Management of Chronic Orofacial Pain; Top tips for primary care

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Burden of this disease:

1. The overall prevalence of facial pain (FP) was 1.9% (women 2.4%, men 1.2%) of **which 48% was chronic**. The highest prevalence was found in the 51 - 55 age group (2.2%) and the lowest in the 66 - 73 age group (1.4%)
2. There was a difference in prevalence by ethnicity (0.8% and 2.7% in persons reporting themselves as Chinese and Mixed respectively).
3. Prevalence of FP significantly associated with all measures of social class with the most deprived and on lowest income showing the highest prevalence (2.5% and 2.4% respectively).
4. FP was more common in individuals who rated themselves as extremely unhappy, had history of depression and reported sleep problems.
5. Smoking associated with increase in reporting FP while alcohol consumption had inverse association.
6. Account for 9 % of referrals to Pain management services(covid-19 ramification?)

Remains a Challenge for Primary care Physician:

1. No clear referral pathway
2. Post code limitations
3. Complex patients with multiple medications and higher likelihood of medication overuse/polypharmacy
4. Involves many specialties and multiple providers-NHS/Private/PPP outsource/insource Network
5. Patients have higher likelihood of missed red flags
6. Patient specific as well as organizational aspect, example: Patient with severe MS/polytrauma
7. Definitions of various conditions in this spectrum itself is complex/confusing
8. Overlap and vicious cycle of treatment leading to complication leading to different condition
9. Significant effect on daily life, including eating, drinking, and speaking and thus lending itself as contributor to mental health disease.
10. High healthcare costs

Guidelines/Best Practice Recco available ?

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Understanding and managing dental and orofacial pain in general practice

Tara Renton and Nairn HF Wilson

British Journal of General Practice 2016; 66 (646): 236-237. **DOI:** https://doi.org/10.3399/bjgp16X684901

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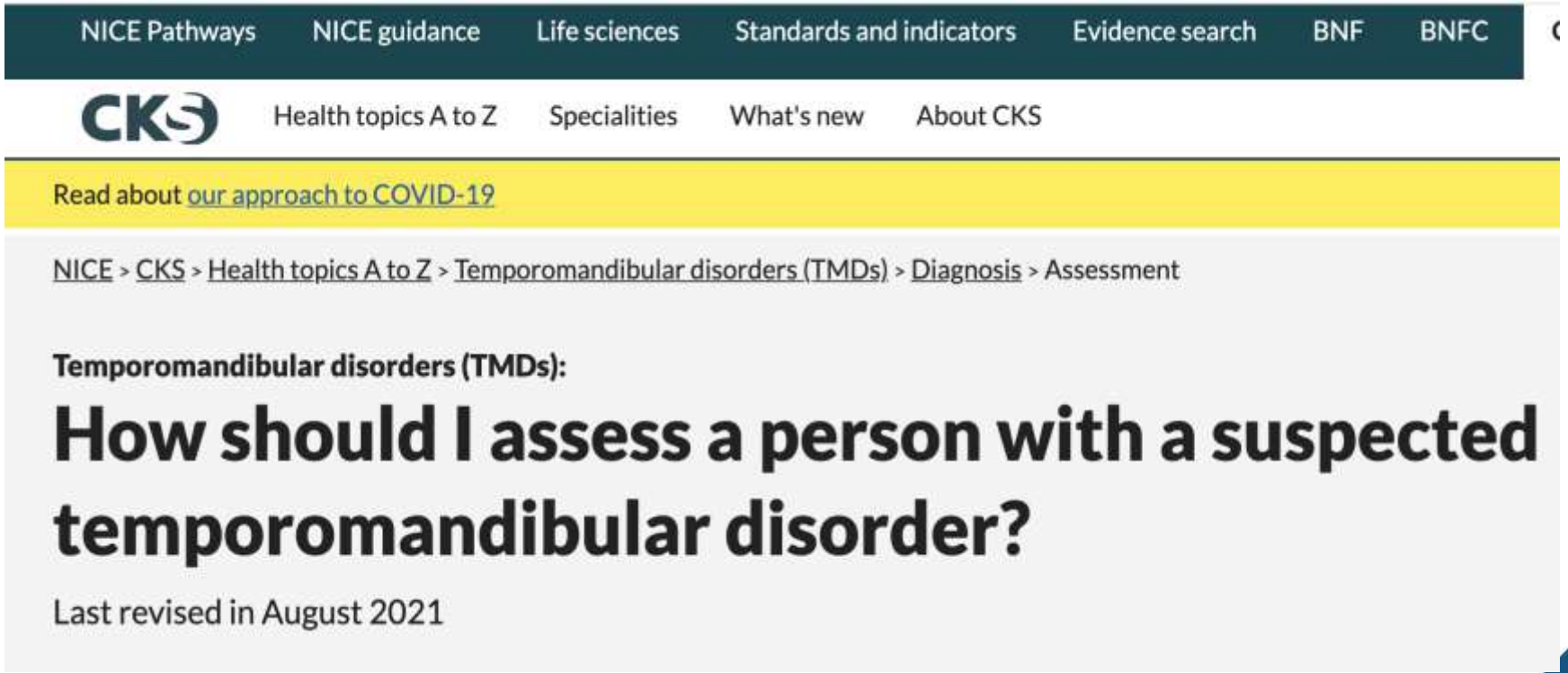
Guidelines/Best Practice Recco available ?



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What is Orofacial pain ?

1. Orofacial pain occurs in the area above the neck
2. In front of the ears
3. below the orbitomeatal line, as well as in the oral cavity

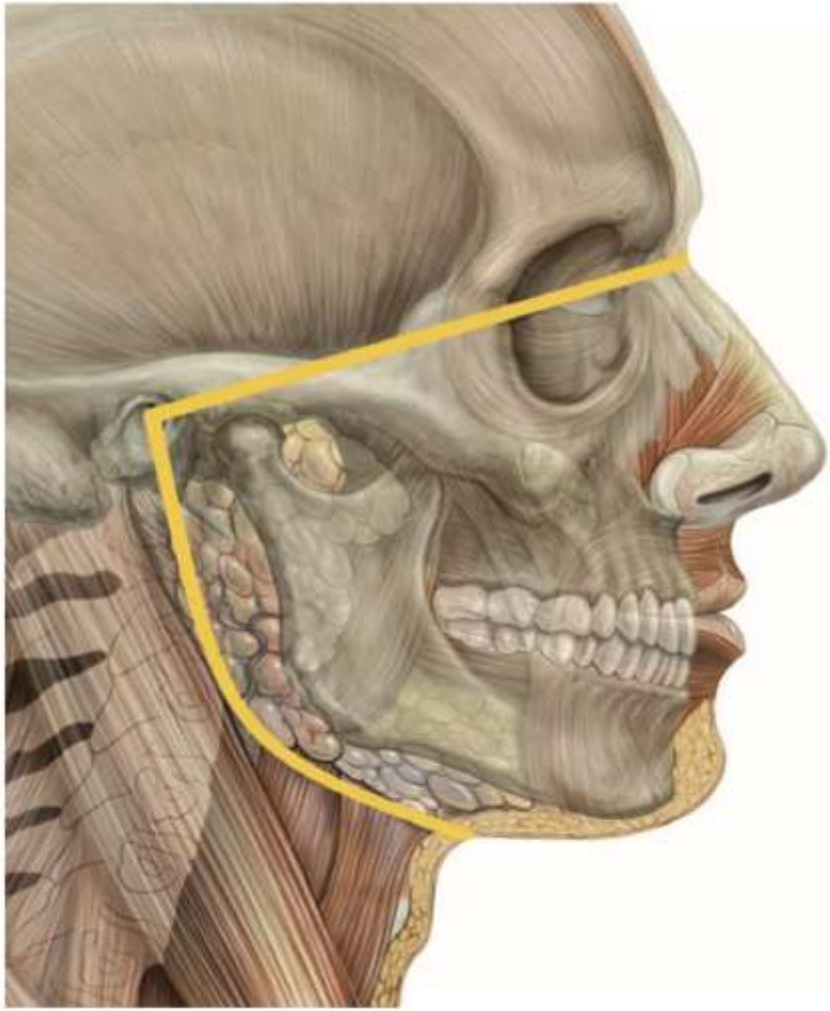


FIGURE 1. Area affected by orofacial pain

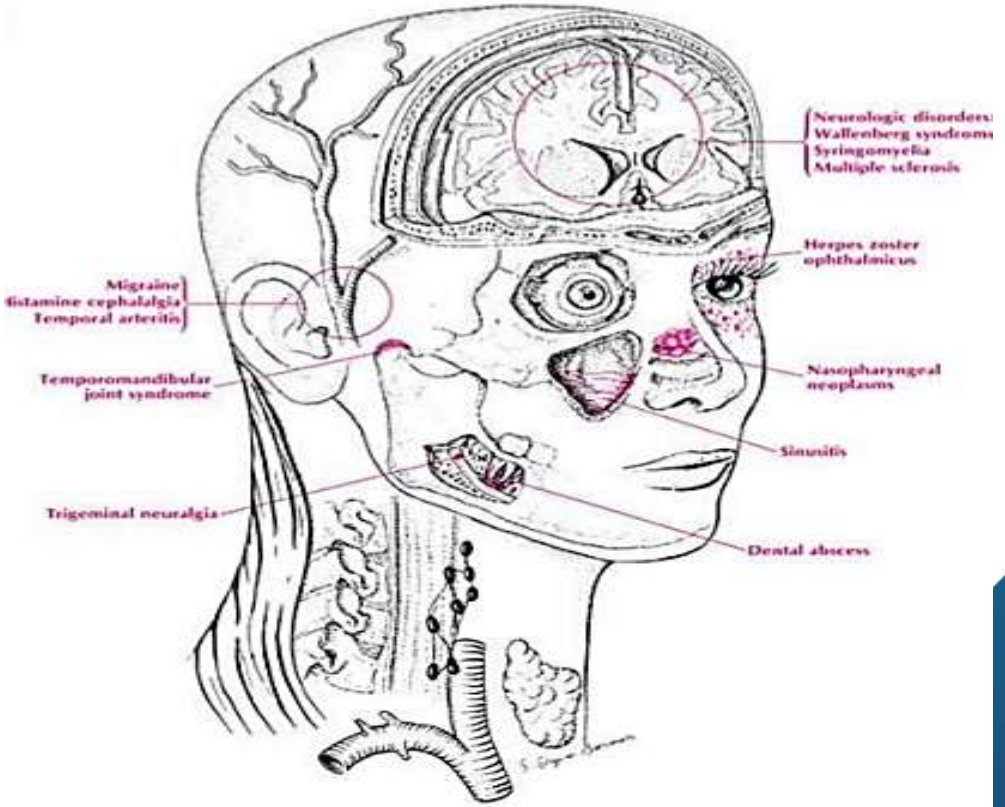
Anatomical basis:

1. The main sensory supply to the orofacial region is from the trigeminal nerve.

2. However, orofacial pain may originate from anatomical structures that are in the oral cavity or distant from it.

3. Meninges, cornea, oral/nasal/sinus mucosa, teeth, musculature, salivary glands, and TMJ may be involved.

4. The oro- facial region is highly innervated with sensory fibers, and the sensory supply is from both spinal (C2 and C3) and cranial nerves (CNs III, V, VII, IX, and X), with the cranial nerves also providing motor and autonomic supply



Progression from Acute to Chronic happens swiftly

1. Most elements/triggers are already present- Trauma, repeated trauma, repeated surgeries, repeat dental work, repeat dental surgeries
2. Medication overuse
3. Mental health and social life events
4. Highly sensitive and complex anatomy/physiology which lends itself to vicious pain cycle

Aim: To attenuate this progression from acute to chronic

1. Starts at Primary care.
2. Patient education is the first step
3. Preventable/modifiable factors needs to be addressed: Smoking, ETOH, Medication overuse
4. Cure is not possible in some cases- This needs to be conveyed to the patient at the outset
5. Referral to appropriate specialist services

Assessing orofacial pain in primary care

History

1. Pain: characteristics, location, whether deep or superficial, onset, radiation and referral, intensity, duration, events surround the pain and associated features (lacrimation or other autonomic signs and symptoms), precipitating and provoking factors, aggravating factors, relieving factors, previous management strategies and response, patient's perceived cause of pain
2. Medications
3. Past medical history
4. Oral health history
5. Psychosocial history
6. Review of systems

Assessing orofacial pain in primary care

Physical examination

- Comprehensive examination of the head and neck.
- Inspect the skin and topographic anatomy, particularly the ears, nose, mouth, teeth, periodontium, and oropharynx.
- Note color, swelling, or orofacial asymmetry.
- Palpate the TMJ and masticatory muscles, noting temperature. Test for strength, provocation, and assess and measure range of mandibular movement.
- Palpate soft tissue including lymph nodes, cervical muscles, and assess cervical range of motion. Examine and palpate intraoral soft tissue.
- Test CNs V, VII, IX, and X for weakness and asymmetry

Assessing orofacial pain in primary care

Laboratory studies

- Complete blood cell count—look for anemia or infection
- Ferritin, vitamin B12, folate, and zinc levels—look for secondary causes of neuropathic pain
- A1C level—look for diabetes related to neuropathy
- Antibody screen to exclude connective tissue disorders
- Erythrocyte sedimentation rate or C-reactive protein level if an inflammatory condition such as giant cell arteritis is suspected

Assessing orofacial pain in primary care

Imaging studies

- Plain dental radiographs to identify caries, infection, or bone loss
- X-ray of C-spine- AP & Lat views

- Further referral to specialist for MRI,CT etc

What will be possible diagnosis/source of pain ?

TABLE 4. Pain sensitivity of intracranial and extracranial structures[18,19]

	Sensitive	Insensitive
Intracranial	• Dura mater • Venous sinuses and their tributaries • Intracranial arteries (proximal portions) • Neural structures: • Trigeminal nerve (CN V) • Facial nerve (CN VII) • Glossopharyngeal nerve (CN IX) • Vagus nerve (CN X) • Upper cervical nerves	• Brain parenchyma • Pia mater • Arachnoid membrane • Ependyma • Choroid plexus
Extracranial	• Carotid, vertebral, and basilar arteries • Blood vessels in the scalp and skin • Skin • Mucosa • Muscles • Fascia • Synovium in the TMJ • Teeth • Periosteum	• Skull • Cervical vertebrae

Always rule out RED FLAGS In Orofacial Pain:

- Spontaneously occurring focal neuropathy with pain and/or altered sensation, confirmed by physical examination, may indicate tumour invasion of nerve
- Pain at the angle of the mandible, brought on by exertion and relieved by rest, may indicate cardiac ischaemia
- Patient aged over 50 years with a known history of carcinoma and localised progressive headache, superficial temporal artery swelling, tenderness and lack of pulse
- Jaw claudication, visual symptoms and palpably tender superficial temporal arteries suggest temporal arteritis
- Systemic symptoms of fever, weight loss, anorexia, malaise, myalgia, chills and sweating are unlikely to be associated with concurrent orofacial pain
- New-onset headache in adult life of increasing severity, with nausea and vomiting but without evidence of migraine or systemic illness; nocturnal occurrence; precipitation or exacerbation through changes in posture; confusion, seizures or weakness; any abnormal neurological sign suggests a mass effect in the cranial cavity (intracranial tumour)
- Earache, trismus and altered sensation in the mandibular branch distribution suggests infratemporal fossa or acoustic nerve impingement, for example by a tumour
- Trigeminal neuralgia in a person <50 years of age may be suggestive of multiple sclerosis

Timeline from Primary care point of view: 12 weeks

PRACTICE POINTER

Orofacial pain

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Orofacial pain or facial pain described as an ache in the front part of the head (including the oral cavity) is a common presentation in primary care. Nearly a quarter of patients in a British primary care study (2504 adult patients) reported orofacial pain.[1] The pain may be musculoskeletal, dental, neural, or sinogenic in origin.[2]

0.5 HOURS

See http://learning.bmj.com for linked learning module

Please make sure systemic illnesses are r/o:

Table 1 Systemic conditions 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

Few of commonest Chronic OF pain presenting to PC

- Chronic Sinogenic Orofacial Pain:

- As name suggest pain originates from sinuses but may not be associated with inflammation and definitely infective cause has been ruled out.
- Hallmark: Multiple FESS explorations, possible turbinectomies, Polypectomy, mastoidectomy but pain still bothersome.
- Both nociceptive and neuropathic element
- Do not respond to usual symptomatic treatment
- Significant mental health impact

- Consensus recommendation: Trial of anti-neuropathic medications, CBT, MDT clinics(ENT,OMFS,Pain)

Pain management: Targeted injections- Sphenopalatine ganglion or Trigeminal Ganglion, Trigeminal selective branch block(V2)

Persistent Dento-Alveolar Pain Disorder (PDAP)/Phantom tooth Syndrome:

Persistent Dento-Alveolar Pain Disorder (PDAP)/Phantom tooth Syndrome:

- Females > males – usually mid 40s on
- Posterior maxillary quadrant most often
- Hx of trauma - multiple dental procedures
- Somatosensory abnormalities around tooth site
- No evidence of psychopathology
- <50% responded to LA block
- Variable response to TCA, gabapentinoids, topicals etc
- Repeated dental procedures are contraindicated

Persistent Dento-Alveolar Pain Disorder (PDAP)/Phantom tooth Syndrome:

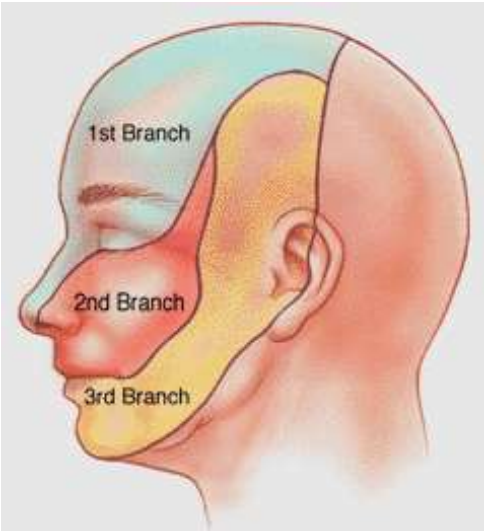
Management SIG consensus recommendation :

1. MDT(OMFS, Dentist, Pain and possibly neurologist and FND)
2. CBT, ACT
3. PMP
4. Medication: ? Role, trial of antineuropathic
5. Botox- Low evidence but off licence
6. PRP- Low evidence but is increasingly tried
7. ?CBD

Persistent Dento-Alveolar Pain Disorder (PDAP)/Phantom tooth Syndrome:

Trigeminal Neuralgia

Brief, electric shock-like, lancinating pains that affects the face unilaterally affecting one or more divisions of the trigeminal nerve.



Trigeminal Neuralgia

Perhaps the most well-known neuralgia pain in primary care.

Most well diagnosed and most misdiagnosed in primary and secondary care !

- Intermittent brief paroxysmal pain (secs-mins)
- Limited distribution: V2 and/or V3 > V1
- Trigger zone –minor stimuli- touch, wind, shave
- Abrupt in onset and termination and may remit
- Remission period can spontaneously occur that lasts for weeks to years, and may return
- Triggerable or spontaneous
- No obvious local cause

Trigeminal Neuralgia

TN is divided into three categories1

(i) CTN- Classical TN: The pain is brief (fractions of a second to 2 min), and severe, stabbing, shooting and lancinating or electrical in quality

(ii) Secondary TN, resulting from neurological disease such

1. as multiple sclerosis (MS), cerebellopontine angle tu-
2. mours and arteriovenous malformations.

(iii) Idiopathic TN.

Trigeminal Neuralgia

Investigations:

1. MRI is first choice of investigation; Sensitivity 70-98, specificity 79-91
2. If MRI is contraindicated/cannot be performed: Blink reflex test
3. Laser evoked in research setting- Clinically not useful

Trigeminal Neuralgia

Management:

1. Pharmacological- first line treatment of choice in CTN and STN.
2. Carbamazepine 200-1200 mg/day or oxcarbazepine 300-1800 mg/day may be used first for long- term treatment.
3. Lamotrigine acts at the level of voltage-sensitive sodium channels- possibly in combination with Carbamazepine or as stand alone.
4. Other second-line agents include pregabalin, baclofen and levetiracetam.
5. Botox- Possibly considered third line

Trigeminal Neuralgia: Top tip from PC point of view:

Where to refer:

1. **Neurology**: Medication optimization
2. **Neurosurgery**: If clear vascular bundle loop as cause of the TN

    MVD(Microvascular Decompression) and SRS(Stereotactic surgical resection)

3. **Pain Management**: If patient is on 2/3rd line, intolerable S/E, as bridging therapy awaiting destination

Trigeminal Neuralgia: Top tip from PC point of view:

How can Pain management Consultant help in TN:

1. Gasserian ganglion block
2. Neuroabalative procedure
3. Selective branch block- lesser destructive, more accepted and lesser morbidities
4. Suggest: Trial, off license medication
5. MDT: Pain Management Program

Ultrasound guided TN block:

1. Much quicker
2. Radiation free
3. Patient is awake
4. Precise- Comparable success rate vs X-ray guided
5. Avoid neurovascular complication
6. May need repeat but can lend itself very well to neuroabalative procedures like RF denervations/phenol/alcohol
7. Day case

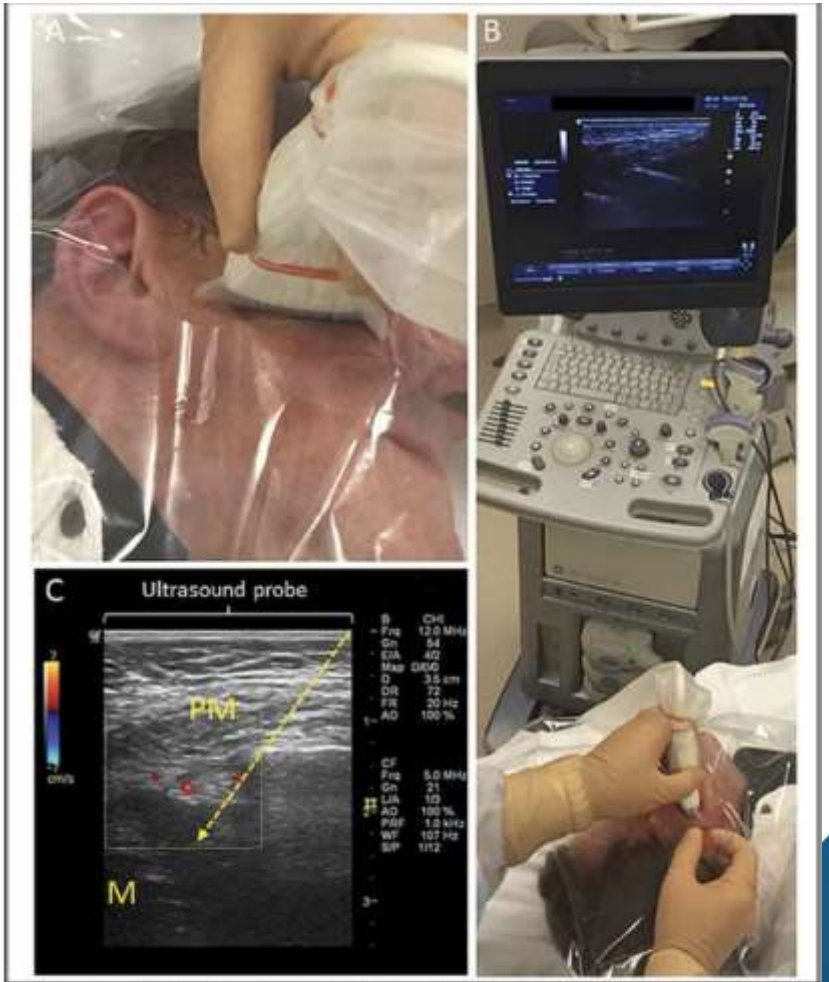


Fig. 1. *A) The ultrasound probe is positioned caudad to the zygomatic arch with cephalad angulation facilitating visualization of the target area below the zygoma. B) The needle is placed in-line with the transducer. C) The ultrasound image represents a transverse view with the top of the image displaying the ultrasound probe position.*
Dashed line = needle trajectory, PM = lateral pterygoid muscle, M = Maxilla. Maxillary artery detected by color flow Doppler.

Painful trigeminal neuropathy or trigeminal neuropathic pain other than TN

(i) Trigeminal neuropathic pain attributed to herpes zoster infection.

(ii) Trigeminal post-herpetic neuralgia (PHN).

(iii) Post-traumatic trigeminal neuropathic pain (previously known as anaesthesia dolorosa or painful post- traumatic trigeminal neuropathy).

Painful trigeminal neuropathy or trigeminal neuropathic pain other than TN

1. These are too complex to be managed in primary care, early referral may increase patient satisfaction even though overall outcome is still not affected much.
2. Treatment with acyclovir, famciclovir or valacyclovir should be started within 72 h after onset of symptoms. A 7-day course is usual.
3. Please start neuropathic agents such as amitriptyline, gabapentin or pregabalin.
4. The strongest evidence for effective pain control in PHN is for capsaicin 8% patch, gabapentin, gabapentin extended- release (ER), lidocaine plasters, opioids, pregabalin and tricyclic antidepressants.
5. The capsaicin patch is not approved for use on the face, thus making it second line.
6. A multidisciplinary approach to PHN is most effective, which includes medications, and psychological and social support

Glossopharyngeal neuralgia (GN) and glossopharyngeal neuropathic pain (GNP)

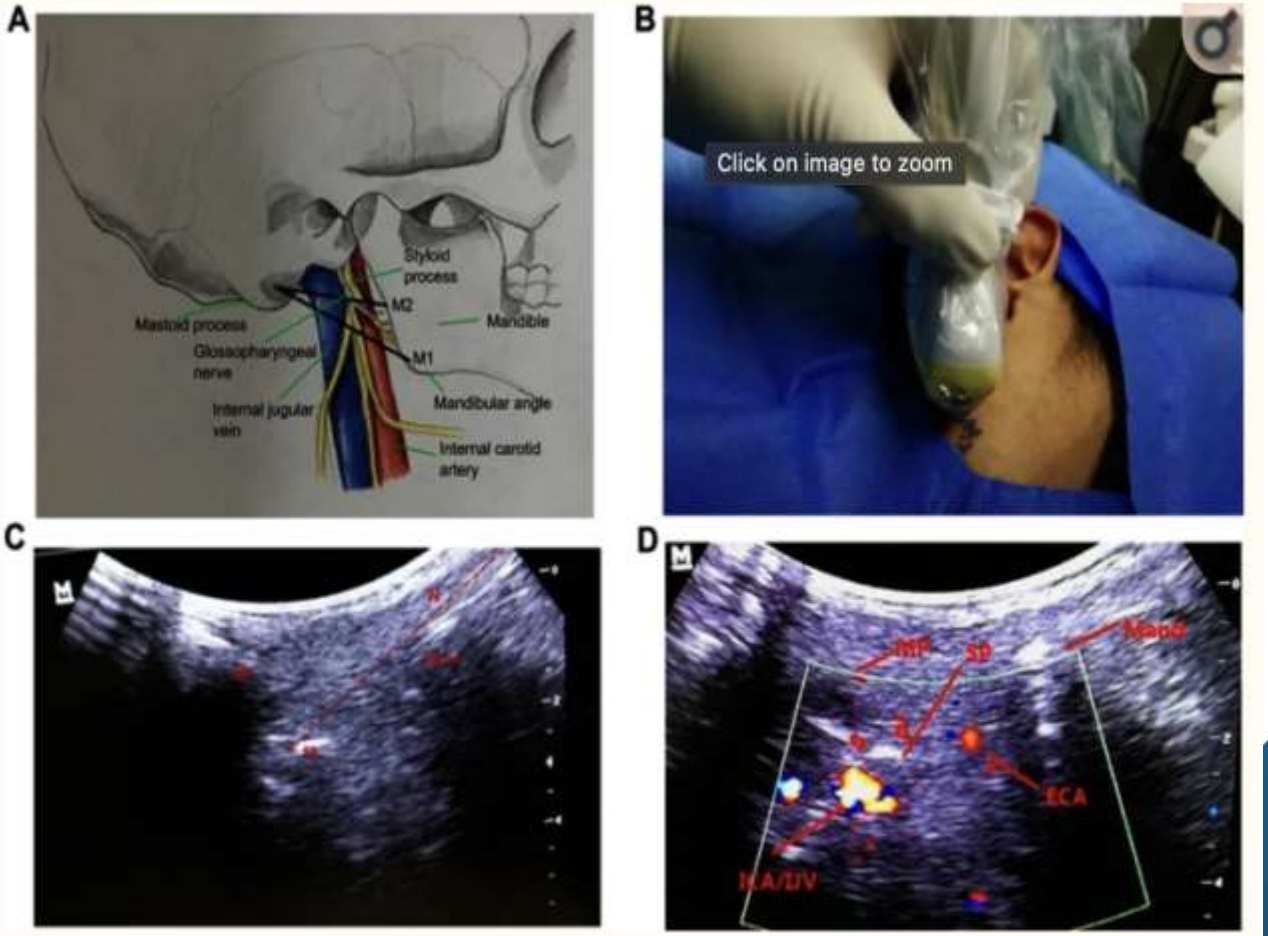
- Estimated to be 0.2-0.7 cases per 100,000 individuals
- unilateral, brief, stabbing pain in the ear, base of the tongue, tonsillar fossa, back of the throat, or beneath the angle of the jaw
- It is triggered by chewing, swallowing, talking, yawning, drinking cold liquids or coughing.
- Also, can present vagal symptoms of bradycardia, life-threatening syncopal episodes, hypotension or cardiac arrest
- Secondary GN/GNP can be attributable to neck trauma, MS, tonsillar or regional tumours, cerebellopontine angle tumours and Arnold-Chiari malformation, iatrogenic injury etc.

Glossopharyngeal neuralgia (GN) and glossopharyngeal neuropathic pain (GNP)

1. Management: Pharmacological is first line and mirrors Trigeminal Neualgia Mx.
2. Surgical: nerve section (NS), MVD(Microvascular Decompression) and SRS (Ex- Gamma knife)
3. Pain Management: Medication advice, Interventions(GN block) and PMP.
4. Research setting: DBS, CBD etc

USG GN block

1. Less invasive
2. Precise
3. Serves as good diagnostic modality
4. Avoid neurovascular complications
5. Usually is a bridging therapy but can be destination as well
6. Day case



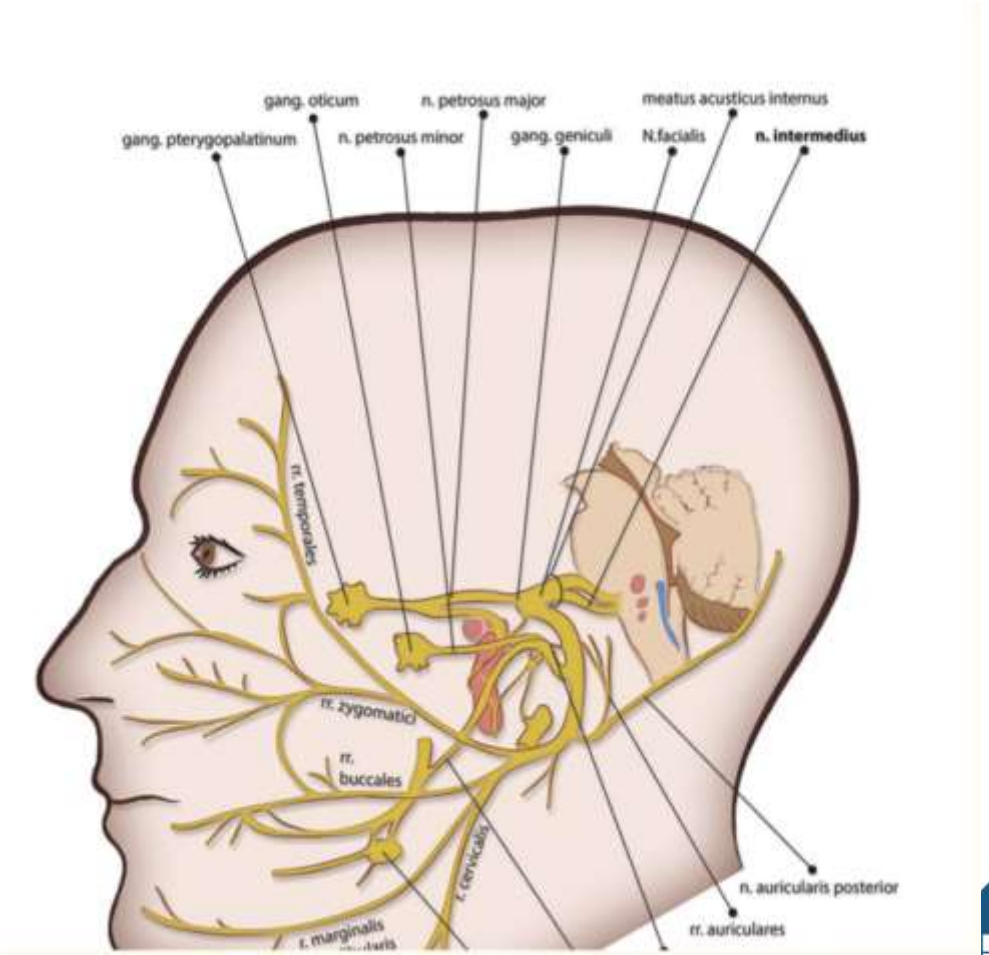
Top tip from primary care perspective: TN Vs GN

1. If the patient is fainting when they get facial paroxysmal pain→ GN
2. If the patient is reporting paroxysms of lancinating nature with known trigger→ TN
3. GN→ Definitely refer early. Must be followed up in secondary care and possibly open follow up are given to these patients.

Nervus intermedius neuralgia

1. From the sensory afferents of the seventh cranial nerve located in the geniculate ganglion
2. it is unilateral, lancinating, paroxysmal and lasting seconds to minutes
3. **Location:** Auditory canal and retro-auricular regions but can also spread to the temporal regions.
4. It is rarer than TN or GN,
5. **Triggers** include sensory or mechanical stimuli at the posterior wall of the auditory canal.
6. **Treatment**: Exclude ear pathology. First referral to ENT.
7. First line of treatment is antineuropathic similar to TN.
8. Neurosurgical: MVD may be an effective treatment-safe , craniotomy and resection of structures- high morbidity.
9. Pain Management: Fairly limited experience and literature

Anatomy



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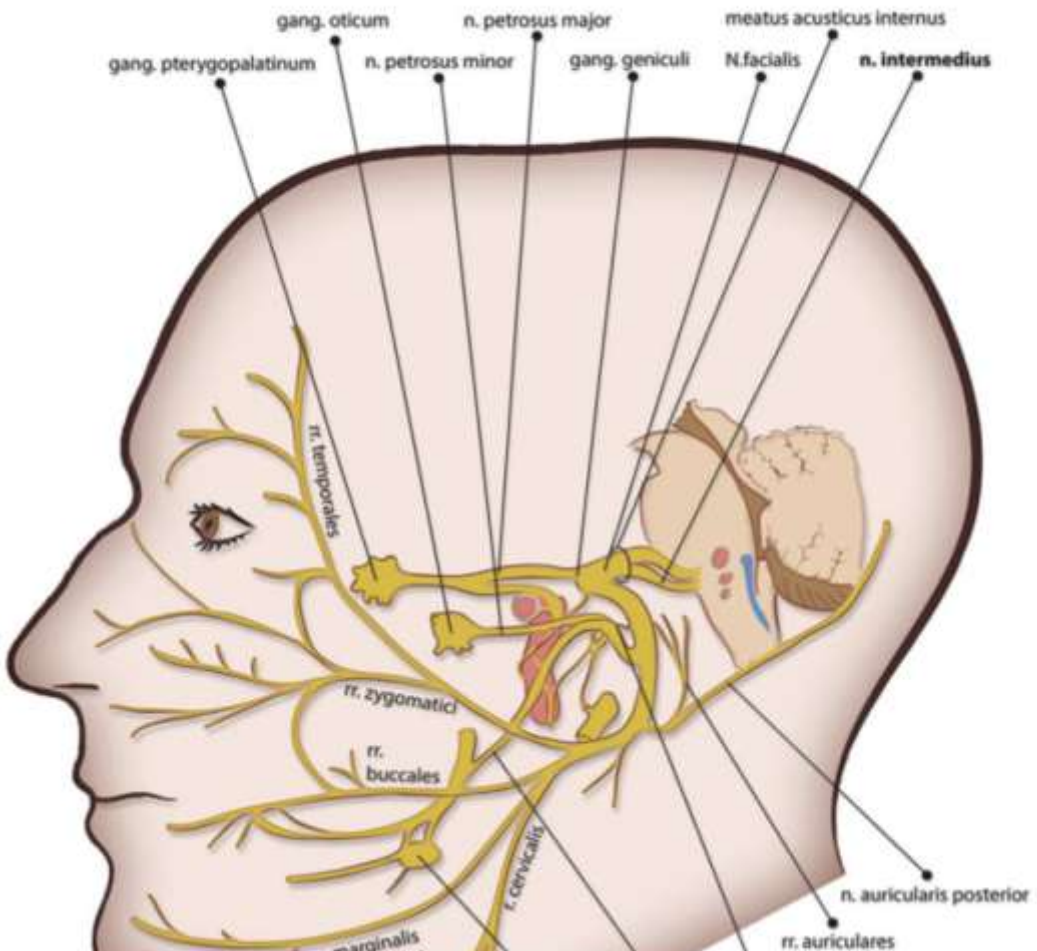
This is N Intermedius

Pain management interventions ?

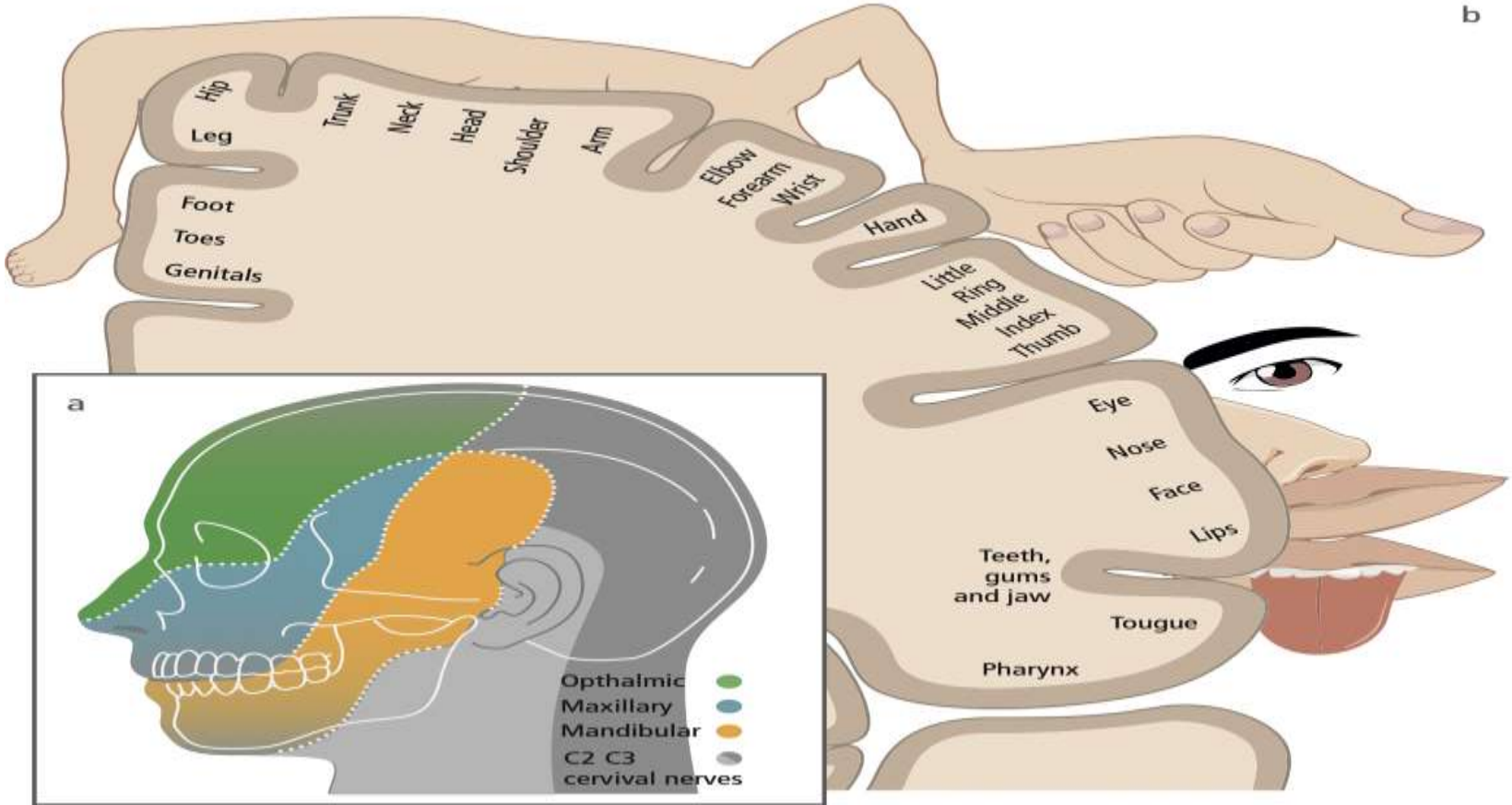
-Botox

-Steroid injections around auricular nerves

- Pain Management Program



Bottomline: Chronic Orofacial pain remains enigma



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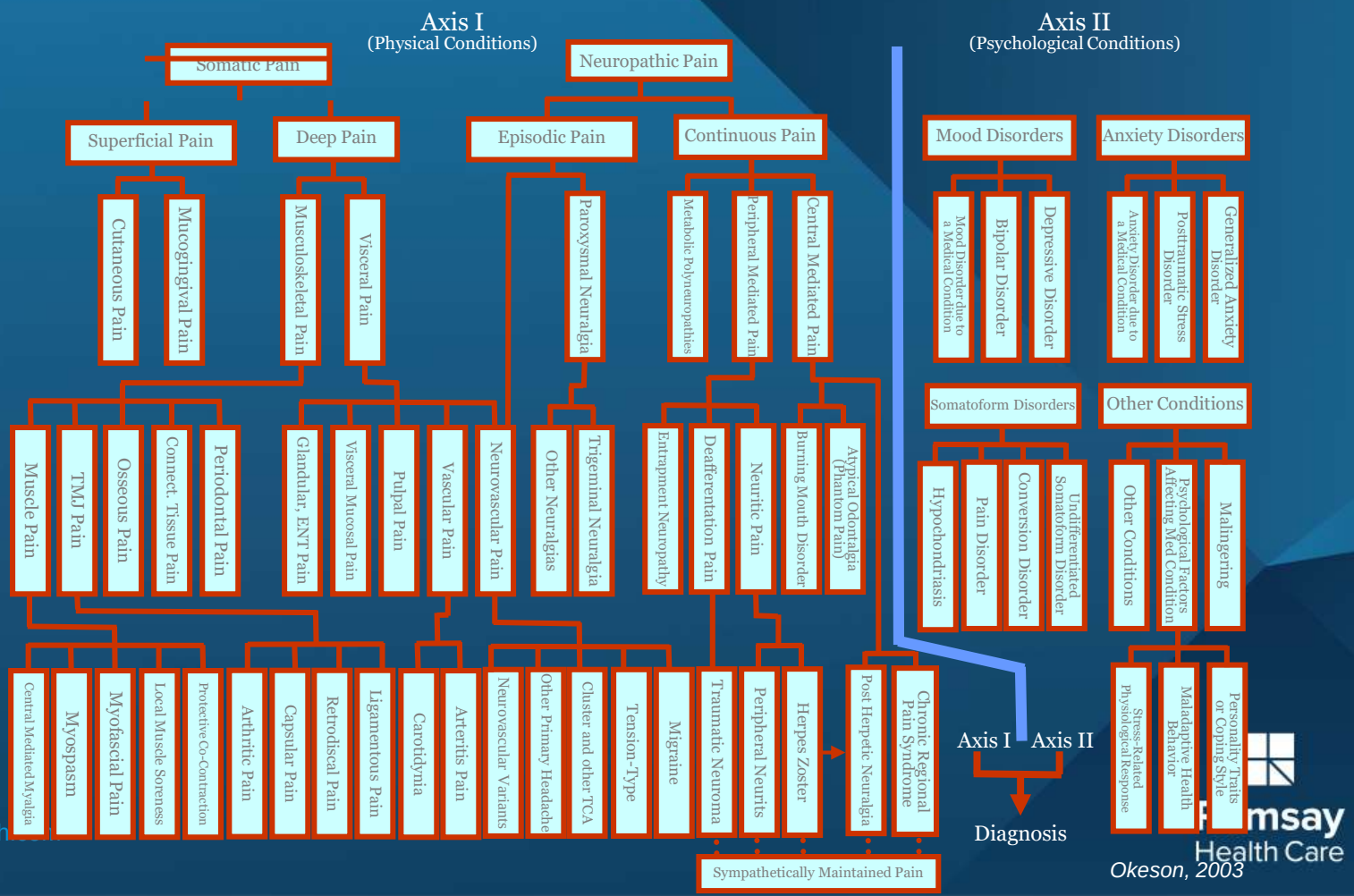
Classification of Orofacial Pains



Okeson, 2003

Top Take Home Tips:

1. At PC level, you are slightly likely to miss orofacial pain red-flags
2. Early referral can save lot of paperwork
3. May improve the outcome
4. Please do initiate Rx of systemic causes if you find one- Can be incidental but will still help
5. These patients are likely to suffer downward spirals from mental health point of view
6. Patient education and expectation management should start at PC level
7. Medication overuse will complicate overall outcome- highly likely
8. Opioids-- ?
9. CBD-- ?
10. Please remember Pain Management can help as bridging modality or destination

Thank You

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