Chapter 4
Facial Pain

Abstract An overview of the anatomy, aetiology, assessment and management of facial pain.

Key Points

- Trigeminal neuralgia.
- Glossopharyngeal neuralgia.
- Headache disorders including migraines, cluster headaches and temporal arteritis.
- Burning Mouth Syndrome.
- Atypical facial pain and atypical odontalgia.

Aetiology of Facial Pain

- Local—teeth/jaws.
- Psychogenic—psychosomatic/atypical facial pain/Burning mouth syndrome → associated anxiety/TMJ.
- Referred—Angina/oesophagus/neck/chest.
- Neurological—Trigeminal/MS/space-occupying lesion/herpes zoster.
- Vascular—Migraine/temporal arteritis/cluster headaches.

Trigeminal Neuralgia

- Disorder of cranial nerve V: intense paroxysmal pain with one or more divisions.
- 3–6/100,000: more common in females—incidence and severity increase with age → Usually 50–70 years.

Causes

- Compression of trigeminal nerve root by artery in middle cranial fossa (pons): 80–90%, rarely by aneurysm/AV malformation.
- Nerve demyelination: suspect MS in younger patients.
- Others: CNS.
- Achondroplasia.
- CPA Lipoma/schwannoma/pituitary tumour/sarcoid.
- Charcot-Marie-Tooth.

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Symptoms

- Paroxysmal pain: Intense, lancinating, burning pain "like electric shock"—lasts seconds/minutes.
- Frequency varies—may be multiple times, almost always unilateral.

  Many patients have trigger points—stimulated every day, with period remission and relapse, worsen overtime.

- Eating.
- Talking.
- Washing.
- Shaving.
- Toothbrushing.

Investigations

- Complete neurological examination, look for signs/symptoms of multiple sclerosis (multiple defects):
  - Vision.
  - Weakness.
  - Limbs.

MRI brain if:

- Atypical features.
- Patient age <50, look for intracranial lesions/MS.
- Consider microvascular decompression.

Management—Medical First Line Treatment

- Most effective anticonvulsants: carbamazepine 100 mg BD (up to 1600 mg in 3–4 divided doses), follow-up with wean after six months, early side effects decrease with time, must monitor FBC, U&Es and LFTs.
- Leucopenia.
- Rashes/Nausea and vomiting/dizziness/headaches/diplopia.
- Ox carbamazepine: induces hepatic enzymes to a less extent.
- Unlicensed use for trigeminal neuralgia.
- Usually 300 mg/BD up to 600 mg/daily.
- Usually 600 mg–2400 mg/divided doses daily.
- Review in facial pain clinic and wean eventually.
- Gabapentin/lamotrigine also used as second-line agent.
- Severe cases I.V. phenytoin in a crisis.
- Start with small initial dosages and then increase. A few patients may be unresponsive or unable to tolerate side effects. Consider surgery adjuvant with neurosurgical assessment.

Peripheral Procedures

- Cryotherapy/chemical destruction/radiotherapy ablation.
- Stereotactic (gamma knife).

Options:

Operative:

– Nerve blocks with alcohol/phenol—temporary relief (up to 2 years).
– Avulsion of the superior/inferior orbital nerves—prolonged pain relief.
– Fogarty balloon inflation—ganglion in Meckel's cave (or glycerol injection).
– Radiofrequency thermocoagulation—site of facial tingling produced by electrical stimulation of needle inserted into trigeminal ganglion. When site of tingling corresponds to trigger spot, thermocoagulation produces analgesia of the appropriate area.
– Microvascular decompression—exploration of cerebellopontine angle (CPA) reveals blood vessel in contact with trigeminal nerve root—Separation using non absorbable (Teflon) sponge can produce relief in symptoms.

Risks

- Permanent.
- Paraesthesia/anaesthesia.
- Dolorosa (severe continuous pain within distribution of nerve).
- Pain relief = 80–85% remain pain free for 5 years.
- Young = microvascular decompression (MVD).
- Elderly/frail = interventions.

Surgery Risks:

- Damage to cranial nerves V, VII, VIII.
- Vascular damage.
- Post-operative weakness.
- If sensory loss to cornea = risk of scarring, have eyelid shut until able to test corneal reflex—need special glasses with sides.
- Can get relapse after MVD—consider re-operation as vessels move or material dislodged.

Glossopharyngeal Neuralgia

- Rare—similar to trigeminal = pain felt at base of the tongue and fauces on one side.
- TN:GN 100:1.

Symptoms

- Poorly localised—affects tonsils, tongue base, ear/and intra-auricular area.
- Patient often point to behind angle of mandible—symptoms often treated as TMJD.
- Trigger point difficult to identify = yawning/swallowing.

Investigations

- Topical LA to ipsilateral tonsils/pharynx—immediate relieves symptoms, but short acting *Diagnostic.
- MRI—Space-occupying lesion in cranial cavity or jugular foramen/MS.

Management

- Medical similar to management of trigeminal.
- Surgical—MVD.
- 75% works.
- Risks—morbidity/mortality.
- Headaches: many causes.

Migraine

- Primary recurrent headache disorder.
- More common in females.
- Usually commonest in adolescence.
- Termed 'hemicrania' as it affects half of the head.

Cause

- Possible relationship to abnormal 5-HT (serotonin) activity—leading to initial vasoconstriction of portions of cerebral arteries, followed by compulsory vasodilation, with cerebral oedema and pain.

Precipitant

- Hormonal factors including Oral Contraceptive Pill (OCP).
- Diet—chocolate/bananas, stress, sleep deprivation, bright/flashing lights.

May Have Preceding Aura

- Visual hallucination—flashing lights/decrease in color, visual disturbance.
- Motor—temporary motor palsy.
- Speech—aphasia.
- Severe unilateral headache—initially poorly localised, becomes localised to temporal/frontal/orbital region.
- Photophobia/nausea/vomiting.
- Attacks decrease with age—may totally resolve.

Management

- Acute attacks: Triptan (5-HT antagonist) plus NSAID/paracetamol.
- Prophylaxis: Topiramate or propranolol, acupuncture.

Cluster Headaches

- Exquisite pain of midface/upper face—centred around eyes.
- Attacks occur in temporal groups/clusters—extended periods of remission between attacks.

- Often positive FH=Family history.
- 80% are smokers.
- 30–40 years.
- Less common than migraines.
- Male:Female 6:1.
- 1:10,000 males/year.

Cause

- Unknown, allergic basis with mast cell release and vasodilatation.
- Associated with sleep apnoea, and low oxygen saturation.
- Alcohol, cocaine, GTN spray.

Symptoms

- Severe unilateral episodes of burning/lancinating pain in and around the orbit/frontal/temporal.
- Abrupt onset—lasts for 15 min to 3 h—often wakes patient at night.
- Begins same time every day (alarm clock headache—may have multiple episodes every day).

May be Associated with Autonomic Symptoms

- Conjunctival vessel congestion.
- Eye watering.
- Nasal stiffness.
- Facial Flushing.
- Diagnosis.
- Clinical/MRI.

Management

- Acute attacks.
- Oxygen may abort attacks and its effectiveness diagnostic.
- Subcutaneous triptan.
- Prophylaxis.
- Verapamil drug of choice.
- Nifedipine.
- Lithium.
- Ergotamine.
- *Distinguish from chronic paroxysmal hemicrania—respond to indomethacin.

Giant Cell Arteritis

- Multifocal vascular affecting the cranial arteries.
- Unknown aetiology.
- Systemic vascular—large/medium vessels especially branches external carotid.
- Females > Males.
- Average onset—70 years.

- Related to polymyalgia rheumatica (PMR).
- Genetic predisposition possible.

Symptoms

- Unilateral headache—initial burning—throbbing.
- Usually temporal/or occipital artery.
- Lingual/facial/maxillary arteries may get involved leading to claudication on eating/drinking.
- Affected vessels feel hard/tender.
- Tongue ischaemia if lingual artery.
- TIA/CVA.
- Left untreated.
- 25% develop visual problems.
- Due to central retinal artery involvement—which may be bilateral—loss vision.

Diagnosis

- Increased ESR 60–100 (although can be normal), normocytic normochromic anaemia.
- Temporal artery biopsy with granuloma formation.

Management

- Prednisolone >50 mg daily.
- I.V. methylprednisolone first if visual loss.
- Urgent ophthalmological assessment.
- Consider rheumatology referral.
- Decrease steroid with resolution of headache—ESR may take month/years to normalise.
- PPI.
- Osteoporosis cover—bisphosphonates.
- Calcium/Vitamin D.
- Aspirin (decrease CVA).

Burning Mouth Syndrome

- Burning sensation of oral mucosa (usually tongue—glossopyrosis) in absence of any pathology.
- Common 5 in 100,000—much higher middle aged and elderly.
- Female:Male 16:1.
- Age >50 years.

Aetiology

- Unknown.
- Psychogenic.
- Increased in anxiety/depression/stress.
- Obsession.
- Cancerphobia.

- First exclude organic cause of burning.
- Local.
- Xerostomia/chronic mouth breathing/mechanical trauma/referred pain/trigeminal neuralgia/atypical facial or neuralgia/angioedema/candidiasis/TMJD/submucous fibrosis/trauma lingual nerve.

Systemic

- B vitamins, folate, zinc, iron.
- Diabetes mellitus / GORD/ hypothyroidism/ oestrogen deficiency/ Parkinson's / AIDS.

Symptoms

- Dry mouth/altered or bad taste.
- Burning sensation affecting tongue and anterior palate, less common in lips.
- Aggravated by certain food—usually bilateral.
- Does not wake patient, but often present on waking.
- Normal examination.

Investigations

- FBC/haematinics/swab candida—all normal.
- Tricyclic antidepressants—side effects.
- Arrythmias/heart block.
- Postural hypotension/tachycardia.
- ECG changes.
- Dry mouth/blurred vision/constipation/urinary retention.

Management

- Reassurance.
- Avoid stimulating factors.
- Cochrane review: Amitriptyline 10 mg daily (max 75 mg daily titrated/Clonazepam 1 mg TDS mouthwash.
- Tricyclic antidepressant—same patients respond.
- 2nd line: Pregabalin 150 mg divided doses daily/75 mg BD.
- Tricyclic antidepressants: nortriptyline: 10–25 mg once at night (maximum 75 mg once at night); less sedative effects than amitriptyline.
- CBT: shown in RCTs to help patients manage symptoms—as medical management often disappointing.

Atypical Facial Pain

- Diagnosis of exclusion.
- Constant chronic dull ache.
- Most common in females—middle age/elderly.
- Can get intermittent/severe episodes, may be bilateral.

Clinical

- Often difficult for patient to describe—deep constant ache or burning.
- No anatomical bundles—cross midline moves to different sites.
- Maxilla > mandible.
- Does not stop sleeping, but may awaken with pain.
- Often exacerbated/initiated by dental treatment.
- Often have other complaints: IBS/TMJD/back pain/neck pain/dry mouth—diagnosis from trigeminal neuralgia is difficult (lack of trigger, vague distribution).

Investigations

- MRI/Bloods/Biopsy—nerve.

Management

- Tricyclic antidepressant—some effect on symptoms—no adequate RCT to show this.
- 30% respond gabapentin. Dose regime

  (a) Day 1: 300 mg/OD
  (b) Day 2: 300 mg/BD
  (c) Day 3: 300 mg/TDS

- Pain team/CBT.

Atypical Odontalgia

Pain tooth/site of extraction—sharp/aching/throbbing, burning—exclude pathology

Management Includes:

- Topical capsaicin—some benefit, need for several weeks.
- EMLA.
- Tricyclic antidepressant.
- Gabapentin.