Neurology

Bell’s palsy

- LMN facial nerve (CNVII) damage causing unilateral facial weakness
  - mostly idiopathic but may be due to herpes virus, otitis media, trauma, DM, Sjögren’s
- Ramsay-Hunt syndrome - varicella zoster; pain, vesicles in ear / palate / tongue
- Symptoms - unilateral facial droop, inability to close eye, taste impairment, hyperacusis
  - forehead is affected; if spared likely UMN lesion e.g. TIA, stroke, MS etc.
- Self-limiting: prednisolone, eye drops / eye patch at night (risk of blindness); 80% full recovery

Brown-Séquard syndrome

- Spinal (often cervical) cord lateral hemisection caused by trauma, neoplasia, MS, spondylosis
  - ipsilateral spastic paraparesis - vibration / proprioception loss, up-going plantar
  - contralateral pain / temperature loss - no plantar reflex
  - also sphincter problems, Horner’s
- Management - spinal immobilisation if traumatic; treat underlying cause; consider steroids
- Complications - hypotension, PE, pneumonia, UTI, depression

Delirium

- Typically (sub)acute fluctuating abnormalities of thought, perception, awareness, sleep cycle
  - hypoactive (apathy, ‘quiet confusion’) or hyperactive (agitation, delusions) or both
  - potential central cholinergic pathway blockade - anticholinergics common precipitants
- Risks - advanced age, males, dementia, co-morbidities, surgery, hip fracture, isolation
- Triggers - hypoglycaemia, acute illness, drugs, withdrawal, vitamin deficiency, trauma... many
- Management - supportive, environmental, medical
  - clear communication / reminders, nearby clock, familiar people / objects, staff consistency
  - adequate space / sleep, side-room, noise / lighting / temperature moderation, nutrition
  - consider haloperidol (0.5mg), lorazepam, antipsychotics - but use with caution (e.g. EPSEs)
- Complications - HAI, pressure sore, fractures, residual impairment (institutionalisation), coma

Dementia

- Deterioration of multiple cognitive deficits impairing functioning; MMSE < 24/30 ‘diagnostic’
- Aetiology - Alzheimer’s (65%), Lewy body, Parkinson’s, vascular, infection, SOL, vit. deficiency
- Alzheimer’s - cortical, global progressive impairment; mostly sporadic; exponential with age
  - diagnosis - amnesia (antero/retrograde); aphasia, apraxia, agnosia, executive dysfunction
  - neuropsychiatric features - aggression, insomnia, psychosis (hallucinations, delusions)
  - treatment - donepezil / rivastigmine (AChE inhibitors); memantine (anti-NMDA) if severe
- Lewy body - eosinophilic intracytoplasmic neuronal inclusions in brainstem and neocortex
  - diagnosis - 2/3 of fluctuating confusion, persistent visual hallucinations, Parkinsonism
  - also falls, more pronounced attentional difficulties but better memory, REM sleep disorder
MIBG scintigraphy to differentiate between other Parkinsonian syndromes / Alzheimer’s
avoid antipsychotics / anti-Parkinsonian drugs; consider AChE inhibitors e.g. rivastigmine

Vascular - dementia onset related to recent stroke / known cerebrovascular disease
diagnosis - focal abnormalities (e.g. visual field defect), EPSE, incontinence, gait problems
treatment - galantamine (improve cognition but not ADLs); consider donepezil (inconsistent)

Parkinson’s disease - akin to Alzheimer’s but prominent visual hallucinations / fluctuant lucidity
dopamine therapy may worsen symptoms; consider quetiapine

Epilepsy
May be focal / generalised (sides of brain), simple / complex (consciousness impairment)
precipitants - sleep deprivation, alcohol binge, TCAs, ovulation
generalised tonic-clonic - preceded by cry, tongue-biting, incontinence
temporal - preceded by aura, motionless stare, automatisms
post-ictal phase - often headache, drowsiness, confusion, amnesia, Todd’s palsy
30% have family history, 30% have ‘anatomical cause’; common with learning disability
aetiology - stroke, head trauma, meningitis, dementia, brain tumour, hypoglycaemia
drug causes - alcohol, TCAs, isoniazid, benzodiazepine withdrawal
history of febrile convulsions - around 1% increased risk of epilepsy (esp. temporal)
Largely clinical diagnosis - EEG to support (inc. hyperventilation, sleep, ambulatory)
Treatment after second unprovoked seizure (not carbamazepine in myoclonic / absence)
generalised seizures - sodium valproate; otherwise lamotrigine / carbamazepine
absence seizures - also ethosuximide but not carbamazepine
focal seizures - carbamazepine; otherwise lamotrigine / sodium valproate
withdraw drugs individually and slowly over 2-3 months under specialist supervision
Other treatment - surgery e.g. anteromedial temporal resection (intractable focal), VNS
Driving - first seizure - 6 months off; epileptic seizure - 1 year off, 3-year licences issued
Pregnancy - sodium valproate increases risk of NTDs; 5mg folic acid when trying to conceive
Complications - increased risk of suicidal thought / behaviour after starting any AED
SUDEP - often occurs during sleep, young adults with severe epilepsy / polytherapy

Status epilepticus
Prolonged (> 5min) or repetitive convulsive seizure without recovery; affects extremes of age
Give buccal midazolam / rectal diazepam / IV lorazepam (first line in hospital); also IV phenytoin

Essential tremor
Typically bilateral postural upper limb 10Hz tremor; initially transient, later persistent
up to 5% prevalence; 50% familial with autosomal dominant inheritance
may be associated with head / facial / jaw tremor
improved by alcohol, concentrating e.g. on a fine motor task (cf. Parkinsonism)
Treatment - propranolol, primidone, gabapentin; in severe cases deep brain stimulation
Guillain-Barré syndrome

- **Acute inflammatory demyelinating polyradiculoneuropathy** with *axon degeneration*
  - majority occur following *infection* e.g. EBV, CMV; some *anti-ganglioside antibody* types
- Risks - GI / respiratory infection, vaccinations, Hodgkin’s lymphoma, puerperium
- Symptoms - *progressive ascending bilateral weakness* over 2-5 weeks; may be painful
  - also paraesthesia, facial weakness, hypo-reflexia, heat intolerance, autonomic dysfunction
- Investigations - *nerve conduction studies, SIADH*, high CSF protein, spirometry, ECG (blocks)
- Management - consider *IV immunoglobulin* / plasma exchange, methylprednisolone
- Complications - *respiratory failure*, persistent paralysis, DVT / PE, arrhythmias, ileus, retention

Headache

- Red flags - thunderclap, age > 50, neurology, postural variability, waking from sleep, fever

Migraine

- Thought to be caused by pontine *brain dysfunction* (not vascular aetiology)
  - commonest cause of headache in children
- Symptoms - may be aura, then paroxysmal *severe pulsating unilateral headache*
  - also photophobia, phonophobia, nausea, vomiting; patients ‘lie in darkened room’
  - triggers - stress, lights, trauma, cheese, chocolate, alcohol, sleep deprivation, COCP
- Complications - *ischaemic stroke* (migraine with aura), depression, bipolar, panic disorder
- Management - acutely *aspirin* / NSAIDs, rectal diclofenac, *sumatriptan* (if low CVD risk)
  - vomiting - prochlorperazine (buccal) / domperidone / metoclopramide
  - prophylaxis - *atenolol* / propranolol; consider amitriptyline, topiramate, sodium valproate
  - if severe refractory consider *pericranial botox injection*, gabapentin

Tension headache (stress headache)

- Commonest chronic recurring headache; mostly < 15 days / month, lasting a few hours
  - classically gradual onset *bilateral tightness* / ‘band round the head’, radiating to the neck
  - usually occurs in the *morning*, not aggravated by exertion, no aura / nausea / photophobia
- Management - *NSAIDs*, naproxen, paracetamol (opioids ineffective); *acupuncture* (prophylaxis)

Cluster headache

- Rarer; mostly in *men, smokers* - severe unilateral *periorbital pain* with *autonomic features*
  - rapid onset, sharp, constant pain for *up to 3hrs multiple times daily / shortly after sleep*
  - associated with lacrimation, rhinorrhoea, periorbital swelling, sweating, flushing, Horner’s
  - patients are *restless* - pacing, exasperated (cf. migraine); *alcohol* potent trigger
  - occurs in clusters 1wk - 1yr separated by pain-free months
- Management - stop smoking / alcohol, good sleep hygiene
  - acutely *sumatriptan* (SC), *oxygen* (12L in 15min bursts qds. with tight mask)
  - prophylaxis - *verapamil* 40mg bd. upwards; consider *melatonin* nocte., Li, DPS
Benign intracranial hypertension

- Idiopathic high ICP without SOL or hydrocephalus; commonest in *obese women*
- Associations - endocrine dysfunction, drugs (e.g. steroids), anaemia, SLE, Lyme disease
- Symptoms - **morning headache** relieved by standing, *exacerbated by coughing / straining*
  - also **papilloedema** causing transient visual defects, halo, blurring, scotoma, diplopia
- Management - weight reduction, **acetazolamide**, prednisolone, and as for hydrocephalus
- Complications - **permanent visual loss** (up to 50%) - consider **optic sheath fenestration**

Horner’s syndrome

- Triad of partial **ptosis, miosis, anhidrosis**; also **pseudo-enophthalmos**; pain is unusual
  - **central** (total upper anhidrosis) - stroke, MS, syringomyelia, CNS tumour, encephalitis
  - **pre-ganglionic** (facial anhidrosis) - Pancoast’s, thyroidectomy, trauma
  - **post-ganglionic** (no anhidrosis) - carotid artery aneurysm / dissection, cluster headache, CST
- Signs - slowed pupillary dilation, **heterochromia irides** (if congenital)
- Investigations - **apraclonidine** eye drop (dilates Horner’s pupil); seek underlying cause

Huntington’s disease

- **Autosomal dominant** progressive **neurodegenerative** disorder affecting basal ganglia / cortex
  - associated with CAG repeats on **huntingtin** gene (chromosome 4)
- Symptoms - mild behavioural prodrome, chorea, dystonia, dementia, seizures, dysarthria
  - behavioural features - apathy, dysphoria, agitation, anxiety, impaired judgement
- Investigations - MRI (large front horns of lateral ventricles), **genetic testing** (x2 samples):
  - CAG repeats - 27-35 normal but inheritance risk; 36-39 may be affected; > 40 abnormal
  - Management - benzodiazepines (chorea), levodopa (Parkinsonism), SSRIs (depression)
  - nothing slows disease progression; death generally from intercurrent illness

Hydrocephalus

- Increase in **CSF volume** although *not necessarily pressure* e.g. in ventricular enlargement
- **Non-communicating** (obstructive) or **communicating** (venous blockage / high CSF production)
  - hydrocephalus ex vacuo - secondary to brain atrophy e.g. Alzheimer’s disease
  - other causes - SOL (inc. haematoma), infection, SAH, meningitis, choroid plexus papilloma
- Symptoms - acutely those of high ICP; sub-acutely unsteady gait, neck pain, cognitive decline
- Management - **acetazolamide**, furosemide, isosorbide, LPs initially, but mainstay is surgical
  - **CSF shunt** - mostly ventriculoperitoneal or ventriculoatrial; also choroid plexectomy

Normal pressure hydrocephalus

- Affects the **elderly** - triad of **Parkinsonian gait, urinary incontinence, (reversible) dementia**
- Largely idiopathic but may follow **head trauma**
- MRI / CT shows ventricular enlargement (esp. 4th) disproportionate to sulcal atrophy
Intracranial haemorrhage

- SCALP - skin, tight connective tissue, aponeurosis, loose connective tissue, periosteum
  - then cranium, dura mater, arachnoid, pia mater, brain

Extradural haemorrhage

- Post-traumatic (esp. temporal) bleed between dura mater and cranial bone
  - commonly temporal / parietal bone fracture damaging middle meningeal artery
  - classically follows trauma, then brief LOC, then lucid interval, then deterioration
  - On CT - convex (‘egg-shaped’) pericranial white collection
  - Management - conservative; consider burr holes / surgery if large
    - consider prophylactic phenytoin for post-traumatic seizures

Subdural haemorrhage

- Post-traumatic or haemorrhagic diathetic bleed between dura mater and arachnoid
  - trauma tends to be acceleration-deceleration (tearing bridging veins) rather than blunt
  - acutely may present like extradural; subacute / chronic deterioration more likely
  - classically elderly patient with trivial injury deteriorates neurologically weeks later
  - On CT - concave, slim, flat pericranial white / grey collection; manage as above

Subarachnoid haemorrhage

- Bleed between arachnoid and pia mater due to berry aneurysm of the Circle of Willis
  - berry aneurysms caused by genetic malformation, hypertension, atherosclerosis, alcohol
  - classically thunderclap headache with vomiting, seizures, diplopia, dysphasia
  - On CT - spherical white / grey collections, often intracerebral
  - Management - nimodipine 60mg reg. (reduces vasospasm / cerebral ischaemia)
    - early surgical intervention required
  - Complications - cardiac arrest, stroke (2wks later), hydrocephalus, epilepsy, anosmia

Motor neurone disease (MND)

- Mostly due to amyotrophic lateral sclerosis (ALS) affecting anterior horn cells (UMN / LMN)
  - also progressive bulbar palsy, progressive muscular atrophy, primary lateral sclerosis (UMN)
  - UMN signs - arm extensor / leg flexor weakness, hypertonia, hyper-reflexia, up-going plantar
  - LMN signs - atrophic weakness, wasting, fasciculations (esp. thighs), hyporeflexia
  - Classically local distal limb onset with mixed UMN / LMN signs e.g. wasting with brisk reflex
  - Symptoms - upper limb weakness / clumsiness, fasciculations, foot drop, gait disorder
    - bulbar features - dysarthria, tongue wasting, dysphagia, drooling, emotional lability
    - other features - dyspnoea, TATT (hypoventilation); sensory / pain disturbances rare
  - Investigations - electromyography (fasciculations) nerve conduction studies (normal)
  - Management - eventually PEG feeding, night NIV (BIPAP), riluzole (ACh receptor blocker)
  - Complications - respiratory failure, pneumonia, UTI, constipation, depression, disability
    - median survival 3-5 years; vast majority die during sleep (hypercapnic respiratory failure)
Multiple sclerosis (MS)
- Cell-mediated autoimmune inflammatory demyelinating disease; possible viral triggers
  - mostly relapsing/remitting; 50% develop secondary progressive; 10% primary progressive
  - prevalence increases proportional to the distance away from the equator; overall 0.1%
- Eye signs - optic neuritis, Horner’s, nystagmus, internuclear ophthalmoplegia (horizontal gaze)
  - also CNVII palsy, trigeminal neuralgia, deafness, dizziness, depression, paraesthesia, perineal numbness, transverse myelitis, incontinence
- Diagnosis - multiple lesions ‘disseminated in place and time’, MRI as adjunct to clinical evidence
  - also visual evoked potential studies - delays indicate demyelination
- Management (acute relapses) - methylprednisolone IV/PO 500mg. od for 5 days + PPI cover
  - interferon beta SC/IM for ambulatory relapsing/remitting; causes transient flu-like symptoms
  - NICE-approved: natalizumab IV (monthly; causes PML), fingolimod (causes lymphopenia)
  - glatiramer SC / azathioprine as alternatives; campath-1H / mitoxantrone cytotoxics if severe
  - also cannabinoids (dubious evidence), venoplasty (experimental), linoleic acid supplements

Myasthenia gravis (MG)
- Autoimmune anti-ACh-receptor antibody disease causing muscle fatiguability
  - affects middle-aged women; mostly idiopathic but may be induced by penicillamine
  - associations - thymomas (10%), pernicious anaemia, Grave’s disease, RA, SLE
  - Symptoms - diplopia / ptosis (50%, may be bilateral), proximal muscle weakness, dysphagia
    - muscle fatigue worsens with activity, improves with rest
    - may lead to pulmonary hypertension (chronic under-ventilation)
  - Neurological examination normal (inc. tone, sensation, reflexes) aside from weakness
  - Investigations - anti-AChR / anti-SM antibodies (85%), CT thorax (thymoma), EMG
    - Tensilon test (in ICU with atropine) - 1mg edrophonium IV improves muscle power
  - Management - pyridostigmine; if severe - prednisolone, azathioprine; thymectomy
    - avoid gentamicin, erythromycin, beta-blockers, verapamil, statins
  - Complications - myasthenic crisis, aspiration pneumonia, respiratory failure

Lambert-Eaton myasthenic syndrome
- Autoimmune anti-voltage gated calcium channels antibodies impairing presynaptic ACh release
  - Risks - small cell lung cancer (found in 50%), smoking; also breast, GI, prostate ca.
  - Symptoms - as for MG but prominent proximal muscle weakness, reduced reflexes
  - Investigations - anti-AChR antibodies (rule out MG), anti-VGCC antibodies, CT (malignancy)
  - Management - treat underlying malignancy; anti-AChE drugs tend to be ineffective

Myelopathy (spinal cord problem)
- Aetiology - disc prolapse, cauda equina, cervical spondylosis, syringomyelia
  - Lhermitte’s sign (‘electric shock’ on neck flexion) may be found
**Cervical spondylosis**

- Chronic **cervical disc degeneration** / herniation / calcification / osteophytosis
  - some degree of cervical spinal degeneration almost universal after age > 60
- Symptoms - neck pain / stiffness (worse on movement), referred pain / paraesthesia
- May lead to **radiculopathy** (mostly C5-7, dermatomal; may be postural asymmetry)
- Management - largely supportive, neck exercises, consider NSAIDs

**Syringomyelia**

- **Syrinx** formation (tubular cavitation in central cervical spinal cord) causing compression
  - mostly caused by CSF circulatory blockage e.g. Chiari malformation, spinal trauma, SOL
  - Chiari type I - cerebellar tonsillar displacement through foramen magnum; rare
  - Chiari type II (Arnold-Chiari) - medullary and cerebellar displacement; myelomeningocele
    - associated with scoliosis (consider screening), spina bifida
- Symptoms - bilateral **pain / temperature loss** in ‘shawl-like’ distribution (shoulders, arms)
  - also dysaesthesia, light touch / vibration / proprioception loss in feet (dorsal columns)
  - later - ascending weakness / wasting from hands, claw hand, autonomic effects, Horner’s
  - **syringobulbia** - medullary syrinx causes CN effects e.g. facial sensory loss, nystagmus
- Management - physiotherapy, surgery (shunt, syringotomy, Chiari malformation decompression)

**Parkinson’s disease**

- Triad of resting tremor, rigidity, bradykinesia due to substantia nigra degeneration (dopamine)
  - unilateral 5Hz tremor provoked by concentration; postural instability, micrographia
- Insidious onset around age 60 with clumsiness or foot drop, reduced expression, drooling
  - also flexed posture, reduced ambulatory arm swing, festinating gait, slow rising, freezing
- Investigations - consider PET scanning, CT / MRI to rule out differentials / secondary causes
- Initial treatment - try to prolong time to starting L-dopa wherever possible
  - if young - non-ergot dopamine agonist e.g. ropinirole, rotigotine (cause nausea, dizziness)
  - if old - consider selegiline, rasagiline (MAO-BI), amantadine, anti-cholinergics
- **L-dopa** given with peripheral DDI (e.g. Sinemet, Madopar); initial ‘honeymoon period’
  - s/e - wearing off / on-off phenomena, **dyskinesias** (worse in young), postural hypotension
  - consider splitting L-dopa doses into smaller divided doses / liquid preparations / before meals
  - consider addition of dopamine agonist; **entacapone** (COMT-I) may prolong ‘on’ time
  - in advanced disease during severe ‘off’ episode consider SC apomorphine (rescue agent)
- Surgical options - pallidotomy, deep brain (subthalamic) stimulation
- Complications - depression, dementia, compulsive behaviours, psychosis, REM sleep disorder

**Multiple system atrophy (MSA)**

- Parkinsonism with **cerebellar ataxia** and autonomic (esp. urinary) dysfunction
  - characterised by **glial cytoplasmic inclusions** (GCIs) containing synuclein
• Symptoms - **urinary incontinence**, erectile dysfunction, constipation, **postural hypotension**
  • poor response of Parkinsonian symptoms to L-dopa, prominent autonomic symptoms
• Treatment - pints of water (raises BP!), fludrocortisone / midodrine, EPO (often mild anaemia)
• Poor prognosis (< 10 years after onset); **rasagiline** (MAO-BI) may have DMARD effects

**Progressive supranuclear palsy (PSP)**
• Parkinsonism with **vertical supranuclear gaze palsy** (inability to look up / down)
  • also **postural instability**, dysphagia, dysarthria, cognitive impairment, paralysed tongue
  • may be lid retraction, lid lag, blepharospasm
• Insidious onset - fatigue, headache, dizziness, arthralgia, depression, falls

**Stroke**
• Ischaemic (70%) or haemorrhagic (30%); also **hypox**, SAH, vasculitis, venous sinus thrombosis
  • haemorrhagic may be associated with headache, meningism, coma
• Cerebral hemisphere infarct - hemiplegia, sensory loss, **homonymous hemianopia**, dysphasia
  • ACA lower limb > upper, no hemianopia; MCA upper > lower; PCA macular sparing, agnosia
• Brainstem infarct - quadriplegia, visual disturbance, locked-in syndrome
• Lacunar infarct (basal ganglia, internal capsule) - isolated deficiencies, intact consciousness
• Investigations - **urgent CT**, ECG / echocardiogram (**AF**), carotid doppler, lipid screen
• Management (ischaemic) - **300mg aspirin stat.** (2wks if stroke), lifelong **75mg clopidogrel**
  • if TIA - **ABCD2** (age > 60, BP > 140/90, clinical features, duration > 1hr, diabetes), **statin**
  • if stroke - **thrombolysis** (alteplase/tPA) if within **4.5hrs** of onset (aspirin as above after 24hrs)
    • contraindications - seizure, recent stroke / head trauma / major surgery, previous bleed
    • outcomes at 3m - 30% near-normal, 15% completely dependent, 20% dead
  • for all - **carotid endarterectomy** / stent if severe stenosis (> 70%) within 2 weeks
• Complications - 1yr post-stroke 25% will develop new-onset **dementia**

**Carotid artery dissection**
• Cause of stroke in younger patients - may be associated with **neck trauma** / manipulation
• Risks - migraine, HTN, pregnancy, COCP
• Symptoms - headache, neck / facial pain, transient blindness, syncope, tinnitus, Horner’s

**Intracranial venous thrombosis**
• Accounts for up to 2% of strokes; sinus infection or head trauma may precipitate
• Symptoms - episodic **headache**, nausea / vomiting, seizures, confusion, stroke syndrome
• Treatment - heparin / warfarin; thrombolysis not indicated

**Lateral medullary syndrome**
• Occlusion of vertebral / posterior inferior cerebellar artery leading to **nausea, vomiting, vertigo**
  • ipsilateral ataxia, Horner’s, nystagmus, hypacusis, dysarthria, taste loss in posterior tongue
  • contralateral truncal and limb pain / temperature loss, tachycardia, dyspnoea
Subclavian steal syndrome (SSS)

- **Aortic arch anatomy:**
  - **subclavian artery** is a branch of the brachiocephalic on the right / aortic arch on the left
  - **vertebral artery** is a branch of subclavian - ascends into skull, no major neck branches
- Subclavian stenosis proximal to the vertebral root causes **retrograde flow** via the basilar
  - more often affects the left subclavian (unless left vertebral branch of aortic arch in 2%)
  - caused by **atherosclerosis**, temporal arteritis, Takayasu’s arteritis (in Asian populations)
- Transient neurological symptoms provoked by **exercising the arm** on the affected side
  - e.g. vertigo, visual field defect, ataxia, dysarthria, paraesthesia, hemiparesis, syncope
- Signs - significant (> 20mmHg) BP difference between arms; may be subclavian bruit
- Investigations - doppler USS, angiography (often incidental finding), CXR (exclude cervical rib)
- Management - angioplasty / stenting or bypass surgery if severe
- Complications - significant independent risk factor for IHD morbidity and mortality

Temporal arteritis (GCA)

- Systemic **autoimmune large vessel vasculitis** commonly affecting women aged > 60
  - may be a manifestation of the same disease process behind **polymyalgia rheumatica**
- Symptoms - subacute temporal headache, scalp tenderness, **jaw claudication**, diplopia / blurring
  - also myalgia (akin to PMR i.e. proximal, circadian), malaise, fever, depression, anorexia
- Signs - prominent / tender / pulseless temporal artery, carotid bruit, **high ESR**
- Management - 40-60mg **prednisolone** (up to 2yrs), bisphosphonate, aspirin, PPI
  - temporal artery biopsy - multinucleated giant cells with skip lesions - roughly 90% sensitivity
  - urgent ophthalmology review - visual damage (15% patients) often irreversible
- Complications - **ischaemic optic neuritis**, visual loss, SSS, TIA, thoracic aneurysm (late)

TMJ dysfunction

- Mostly chronic facial pain; associated with **bruxism**, disc derangement, arthritis, trauma
- Symptoms - triad of **facial pain**, **restricted jaw function**, **joint clicking**; also otalgia, headache
  - characteristic pain anterior to tragus projecting to ear, temple, cheek and along mandible
  - tightness, catching, locking of jaw joint; movement exacerbates pain
- Management - initially soft diet, rest / massage jaw, bite guards
  - consider NSAIDs, TCAs, duloxetine (avoid SSRIs - may cause bruxism)
  - **steroid injection** may relieve lock-jaw; otherwise consider surgery, botox injection

Trigeminal neuralgia

- **CNV neuropathy** causing chronic pain syndrome - episodic intense ‘electric shock’ **facial pain**
  - caused by **compression** (by blood vessels), demyelination (MS), degeneration
  - usually affects maxillary or mandibular branches but may affect multiple branches
- Symptoms - paraesthetic prodrome then **sharp ipsilateral pain** affecting cheek, eyes, lips, scalp
  - triggered by vibration, skin contact (e.g. shaving), brushing teeth, eating, drinking, wind
• Investigations - MRI (identify compression / exclude others causes)
• Management - carbamazepine; consider gabapentin, TCAs, baclofen - withdraw after 1m
  • simple analgesics and opioid analgesics generally ineffective
  • consider TENS, acupuncture, ‘vitamin therapy’ (little evidence for any of these)
• Surgical options - rhizotomy (damage CNV; less recurrence with stereotactic radiosurgery)
  • also microvascular decompression (GA); effective but risks of meningitis, stroke, deafness

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