Pain in the Face and Ear

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Faculty/Presenter Disclosure

- **Faculty:** [Speaker's name]

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  - **Other:** Employee of XXY Hospital Group

EVERY speaker must include and verbally address this slide at the start of their presentation.

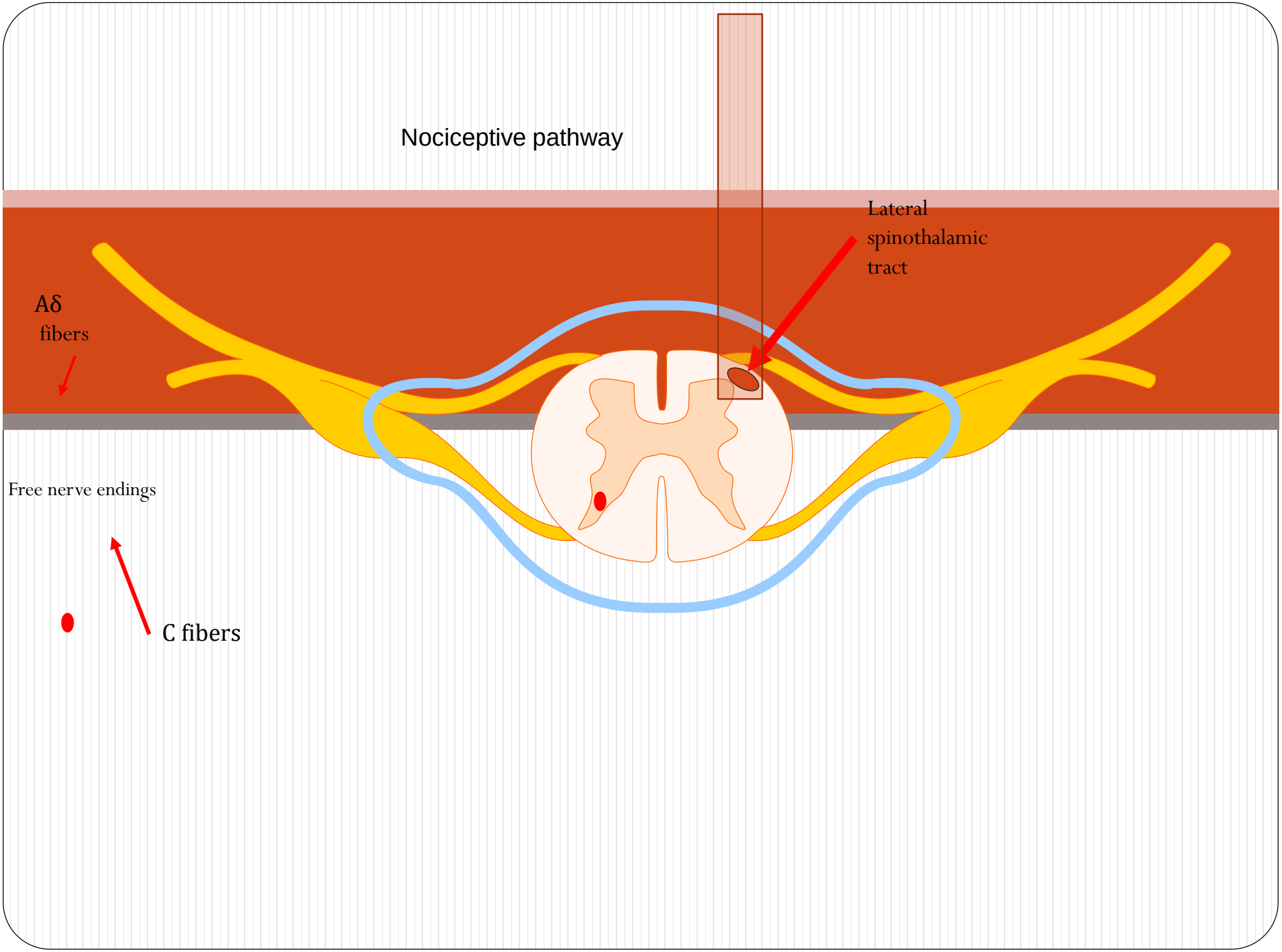
Case

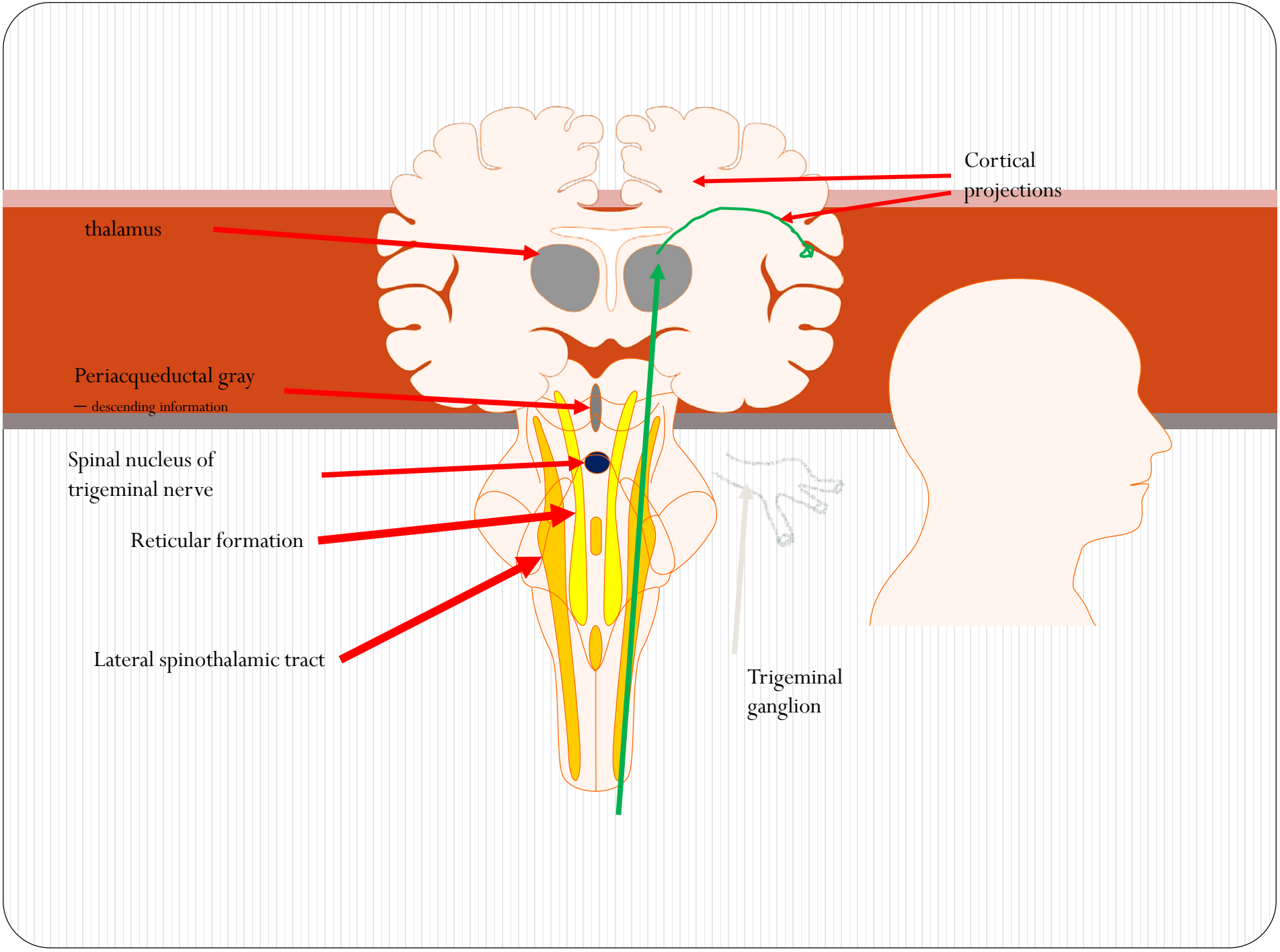
- 42 year old man presents with 6 month history of intermittent ear pain, radiating to temporalis region
- Sometimes unilateral. Sometimes bilateral
- Sharp, brief spells lasting 10 minutes
- No hearing loss.
- Physical exam normal.
- No edema or redness.
- Sometimes evoked by shaving or contacting the ear area.

Two types of pain

1. **Nociceptive pain – caused by stimulation of peripheral nerve sensors – tissue damage, degeneration, ischemia.** ***The Nervous system is working normally.*** ***Use NSAIDS, acetaminophen, short course of opioids***

2. **Neuropathic pain – caused by *abnormal function of the nervous system* –e.g. phantom limb pain, post-stroke pain, complex regional pain syndrome.**
   - Burning or shooting sensation, allodynia, hyperalgesia. **Use neuromodulators**


Nociceptive pathway
Lateral
spinothalamic
tract
Aδ
fibers
Free nerve endings
C fibers


Cortical projections
thalamus
Periacqueductal gray
– descending information
Spinal nucleus of trigeminal nerve
Reticular formation
Lateral spinothalamic tract
Trigeminal ganglion

History and pain

- Stabbing, paroxysmal – think muscle spasm or "neuralgias."
- Constant, dull, well localized – think infection, mass, trauma
- Is this part of a systemic illness? Widespread pain
- What makes it worse? /Better?

Analgesics

Opioids

- Act on mu receptors centrally – brain and dorsal root ganglion

Neuromodulators/ anticonvulsants

- Act centrally on neurotransmitters
- Neuropathic pain…

NSAIDS and ASA

- Inhibit Cyclooxygenase, reduce inflammation
- Act peripherally
- Nociceptive pain…

Sinusitis

Acute sinusitis

- The current term is acute bacterial rhinosinusitis (ABRS)
- Viral URI's usually last less than 10 days and are more common.
- recurrent acute sinusitis may be an indication for sinus surgery (> 3 true episodes in a year with continuing symptoms)
- Note the absence of "headache" in presentation.
- Acute sinusitis is commonly diagnosed. Not commonly present
- Air/fluid level on plain X-rays?

Acute Sinusitis - PODS

Major	Minor
P - Facial **P**ain/fullness	headache
O - Nasal **O**bstruction	halitosis
D - Nasal purulence/ discolored post-nasal **D**ischarge	fatigue
S - Hyposmia / anosmia (**S**mell)	Dental pain
	cough
	Ear pain / pressure

Chronic Sinusitis - CPODS

Symptoms	comments
C - Facial **C**ongestion	Diagnosis requires at least 2 CPODS, present for 8 to 12 weeks,
P – Facial **P**ain / **p**ressure	PLUS evidence of inflammation of the paranasal sinuses or nasal mucosa.
O - Nasal Obstruction	CRS is diagnosed on clinical grounds but must be confirmed with at least 1 objective finding on endoscopy or CT scan.
D – Nasal **D**ischarge blockage	More likely to require surgery (FESS)
S- Hyposmia / anosmia (**S**mell)	

Chronic Sinusitis

Treatment

- - nasal sprays – steroids? Decongestants?
- - Antibiotics don't work well.
- - Surgery?
- Functional endoscopic sinus surgery FESS

Factoids

key points

- 1. Up to 90% of patients who believe that they have a "sinus headache" are wrong

- 2. It is becoming more apparent that bacteria do not cause chronic sinusitis

Otitis Media, acute, chronic, other

Otitis media

- Constant pain, *localized to the ear*
- Hearing loss
- Fever more likely in children
- ?URI history
- Perforation – Chronic otitis media
- Clinical exam findings
- "bulging" is rare

Causes of ear pain

Primary (40%)

- acute otitis media
- otitis media with effusion
- otitis externa
- otitis media with ruptured tympanic membrane
- malignant otitis externa
- mastoiditis and petrositis
- traumatic ruptured tympanic membrane
- cerumen impactions
- foreign bodies in the ears.

Secondary (60%)

- TMJ
- Dental problems
- Tonsillitis, pharyngitis
- Lymphadenopathy
- Herpes zoster
- Hypopharyngeal, laryngeal tumor
- Myofascial pain synd
- Fibromyalgia
- Chronic fatigue synd
- Cervical spine arthritis, neck pain
- Eagle's syndrome

Head and neck pain syndromes

Temporomandibular joint problems

- TMJ, TMD, cranial myofascial pain
- Clicking, snapping with jaw movement, pain – esp if bilateral
- Referred otalgia/ear fullness
  - Often "sharp"
- Often painful at night, positional
- Pain reproduced with TMJ ad masticator muscle palpation
- Malocclusion

- Management options
  - Dental approaches – splints, dentures
  - Aggressive approaches – joint replacement

Atypical facial pain

- Chronic oral or facial pain with no objective findings on CT or blood work.
- Fairly constant, dull or sharp > 2 hours per day, > 3 months.
- PODS and CPODS absent. Physical exam normal.
- "Feels" like sinusitis but CT negative.
- 39.5 per 100,000 person-years*
- Amitriptyline, gabapentin, pregabalin, topiramate.

*Dielman JP, Kerklaan J, Huygen FJ, Bouma PA, Sturkenboom MC. Incidence rates and treatment of neuropathic pain conditions in the general population. *Pain*. 2008, 137(3): 681.

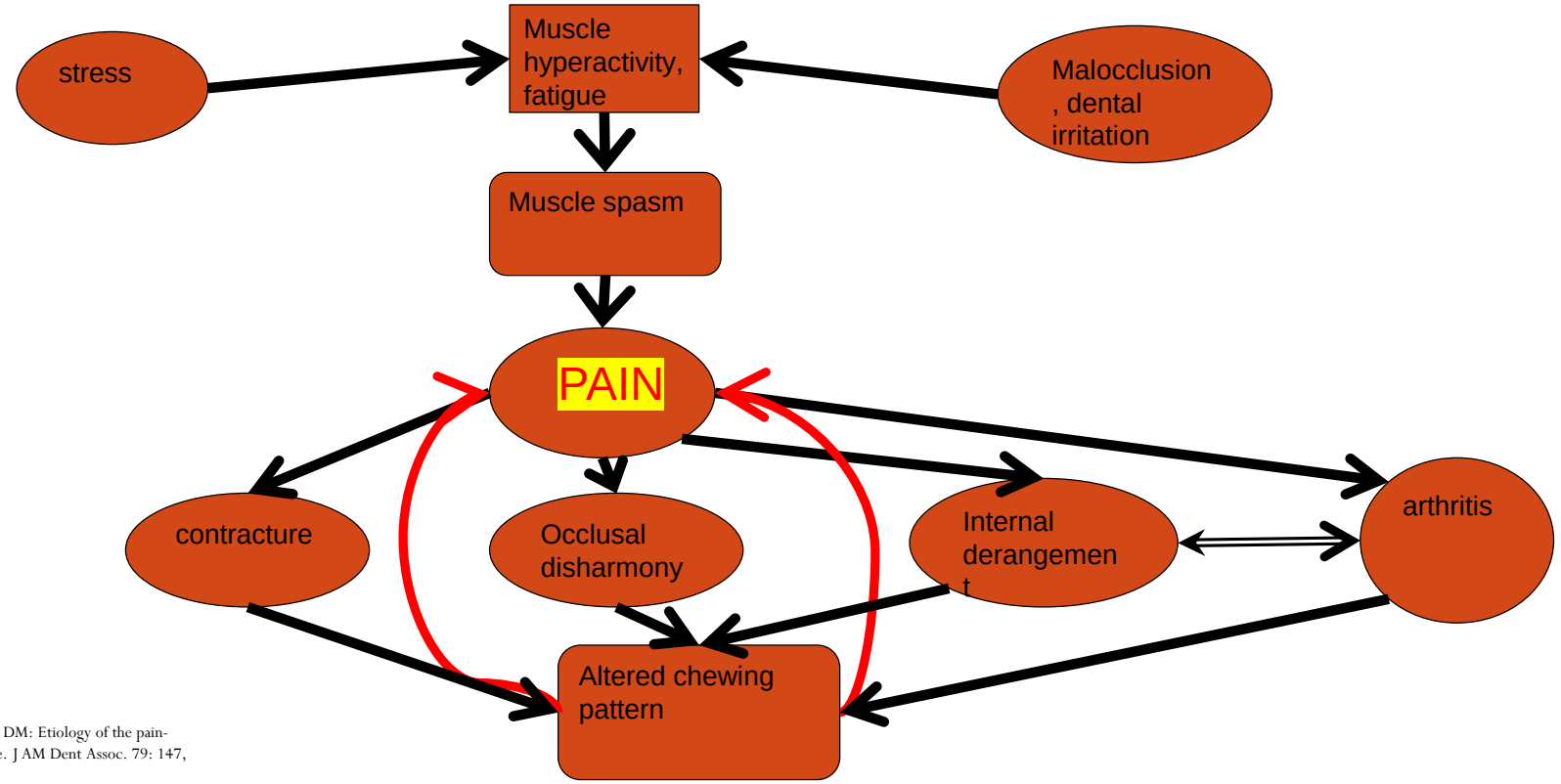
Trigeminal neuralgia

- Unilateral, brief shock-like pains lasting up to 2 minutes in the distribution of one or more of the divisions of the trigeminal nerve.
- Classically evoked by trivial stimuli – washing, shaving, trigger points.
- Exacerbations and remissions
- Then there is…Trigeminal neuralgia with persistent facial pain which responds poorly to treatment

Temporomandibular joint (TMJ) problems

- Myofascial pain-dysfunction syndrome (MPD)
- Commonly present as ear pain, often bilateral. No hearing loss
- Usually some TMJ crepitus with movement, abnormal mandibular movement, +/- tenderness of TMJ temporalis, pterygoids, digastric muscles
- Malocclusion, dental problems?
- Primary ear pain that radiates to shoulders, neck or temporal area without hearing loss is likely TMJ

Temporomandibular joint (TMJ) problems

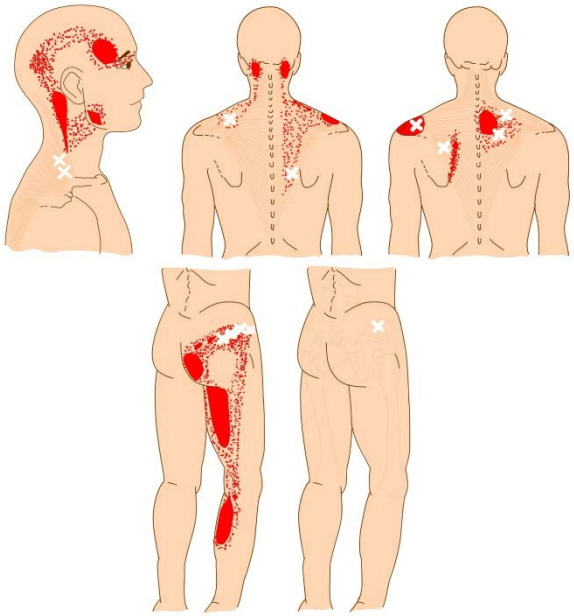


Modified from Laskin DM: Etiology of the pain-dysfunction syndrome. J AM Dent Assoc. 79: 147, 1969

- Fibromyalgia
  - Marked fatigue, ?muscle, joint pain above and below diaphragm
  - Many other symptoms – IBS, psychologic, fog
  - Much more common in women
  - . Am Coll. Rheumatology guidelines
- Myofascial pain syndrome
  - More localized.
  - "trigger points"
- Chronic fatigue syndrome
  - More fatigue than pain

Myofascial pain syndrome (MPS)

- The pain in MPS
  - deep aching quality
  - +/- sensation of *burning or stinging*.
  - Often occurs in just one anatomic region with subjective restricted active movement in that area.
  - "trigger" points



Clinical features of fibromyalgia versus myofascial pain

Variable	Fibromyalgia	Myofascial pain
Pain	Generalized	Localized
Examination	Tender points	Trigger points
Fatigue	Prominent	Data unknown
Gender	90 percent female	Data unknown
Course	Chronic	May be self-limited

Chronic Fatigue syndrome (CFS)

AKA systemic exertion intolerance disease (CFS/SEID) or myalgic encephalitis (ME)

Prevalence 2 to 26/1000, depending on criteria used

Peak prevalence is among people aged 20 to 50 years

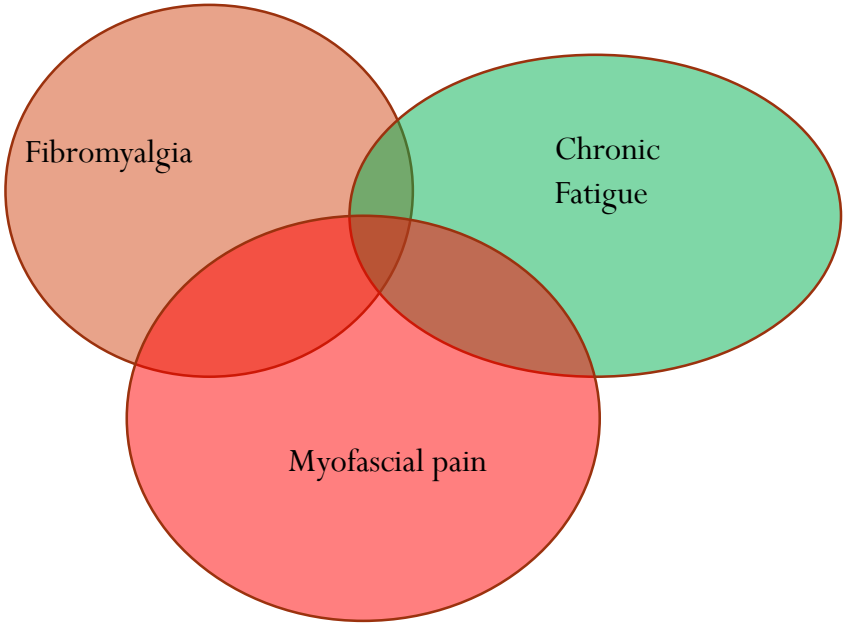
Women are affected up to 1.5 times more often than men

Cause unknown – EBV infection? Discounted

underlying etiology is probably centrally mediated via the hypothalamic-pituitary-adrenal (HPA) axis.

Neurally mediated hypotension (NMH) occurs with increased frequency in patients with CFS; it is not clear whether this is cause or effect. – tilt table testing

Overlap…



Glossopharyngeal neuralgia

- Brief, stabbing, shock-like unilateral pain in the ear, beneath the angle of the jaw, tonsillar fossa or base of tongue.
- Provoked by swallowing, talking, coughing.
- ?apply local anesthetics?
- Consider reflux therapy…
- Treatment similar to trigeminal neuralgia

Geniculate Neuralgia

(Nervus intermedius neuralgia, Hunt neuralgia)

- Brief, intense paroxysms of pain deep in the ear, sometimes radiating to the parietal area.
- Often provoked by trigger in the area
- May be idiopathic or caused by herpes zoster (Ramsay-Hunt syndrome)
- Rare!! 150 cases reported Tang et al, J Laryngol Otol 128(5) 2014
- Treatment: Carbamazepine, NSAIDS, analgesics, Gabapentin, pre-gabalin, baclofen, lamotrigine.
- Surgery??
- nervus intermedius transection,
- microvascular decompression of nerve root entry zone

Parotitis

- Constant aching pain
- Worse when eating.
- Swelling often increases with eating
- Ductal suppuration

Facial pain

- Raeder's syndrome (paratrigeminal oculomotor sympathetic syndrome or oculosympathetic synd.) – constant unilateral pain but hypesthesia, in V1 (sometimes V2) with a Horner's syndrome. Caused by pathology in the carotid artery in the middle cranial fossa.
- Painful opthalmoplegic neuropathy – presents in childhood as repeated attacks of weakness of III, IV and VI, mostly III cranial nerves, preceded by or concurrent with ipsilateral headache. MRI with gad often enhances the nerve.

Burning mouth syndrome

- Burning mouth, tongue pain > 3 months
- Physical exam normal
- Most common in middle-aged women
- Spontaneous improvement, exacerbations and remissions are common
- RX. Tricyclics, clonazepam, gabapentin, pregabalin.

Eagle's syndrome

- Elongated styloid process (longer than 2.5 cm?)
- Mild to sharp stabbing pin in ear, throat, provoked by swallowing, turning head, carotid compression, often after tonsillectomy.

Temporal arteritis (Giant cell arteritis, Horton's disease…)

- New, (?constant?) throbbing pre-auricular pain, tender superficial temporal artery, low grade fever, elevated ESR or CRP, jaw claudication.
- ?visual issues, ? Elderly
- Association with polymyalgia rheumatica
- Temporal artery biopsy (86.9% sensitive?)
- High does steroids
- Adenopathy, pulmonary infiltrates, stroke, glomerulonephritis…

Trotter's syndrome (nasopharyngeal carcinoma)

- Aching pain in ear, face, mandible, reduced hearing, nasal obstruction, cervical adenopathy