headache and related syndromes (including paroxysmal hemicranias, SUNCT)
- Thunderclap headache
- Hypnic headaches
- Benign exertional/sex headache
- Cough headache
Management of headaches

The vast majority of episodic, impactful headaches reported by patients are caused by migraine

- **Intermittent mild-to-moderate migraine** (+/− aura)
- **Intermittent moderate-to-severe migraine** (+/− aura)
- Aspirin/NSAID (large dose)
- Aspirin/paracetamol plus anti-emetic
- Oral triptan
- Nasal spray/subcutaneous triptan
Exclude sinister headaches

- Subarachnoid haemorrhage - recent trauma LoC
- Cranial arteritis
- Tumour 1%
- >50 yrs
- New-onset, acute headaches associated with other symptoms
  - e.g. rash, neurological deficit, vomiting, pain/tenderness, accident/head injury, hypertension
  - Neurological change/deficit does not disappear when the patient is pain-free between attacks
- Develop algorithm for sinister headaches
Giant cell arteritis

- Acute temporal onset pain
- Palpable temporal artery
- May be bilateral
- +/- Occular signs
- Risk of blindness
  - Prednisolone 50mg oral (GMP)
  - Ophthalmic assessment
Trigeminal autonomic cephalgias (TACs)

- Cluster headache
- SUNCT
- SUNA
- Paroxysmal hemicrania
- Hemicrania continua
SUNCT
sudden onset neuralgiform conjunctival irritation and tearing

- Redness
- Ptosis
- Tearing
- Nasal congestion
- V2
<table>
<thead>
<tr>
<th></th>
<th>Cluster headache</th>
<th>Paroxysmal hemiorrhea</th>
<th>SUNCT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td>F: M</td>
<td>1:1</td>
<td>1:2</td>
</tr>
<tr>
<td><strong>Pain:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td>Stabbing, boring</td>
<td>Throbbing, boring, stabbing</td>
<td>Burning, stabbing, sharp</td>
</tr>
<tr>
<td><strong>Severity</strong></td>
<td>Excruciating</td>
<td>Excruciating</td>
<td>Excruciating Periorbital</td>
</tr>
<tr>
<td><strong>Site</strong></td>
<td>Orbit, temple</td>
<td>Orbit, temple</td>
<td></td>
</tr>
<tr>
<td><strong>Attack frequency</strong></td>
<td>1/alternate day – 8/day</td>
<td>1–40/day (&gt;5/day for more than half the time)</td>
<td>3–200/day</td>
</tr>
<tr>
<td><strong>Duration of attack</strong></td>
<td>15–180 min</td>
<td>2–30 min</td>
<td>5–240 s</td>
</tr>
<tr>
<td><strong>Autonomic features</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Migrainous features</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Very rarely</td>
</tr>
<tr>
<td><strong>Alcohol trigger</strong></td>
<td>Yes</td>
<td>Occasional</td>
<td>No</td>
</tr>
<tr>
<td><strong>Cutaneous triggers</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Indometacin effect</strong></td>
<td>-</td>
<td>++</td>
<td>-</td>
</tr>
<tr>
<td><strong>Abortive treatment</strong></td>
<td>Sumatriptan injection or nasal spray Oxygen</td>
<td>Nil</td>
<td>Nil</td>
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<tr>
<td><strong>Prophylactic treatment</strong></td>
<td>Verapamil Lithium</td>
<td>Indometacin Lamotrigine</td>
<td>Topiramate Gabapentin</td>
</tr>
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</table>
Mx TAC

- Cluster headache
- Greater occipital nerve block (GON)
- Initially using LA
- Then using botox
- Medication
  - SUNCT SUNA
  - Lamotrigine
  - indomethacin

# Preferred Classification of Chronic orofacial pain

## Trigeminal chronic pain

### Neurovascular
- Tension HA
- Migraine
- Cluster HA
- MoH
- Giant cell arteritis
- Trigeminal autonomic cephalgias

### Neuropathic
- **Primary neuropathy**
  - Trigeminal N
  - Classic/symptomatic
  - Glosspharyngeal N
- **Secondary neuropathies**
  - PHN
  - Post surgical N
  - Lingual inferior alveolar nerve injuries

### Idiopathic
- Burning Mouth S
- Persistent idiopathic
  - (ATFP / ATO)

Temporomandibular disorders did not cluster
### Preferred Classification of Chronic orofacial pain

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Temporomandibular disorders did not cluster
Neuropathic OFP with ‘neuralgia’

- **Primary neuralgia**
  - Trigeminal neuralgia (TN)
    - Typical Classic
    - Atypical symptomatic
  - Glossopharyngeal neuralgia
    - Acute pain pharynx, tongue base, mastoid regions

- **Secondary neuralgia**
  - Post herpetic neuralgia (PHN)
    - > 50 yrs 60% likely to develop pain post shingles
    - Ramsay Hunt syndrome
  - Diabetes
  - HIV
  - PHN
  - Chemotherapy
  - MS
  - Post traumatic V neuralgia
    - Lingual nerve injuries
    - Inferior alveolar nerve

BMS?
IASP defines trigeminal neuralgia as “a sudden, usually unilateral, severe, brief, stabbing, recurrent pain in the distribution of one or more branches of the fifth cranial nerve”.

Classical TN has diagnostic criteria International Headache Society.
- Classical TN

- Symptomatic TN
  - bilateral
  - neuropathy
  - younger age
Classic TN

- **Character**
  - Flashing, shooting, sharp, unbearable

- **Severity**
  - Moderate to severe

- **Site, radiation**
  - Distribution of trigeminal nerve

- **Duration, periodicity**
  - Bouts last for seconds, pain free periods

- **Provoking factors**
  - Elicited – Light touch, eating, talking

- **Relieving factors**
  - Avoid touch, anticonvulsants

- **Associated factors**
  - Trigger areas, weight loss
  - No causative event
Classic TN interesting features

- Never at sleep
- Elicited
- Unilateral
- V2/3
- Responds to tegretol

- No neuropathic area
- Exclude;
  - TACs
  - MS
  - SOL
TN Investigations

- MRI – patients under 40 years to exclude multiple sclerosis
  - assess if micro vascular compression
  - Space occupying lesions (Devor 2010)
- CT - tumours of posterior fossa
- Haematological tests
- Biochemical tests
- Neurological – sensory testing and hearing
MRI scan

Diagnosis and differential diagnosis of trigeminal neuralgia

Zakrzewska JM.

15-88% MRI+ superior cerebellar artery vascular compromise+ve results
25-49% people with NO TN have MRI +ve signs!!!!! (Kakizawa et al 2008, Adamczyk et al 2007)
Sup cerebellar artery vascular compromise

Green arrow shows retraction of trigeminal vein in contact with but not compressing V; red arrow shows a branch of the superior cerebellar artery passing medial to and severely compressing V at the root entry zone

Courtesy Mr Sinan Barazi Neurosurgeon KCH
Figure. Coronal T1-weighted spin echo image of Patient 1 before (A) and after (B) gadolinium enhancement.

Mx TN

- Tegretol Carbamazepine (8% rash)
- Oxcarbazepine
- Gabapentin
- Pregabalin

- MVD if MRI confirms vascular compromise
Issues with TN

- Wrong diagnosis
  - GMP toothache
  - SUNCT/SUNA
- Mainly managed by GMPs ‘toothache’
- Early MRI beneficial?
- Stevens-Johnson syndrome (SJS) has genetic link skin reaction in HLA-B*1502 gene in Han Chinese and Thai population.

Useful links TN

- Information also available on TNA UK website http://www.tna.org.uk
- Brain and spine foundation booklet on face pain Available on http://www.brainandspine.org.uk
Trigeminal neuropathy

- Secondary
  - Injury
  - HIV
  - PHN
  - Stroke
  - Diabetes
  - MS
  - Parkinsons
  - Chemotherapy
  - Radiation
  - Malignancy
  - Growth hormone injections
Post herpetic neuralgia

- PHN
Shingles and PHN - Shingles Support Society
www.shinglessupport.org/faq
Post ophthalmic herpes zoster – hyperaemia and corneal scarring
Prevent post Herpetic Neuralgia

- 20% of patients (60%>50yrs) progress to neuropathic pain after Shingles caused by a reactivation of the varicella-zoster virus (VZV).
- In the trigeminal system most commonly V1 and V2
- If patient is <40 years check immuno status (15 times higher in HIV-infected patients)
  - If caught early treat with high dose ant-ifungals
    - Acyclovir (Zovirax)†800 mg orally five times daily for 7 to 10 day 10 mg per kg IV every 8 hours for 7 to 10 days
    - Prednisone 30 mg orally twice daily on days 1 through 7; then 15 mg twice daily on days 8 through 14; then 7.5 mg twice daily on days 15 through 21
- Ramsay hunt syndrome HZ of geniculate ganglion (facial nerve, CT)
Management of Herpes Zoster

- High dose steroids and antivirals (Acyclovir) during acute infection phase
  - If caught early treat with high dose antifungals
    - Acyclovir (Zovirax)† 800 mg orally five times daily for 7 to 10 day 10 mg per kg IV every 8 hours for 7 to 10 days
    - Prednisone 30 mg orally twice daily on days 1 through 7; then 15 mg twice daily on days 8 through 14; then 7.5 mg twice daily on days 15 through 21
  - + Amitriptyilne
Features of neuropathic pain

- Non responsive to anti inflammatory drugs
- Worse with stress /anxiety
- Worsens during day
- Alleviated by distraction/ activity
- Usually responds to TCAs or Membrane stabilising drugs
Management painful neuropathy

- **Counselling**
- **CBT**

**Medical**

- **Antidepressants**
  - **Tricyclic antidepressants**
    - Amitriptyline
    - Nortriptiyine
- **Anticonvulsants**
  - Carbamazepine
  - Gabapentin
  - Pregabalin

- **Surgery early repair / late exploration repair**
  - 90% patients feel as though surgery is worthwhile (Robinson PP et al., 2003)
Table 1  Comparison of neuropathic pain treatment guidelines, excluding trigeminal neuralgia* [11]

<table>
<thead>
<tr>
<th>Medication Class</th>
<th>Neuropathic Pain Special Interest Group Guidelines</th>
<th>Canadian Pain Society Guidelines</th>
<th>European Federation of Neurological Societies Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tricyclic antidepressants</td>
<td>First line</td>
<td>First line</td>
<td>First line for PPN, PHN, and CP</td>
</tr>
<tr>
<td>Calcium channel α2-δ ligands (gabapentin and pregabalin)</td>
<td>First line</td>
<td>First line</td>
<td>First line for PPN, PHN, and CP</td>
</tr>
<tr>
<td>SSNRIIs (duloxetine and venlafaxine)</td>
<td>First line</td>
<td>Second line</td>
<td>Second line for PPN</td>
</tr>
<tr>
<td>Topical lidocaine</td>
<td>First line for localized peripheral NP</td>
<td>Second line for localized peripheral NP</td>
<td>First line for PHN if small area of pain/allodynia</td>
</tr>
<tr>
<td>Opioid analgesics</td>
<td>Second line except in selected circumstances†</td>
<td>Third line</td>
<td>Second-third-line for PPN, PHN, and CP</td>
</tr>
<tr>
<td>Tramadol</td>
<td>Second line except in selected circumstances†</td>
<td>Third line</td>
<td>Second-third-line for PPN and PHN</td>
</tr>
</tbody>
</table>

* Only medications considered first or second line in 1 of the guidelines are presented.
† Opioid analgesics and tramadol were considered first-line options in the following circumstances: for the treatment of acute NP, episodic exacerbations of severe NP, neuropathic cancer pain, and during titration of a first-line medication in patients with substantial pain.

CP = central pain; NP = neuropathic pain; PHN = postherpetic neuralgia; PPN = painful polyneuropathy; SSNRIIs = selective serotonin and norepinephrine reuptake inhibitors.

After the diagnosis of neuropathic pain and appropriate management of the underlying condition(s)

People with painful diabetic neuropathy

First-line treatment
- Offer oral duloxetine
- Offer oral amitriptyline if duloxetine is contraindicated
- See main text for dosages

Second-line treatment
- Offer treatment with another drug instead of or in combination with the original drug, after informed discussion with the person (see main text for dosages):
  - if first-line treatment was with duloxetine, switch to amitriptyline or pregabalin, or combine with pregabalin
  - if first-line treatment was with amitriptyline, switch to or combine with pregabalin

People with other neuropathic pain conditions

First-line treatment
- Offer oral amitriptyline or pregabalin (see main text for dosages)
- If satisfactory pain reduction is obtained with amitriptyline but the person cannot tolerate the adverse effects, consider oral imipramine or nortriptyline as an alternative

Second-line treatment
- Offer treatment with another drug instead of or in combination with the original drug, after informed discussion with the person (see main text for dosages):
  - if first-line treatment was with amitriptyline (or imipramine or nortriptyline), switch to or combine with pregabalin
  - if first-line treatment was with pregabalin, switch to or combine with amitriptyline (or imipramine or nortriptyline) as an alternative if amitriptyline is effective but the person cannot tolerate the adverse effects

Perform:
- Early clinical review (see main text)
- Regular clinical reviews (see main text)

Satisfactory pain reduction
- Continue treatment—consider gradually reducing dose over time if improvement is sustained

Unsatisfactory pain reduction at maximum tolerated dose
# Preferred Classification of Chronic Orofacial Pain

## Neurovascular
- Tension HA
- Migraine
- Cluster HA
- MoH
- Giant cell arteritis
- Trigeminal autonomic cephalgias

## Neuropathic
- **Primary neuropathy**
  - Trigeminal N
  - Classic/symptomatic
  - Glosspharyngeal N
- **Secondary neuropathies**
  - PHN
  - Post surgical N
  - Lingual inferior alveolar nerve injuries

## Idiopathic
- Burning Mouth S
- Persistent idiopathic
  - (ATFP / ATO)

Temporomandibular disorders did not cluster
Preferred Classification of Chronic orofacial pain

<table>
<thead>
<tr>
<th>Neurovascular</th>
<th>Neuropathic</th>
<th>Idiopathic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tension HA</td>
<td><strong>Primary neuropathy</strong></td>
<td>Burning Mouth S</td>
</tr>
<tr>
<td>Migraine</td>
<td>Trigeminal N</td>
<td>Persistent idiopathic</td>
</tr>
<tr>
<td>Cluster HA</td>
<td>Classic/symptomatic</td>
<td>(ATFP / ATO)</td>
</tr>
<tr>
<td>MoH</td>
<td>Glosspharyngeal N</td>
<td></td>
</tr>
<tr>
<td>Giant cell arteritis</td>
<td>Secondary neuropathies</td>
<td></td>
</tr>
<tr>
<td>Trigeminal autonomic cephalgias</td>
<td>PHN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trigeminal N Post surgical N</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Classic/symptomatic Lingual inferior alveolar nerve injuries</td>
<td></td>
</tr>
</tbody>
</table>

Temporomandibular disorders did not cluster
Idiopathic chronic OFP

BMS

• ? Neuropathy?

Persistent idiopathic

• Extraoral / facial
• Intraoral / odontalgia

altered taste  dry mouth

1972
1984
BMS

The International Association for the Study of Pain (IASP) defines BMS as:

- ‘a distinctive nosological entity’ characterised by ‘unremitting oral burning or similar pain in the absence of detectable oral mucosal changes’ that can last at least 4-6 months.
Burning Mouth Syndrome

Incidence
Women 15:1
1-5%
Age >40-60yrs
Post menopausal

Features
Spontaneous onset
4month duration
Normal appearance
Supertasters/taste sensitivity
BMS causes

- Menopausal
- Supertasters
- Deficiency in Haematinics
- Psychometric - increased HADS scores
- Diabetes
- Neuropathy ??
Aetiology of BMS

- An alteration in autonomic innervation and oral blood flow (Heckmann et al., 2001)
- Changes in endocrine status during menopause, causing a disruption in sensory pathways (Basker et al., 1978)
- A disruption of central sensory and modulatory pathways that include the spinal trigeminal nucleus and striatum (Hagelberg et al., 2003; Gao et al., 2000).
- A sensory dysfunction illustrated by changes in QST associated with a small and/or large fibre neuropathy (Forssell et al., 2002)
- A trigeminal, peripheral small-fibre sensory neuropathy (Lauria et al., 2005; Lauritano et al., 2005).
Dr Kiran Beneng PhD St
Prof Praveen Anand
Dr Zehra Yilmaz

- Ongoing work TRPM8
- CB1, P2X3 and GABA receptors
- Imaging central pathways (CNS)

Dr Matt Howard

NF Bar charts of the mean ± SEM of epithelial nerve fibres per papilla in control and BMS tongue. * P <0.0001.
P =0.0006, Spearman r =0.55
BMS update

BMS may encompass three distinct, subclinical neuropathic pain states that may overlap in individual patients.\(^{11-16}\)

- Subgroup 1 (50-65%) is characterized by peripheral small diameter fibre neuropathy of intraoral mucosa.
- Subgroup 2 (20-25%) consists of patients with subclinical lingual, mandibular, or trigeminal system pathology that can be dissected with careful neurophysiologic examination but is clinically indistinguishable from the other two subgroups.
- Subgroup 3 (20-40%) fits the concept of central pain that may be related to hypofunction of dopaminergic neurons in the basal ganglia.

The neurogenic factors acting in these subgroups differ, and will require different treatment strategies. In the future, with proper use of diagnostic tests, BMS patients may benefit from interventions specifically targeted at the underlying pathophysiological mechanisms.
Management of BMS

- **Systematic Review** and data in Clinical Evidence
- Cognitive behaviour therapy may be beneficial
- Reassurance
- **Notriptyline first line but limited evidence for use of antidepressants**
- ?? Future neuropathic pain blocking agents
- Capsaicin lollies
- Tabasco sauce
Chronic idiopathic facial pain

Persistent Idiopathic facial pain

PIFP

- **Character**
  - Intense - Nagging, dull, throbbing, sharp, aching ‘pain all the time resistant to all interventions usually >3 years’

- **Severity**
  - Varies, mild to severe though patient can often sleep and function normally

- **Site, radiation**
  - no anatomical area

- **Duration, periodicity** Constant >6 months
Atypical Odontalgia (Dental Allodynia)? Post traumatic Neuropathy?

- persistent MIMIC of dental pain
- hypersensitivity to all stimuli
- may migrate from tooth to tooth
- no detectable pathology

i.e not a cracked tooth?
Exclude the obvious
Cracked tooth..............
Natural history of atypical odontalgia
Prognosis

- Chronic idiopathic facial pain – after one year 38% of patients pain free but 39% taking drugs to prevent relapse
- Feinmann and Harris 1984

Long-term cohort study comparing medical (oxcarbazepine) and surgical management of intractable trigeminal neuralgia

Joanna M. Zakrzewska\textsuperscript{a,*}, Philip N. Patsalos\textsuperscript{b}

12/15 required surgery to control their pain
Management of PIFP /AO

- Counselling and reassurance
  - CBT
- Medical
  - Antidepressants
    - Tricyclic antidepressants
      - Amitriptyline
      - Nortryptiline 10mg, 20mg, 30mg, 40mg each week. Maintain on 40mg nocte for 6 weeks before review
  - Anticonvulsants
    - Oxcarbazipine
    - Carbamazepine
    - Gabapentin
    - Pregabalin
- Topical local analgesia
- Capsaicin
Non clusterable disorder

Temporomandibular disorders (TMD)

Summary of Royal College of Surgeons (England) clinical guidelines on management of Temporomandibular Disorders (TMDs) in primary care

Authorship: J. Durham1*, VR Aggarwal2, SJ Davies3, SD Harrison4, RG Jagger5, R Leeson6, R Lloyd7, T Thayer8, H Underhill9, RW Wassell10, J Zakrzewska11, A Begley12, AR Loescher13, E Murphy14, R McMillan15, T Renton16

* Contact author

Authors’ affiliations:
TMJ Dysfunction/Myofascial Pain

- TMDs are musculoskeletal disorders and represent the most common cause of chronic pain in the orofacial region
- 33% population affected (Rugh et al 1985)
- 5% population require treatment (McNeill 1993)
- 5% of those requiring treatment will need surgery (McNeill 1993)
- 70-90% patients are female (Franks 64, Carraro 69)
- Age range 20-50
Chronic TMD often does not occur in isolation. Individuals suffering from chronic pain associated with a TMD frequently report other chronic pain conditions including: chronic headache, fibromyalgia, chronic fatigue syndrome, irritable bowel syndrome, sleep disturbance and depression.

{Dworkin, 2011, #69458; Hoffmann et al., 2011, #64698; Maixner et al., 2011, #63267}. 
Some of the bio psychosocial factors implicated in TMDs are: genetics, psychological characteristics, and small roles for occlusion, parafunctional habits, and trauma

{Diatchenko et al., 2006, #58543; Diatchenko et al., 2005, #33565; Nackley et al., 2007, #55525; Slade et al., 2007, #33881; Slade et al., 2008, #17670; Tchivileva et al., 2010, #63251; Gatchel et al., 1996, #75; Wright et al., 2004, #77; List and Axelsson, 2010, #65649; Luther et al., 2010, #93866; Koh and Robinson, 2004, #76868; Pullinger and Seligman, 1991, #67676; Pullinger and Seligman, 2000, #5872; Pullinger et al., 1993, #98128; Benoliel et al., 2011, #43262}. 
TMD symptoms

These signs and symptoms commonly include,

- Pain in and around the TMJs and muscles of mastication often worsened by function
- Muscle and joint tenderness on palpation
- Joint sounds (clicking and crepitus)
- Limitation and incoordination of mandibular movement
- Headaches
- Otalgia

Clinical exam

- It is possible to make a reliable and quick physical diagnosis for a TMD patient using the Clinical Examination Protocol (CEP-TMD).
- This approach provides a useful descriptive diagnosis of whether the patient’s problem involves the masticatory muscles, TMJ disc displacement or other TMJ condition and correlates well with the gold standard research diagnostic system for TMDs (RDC/TMD) \{Hasanain et al., 2009, #39328\} and is freely available on the web.
Signs and symptoms of TMDs (can present with one of or a combination of)
- Pain in joint and associated musculature
- Joint noises
- Restricted range of movement
- Headache related to temporalis pain

Sometimes patients can also present with a non-specific toothache or sensitivity

Pain history questions

<table>
<thead>
<tr>
<th>SOCRATES (<a href="http://www.medicalmnemonics.com">www.medicalmnemonics.com</a>)</th>
<th>Potential findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site</td>
<td>Primary sites: TMJ, muscles of mastication, within the ear. Not necessarily well localised (see radiation and referral)</td>
</tr>
<tr>
<td>Onset</td>
<td>Can be sudden or gradual</td>
</tr>
<tr>
<td>Character</td>
<td>Aching, deep, continuous with potential acute exacerbations</td>
</tr>
<tr>
<td>Radiation and referral</td>
<td>To ear, angle of jaw, temple, teeth</td>
</tr>
<tr>
<td>Associated and alleviating factors</td>
<td>Rest, analgesia may help, dynamic movements worsen</td>
</tr>
<tr>
<td>Timing – duration and frequency</td>
<td>Can worsen through day or through the night, but often present continuously</td>
</tr>
<tr>
<td>Exacerbating factors</td>
<td>Chewing, yawning, prolonged mouth opening</td>
</tr>
<tr>
<td>Severity (Score out ten with ten being “worst pain imaginable”)</td>
<td>Variable</td>
</tr>
</tbody>
</table>

Other questions relevant to TMD history {Dworkin and LeResche, 1992, #67; NICE, 2009, #76799}

| Have you had pain in the face, jaw, temple, in front of the ear, or in the ear in the past month? | Relevance |
| Have you ever had any clicking or grinding noises form your jaw joint in front of your ear? | Indicative of disc disorder or arthritides |
| Have you ever had your jaw lock or catch so it won’t open all the way? | Indicative of a disc displacement without reduction |
| During the last month, have you often been bothered by: feeling down, depressed or hopeless? | Answer yes to either of these questions and the patient should be assessed by a practitioner competent in mental health assessment |
## Articulatory System: The 3-minute Exam [SJD 09]

### Temporomandibular Joint

<table>
<thead>
<tr>
<th>Tender to palpation?</th>
<th>Lateral pole</th>
<th>Intra-auricularly</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td>Noises?</td>
<td>Clicks</td>
<td>Bilateral</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td></td>
<td>Soft</td>
<td>Loud</td>
</tr>
<tr>
<td></td>
<td>Consistent</td>
<td>Intermittent</td>
</tr>
<tr>
<td></td>
<td>Opening</td>
<td>Closing</td>
</tr>
<tr>
<td></td>
<td>Cycle: Early</td>
<td>Both</td>
</tr>
<tr>
<td></td>
<td>Painful</td>
<td>Late</td>
</tr>
</tbody>
</table>

The University of Manchester
TMJ research Diagnostic Criteria

- TMJ RCD
- Arthritides
  - +/- pain
- Myalgia
- Muscle pain
- Dysfunction
- Internal derangements
  - +/- pain

I Arthritides

- RA
  - Still’s disease juvenile RA
  - Diagnosis Rh factor
- Osteo Arthritis
- Gout
- Reactive Arthritis
- Spontaneous
- Degeneration of condylar head (condylosis)
Osteoarthritis

- Major joints
- Older age
Rheumatoid arthritis usually affects joints symmetrically (on both sides equally), may initially begin in a couple of joints only, and most frequently attacks the wrists, hands, elbows, shoulders, knees and ankles.

Figure 3. Joint frequently affected by rheumatoid arthritis. Less commonly affected are elbows, hips and the neck.
Investigations helpful in diagnosis of RA

- **Erythrocyte sedimentation rate (ESR)/C–reactive protein (CRP)/plasma viscosity**
  - Usually elevated in RA but may be normal
- **Full blood count (FBC)**
  - Normochromic, normocytic anaemia and reactive thrombocytosis common in active disease
- **Urea & electrolytes (U&E), Liver function tests (LFT)**
  - Mild elevation of alkaline phosphatase and gamma–GT common in active disease
- **Uric acid/synovial fluid analysis**
  - Will assist in excluding polyarticular gout
- **Urinalysis**
  - Microscopic haematuria/proteinuria may suggest connective tissue disease
- **Rheumatoid factor (RF)**
  - RF positive in only 60–70% RA patients.
- **Antinuclear antibody (ANA)**
  - Positive in SLE and related conditions. ANA positive in up to 30% of RF–positive RA patients. May be weakly positive in up to 10% of normal individuals
- **Radiology**
  - May be normal or may show periarticular osteopenia and/or erosions
Differential diagnosis of arthritis

- Viral arthritis (e.g. parvovirus, rubella)
- Reactive arthritis (e.g. post-infective: throat, gut, sexually acquired)
- Seronegative spondyloarthropathy (e.g. psoriatic, ankylosing spondylitis, inflammatory bowel disease)
- Connective tissue disease (e.g. systemic lupus erythematosus (SLE), scleroderma)
- Polymyalgia rheumatica
- Polyarticular gout
- Fibromyalgia
- Medical conditions presenting with arthropathy (e.g. sarcoidosis, thyroid disease, infective endocarditis, haemochromatosis, diabetic cheiroarthropathy, paraneoplastic syndromes, multiple myeloma).
II Muscle pain = myalgia

- Trismus
  - Limited opening due to muscle spasm
  - Exclude parafunction
    - Pain am (night bruxist or sleep position)
    - Pain late day chewing gum
- Myositis
- Myofascial pain
- Myospasm
- Hyperkinesia
- Hypokinesia
- Contracture
- Fibromyalgia

Exclude parafunction
- Pain am (night bruxist or sleep position)
- Pain late day chewing gum
III TMJ dysfunction
Internal derangement

- Painful internal derangement
- Signs
  - Clicking
  - Locking
- Mx includes
- Non interventional
- Interventional
  - Arthroscopy
  - Surgical discal plication
Other joint problems

- Congenital and developmental disorders
- Subluxation
- Dislocation
- Locking
- Traumatic injuries
- Ankylosis
- Neoplasia
Trismus

- Progressive worsening
  - Consider neoplasia
    - Infratemporal fossa Ca (1:60,000 Ferguson 1986)
  - Arthritides
  - Condylosis

- Intermittent with normal resolution
  - TMJ PDS

- Permanent
  - Ankylosis (true = bony / false = soft tissue)
  - Most common in third world due to middle ear infection / mastoiditis
• Beware progressive trismus often painless
Neoplasia

- Serious pathology of the Temporomandibular complex and associated musculature is rare.
  - Primary tumours in the Temporomandibular complex are thought to account for less than 1% of all head and neck tumours and incidental findings on MRI for TMDs occur in less than 1% of TMDs.
  - Metastases to the Temporomandibular joint can occur from multiple sites but the most likely are breast, lung, thyroid, kidney and prostate.
Red Flags

- These ‘red flag’ signs and symptoms should mandate an urgent referral and they include:
  - New signs and symptoms of TMDs presenting for the first time in the advanced age group (> 60 years old)
  - Ipsilateral lymphadenopathy
  - Previous history of malignancy elsewhere in the body and new onset TMDs
  - Cranial nerve dysfunction in relation to the complaint especially in the fifth and seventh cranial nerves
  - Progressive trismus precluding careful oral examination
  - Recurrent ipsilateral epistaxis
  - Anosmia
  - Persistent nasal obstruction or purulent discharge
  - Objective ipsilateral hearing loss.
Let's not let patients presenting with TMD end up like this!
The primary goals of any reversible and ion-invasive therapy should be:

Encouraging self-management of the condition through education

Reducing the (impact of) pain associated with the condition

Decreasing functional limitation caused by the condition

Reducing exacerbations and educating individuals in how to manage any exacerbation of the condition
TMD Mx

- Reassurance NO CANCER!
- Patient information
- BRA
- Cognitive behaviour therapy
- Antidepressants
  - Tricyclics – nortriptyline
  - SSRI – fluoxetine
TMD Cochrane reviews


- NO EVIDENCE!
More lack of evidence


- **NICE on headaches** Dental occlusion problems are a major cause of headache. *BMJ* 2012; 345 doi:


Manfredini D et al., Dental occlusion, body posture and temporomandibular disorders: where we are now and where we are heading for. J Oral Rehabil. 2012 Jun;39(6):463-71
Reasons to refer TMD

Dentists may wish to refer such patients with:
Multiple unsuccessful treatments
Psychological distress
Occlusal preoccupation ? form of dismorphobia!
Chronic widespread pain
Disc displacement without reduction (open or closed lock).
<table>
<thead>
<tr>
<th>Nature of material</th>
<th>Source</th>
<th>Website addresses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient information</td>
<td>National Institute for Health</td>
<td><a href="http://www.nidcr.nih.gov/oralhealth/topics/tmj/tmjdisorders.htm">http://www.nidcr.nih.gov/oralhealth/topics/tmj/tmjdisorders.htm</a></td>
</tr>
<tr>
<td></td>
<td>European Academy of Craniomandibular Disorders</td>
<td><a href="http://www.eacmd.org/patient.php">http://www.eacmd.org/patient.php</a></td>
</tr>
<tr>
<td></td>
<td>NHS Knowledge summary on TMDs</td>
<td><a href="http://www.cks.nhs.uk/tmj_disorders/management/scenario_tmj_disorders">http://www.cks.nhs.uk/tmj_disorders/management/scenario_tmj_disorders</a></td>
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<tr>
<td></td>
<td>Newcastle University/Newcastle Dental Hospital</td>
<td><a href="http://www.ncl.ac.uk/dental/AppliedOcclusion/assets/TMD%20info%20and%20exercise%20sheet.pdf">http://www.ncl.ac.uk/dental/AppliedOcclusion/assets/TMD%20info%20and%20exercise%20sheet.pdf</a></td>
</tr>
<tr>
<td>Examination of TMJ and muscles of mastication</td>
<td>Research Diagnostic Criteria for TMD consortium network</td>
<td><a href="http://www.rdc-tmdinternational.org/OtherResources/TrainingReliability/RDCExaminerTraining.aspx">http://www.rdc-tmdinternational.org/OtherResources/TrainingReliability/RDCExaminerTraining.aspx</a></td>
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<tr>
<td></td>
<td>E-learning for healthcare</td>
<td><a href="http://portal.e-lfh.org.uk/">http://portal.e-lfh.org.uk/</a></td>
</tr>
<tr>
<td></td>
<td>Requires registration and working within the NHS. “The three minute examination By S.Davies and Z. Al-Ani</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Newcastle University</td>
<td><a href="http://www.ncl.ac.uk/dental/AppliedOcclusion/">http://www.ncl.ac.uk/dental/AppliedOcclusion/</a></td>
</tr>
</tbody>
</table>
ASSESSMENT OF PAIN
Pain assessment

- Diagnosis of pain
- Pain History
- Pain thresholds
- Subjective measurement of pain
- Indirect measurement of pain
- Objective assessment of pain
Good history taking

- Social history
- Medical history
- Pain history

LISTEN!
Ask the patient!

- Pain profiling
- Functional profiling (impact on their life)
- Neurological profiling
- Psychometric profiling
- Clinical examination
- Investigations
Pain’s multiple components

- nociception / sensation / suffering / behavior

Disability

- lack of mobility, inability to work, difficulty in interpersonal relationships

Multiple components of pain assessment

- physical location of pain, description tools
- functional tools: sickness/impact profile, pain disability index
- behavioral/cognitive drug use, physician visits
- economic
- Socio-cultural, litigation, patient independence, quality of life, family dynamics, patient goals.
Pain history

- **Site**
- **Duration**
- **Frequency**
  - Constant (burning throbbing)
  - Spontaneous / evoked (cause / relief)
- **Character**
  - **Type**
    - burning, stabbing
  - **Intensity**
- **Persistent / intermittent**
- **Localisation**
- **Radiation**
- **Associated signs** - redness swelling

**Pain Descriptors**

<table>
<thead>
<tr>
<th>Steady Pain (97%)</th>
<th>Brief Pain (87%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burning</td>
<td>Sharp</td>
</tr>
<tr>
<td>Aching</td>
<td>Jabbing</td>
</tr>
<tr>
<td>Stinging</td>
<td>Shooting</td>
</tr>
<tr>
<td>Throbbing</td>
<td>Electric</td>
</tr>
<tr>
<td>Itching</td>
<td>Evoked Pain (87%)</td>
</tr>
<tr>
<td>Numbness</td>
<td>-Mechanical</td>
</tr>
<tr>
<td>Pins &amp; Needles</td>
<td>-Thermal</td>
</tr>
<tr>
<td>Pulling</td>
<td></td>
</tr>
</tbody>
</table>

Blau suggested fifteen questions to facilitate the history taking process in OFP which cover the following aspects of the presenting pain:

Onset
Frequency
Duration
Provoking factors
Site of initiation of pain
Radiation and referral of pain
Is the pain deep or superficial
Aggravating or exacerbating factors
Relieving factors
Characteristics of the pain
Severity
Other associated features, for example lacrimation or other autonomic signs and symptoms
Previous management strategies attempted
Patient’s perceived cause(s) of pain
Visual Analogue Scales

Anchors:
- no pain
- max pain

References:
eideneurolearningblog.blogspot.com/2005_02_25...
:www.mindhacks.com/blog/linkage/index.html

10 cm line
Assessment - Measurement Tools

- Pain history
- Examination
  - Psychometric
    - Subjective pain scores
      - VAS, pain descriptors
    - Affective
      - Anxiety depression FUNCTIONALITY - disability
  - Psychophysical
    - Neurophysical tests - neuropathic area
      - Cold warm / Mechanosensory / Vibration
      - Special sensory = Taste
Psychometrics

• Measure
  - Affective
    - Anxiety
    - Depression
  - Beliefs
  - Fear
  - Anger
  - Coping
We use

- PSEQ  Patient self efficacy Q
- PCS    Patient catastrophising scale
- HADs   Hospital anxiety depression
- CPAQ   Chronic pain acceptance Q
- Euroquol Quality of health
- OHIP   Oral health impact Q
- PCL    The Posttraumatic Stress Disorder Checklist
Clinical examination

Diagnostic process refines:

1. Inspection of the head and neck, skin, topographic anatomy, and swelling or other orofacial asymmetry
2. Palpation of the temporomandibular joint and masticatory muscles, tests for strength and provocation. With assessment and measurement of the range of mandibular movement
4. Palpation of soft tissue (including lymph nodes)
6. Palpation of cervical muscles and assessment of cervical range of motion
7. Cranial nerve examination
8. General inspection of the ears, nose, and oropharyngeal areas
9. Examination and palpation of intraoral soft tissue
10. Examination of the teeth and periodontium (including occlusion)
“Your reflexes seem fine Mr Hart”
Systemic Diseases Associated with Headache and Orofacial Pain

- Paget’s disease
- Metastatic disease
- Hyperthyroidism
- Multiple myeloma
- Hyperparathyroidism
- Vitamin B deficiencies
- Systemic lupus erythematosus
- Vincristine and other chemotherapy for cancer
- Folic acid and iron deficiency anaemias
Exclude systemic and local pathology

<table>
<thead>
<tr>
<th>Bloods</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBC, haematininc (folate, B12, ferritin)</td>
</tr>
<tr>
<td>Thyroid function tests</td>
</tr>
<tr>
<td>HBA1c</td>
</tr>
<tr>
<td>Zinc levels</td>
</tr>
<tr>
<td>ENAs and ANAs</td>
</tr>
<tr>
<td>Us+Es required for contrast</td>
</tr>
<tr>
<td>Gadolinium MRI scan</td>
</tr>
</tbody>
</table>
Exlude central pathology

- Classical TN
  - vascular compression
- Multiple sclerosis
  - MRI plaques
- Stroke
- Vasculitis
- Post herpetic neuralgia
- Tumours
  - Meningioma
46 year old lady presented with left facial pain and entirely normal neurological examination. WHO grade I meningioma.
PET limitations

- Non-invasive, but involves exposure to ionizing radiation - ethical for research?
- Lack of specificity
  - poor functional anatomy clarity for pain modelling
  - Inflammatory conditions
- Radioactivity decays rapidly so limited to monitoring short tasks

(Borsook et al 2004)
Aims of neurological assessment

- Confirm neuropathy V and other cranial n
- Define pain affected dermatome(s)
- Hyperaesthesia
- Hypoaesthesia
- Allodynia
- Hyperalgesia
- Specific fibre function (QST)
Assessment - neuropathy

- VAS
  - At rest
  - Dynamic allodynia
  - Cold allodynia
  - capsaicin

- Mechanosensory
  - Von Frey
  - Neuropathic area

- Local analgesia

- Thermo sensory

- Biopsy
## Quantitative sensory testing QST

<table>
<thead>
<tr>
<th>Clinical sign</th>
<th>Fiber class</th>
<th>Clinical test</th>
<th>Technique QST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mech Hypo</td>
<td>A beta</td>
<td>Cotton wool</td>
<td>Graded von frey</td>
</tr>
<tr>
<td>Cold / warm hypo</td>
<td>A delta C</td>
<td>Thermo roller</td>
<td>Disc device QST</td>
</tr>
<tr>
<td>Mech hypoalgesia</td>
<td>A delta</td>
<td>Tooth pick finger</td>
<td>Weighted pinprick blunt pressure/algometer</td>
</tr>
<tr>
<td>Cold heat hypoalgesia</td>
<td>A delta C</td>
<td></td>
<td>Thermal device laser</td>
</tr>
<tr>
<td>Mechanical hyperalgesia</td>
<td>A delta C</td>
<td>Tooth pick finger</td>
<td>Weighted pinprick blunt pressure/algometer</td>
</tr>
<tr>
<td>Dynamic mech allodynia</td>
<td>A beta</td>
<td>Cotton wool tip Soft brush</td>
<td>Cotton wool Soft brush</td>
</tr>
<tr>
<td>Cold heat hyperalgesia</td>
<td>A delta C</td>
<td>Cotton wool tip Soft brush</td>
<td>Thermal test device</td>
</tr>
</tbody>
</table>
Psycho physical testing
Quantitative thermo sensory testing
Sample thermal sensory results

Codes:
CT = Cool Threshold
WT = Warm Threshold
CP = Cold pain
WP = Warm pain

QST results from a BMS patient
QST results of a typical LNI patient
'Control' QST results
Baseline level
Cold threshold
Warm threshold

Temperature (°C)
What are the problems?

With current assessment of trigeminal function

Solely mechanosensory (large fibres only)

Taste tests unreliable

Pain and altered sensation often over looked
QST may directly link suitable management

- Mechanical allodynia, hyperalgesia
- Thermal
- Blink reflex
- JOR

Value of **quantitative sensory testing** in neurological and **pain** disorders: NEUPSIG consensus.


Summary

- Management chronic OFP
  - Psychological
  - Medical
  - Interventional

KCH OFP
Lead TR
Liaison Psychiatrist Annabel Price
Clinical Psychologist Dr Sarah Barker
Health Psychologist Jared Smith

MDT St Thomas InPUT
TR lead OFP clinician
Pain management Tom Smith
Neurologist SamChong, Georgio Lambru
Neurosurgery Sinan Barazi
Neurosurgical interventions

- Microvascular decompression (MVD) for TN remains EB more effective than thermo-controlled radiofrequency trigeminal rhizotomy

However……

- Percutaneous interventions for:
  - trigeminal neuralgia (pterygoplatine blockade, gasserian ganglion glycerol injection)
  - cryotherapy
    - facet joint syndromes,
  - Most ablative pain surgery procedures
    - Neurotomy
    - Rhizotomy
    - sympathectomy, etc.)

These procedures have been replaced by **neuromodulatory approaches** such as electrical stimulation of the central nervous system (CNS)
Interventional

- **Neural blockade** (diagnostic or therapeutic)
  - Epidural injections  PHN
  - Steroid injections Radiculopathy
    - Sympathetic blocks
    - GONB  cluster headache
    - Botox Migraines

- **Superficial simulation** – Neurostim/ TENS

- **Spinal cord stimulation SCS**
  - failed back surgery
  - CRPS

- **Intrathecal medication**

Good evidence supports the use of neurostimulation for reducing pain associated with failed back surgery syndrome (FBSS) and CRPS I, CRPS II, peripheral nerve injury, DPN, PHN, brachial plexus lesion, amputation (stump and phantom pains), and partial spinal cord injury

Motor cortex stimulation may be useful for central post-stroke pain and neuropathic facial pain. Additionally, practice parameters issued in the United States support the use of spinal cord stimulation techniques for treating neuropathic pain in patients who have failed other forms of therapy [25].

A study published in January 2010 considered the use of spinal cord stimulation for FBSS, using the outcome of workers’ compensation. A prospective

A task force assembled by the EFNS reviewed the literature published between 1968 and 2006 on neurostimulation therapy for treating neuropathic pain.
 All treatments far from satisfactory
 CBT and ACT most effective in our unit
TRIGEMINAL NERVE FOUNDATION
Orofacial pain website

‘to provide excellence in education, management and prevention of trigeminal chronic orofacial pain’

THANK YOU