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OCULAR CAUSES OF FACIAL PAIN

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Introduction

Prevalence of facial pain: acute 26% , chronic :7%

Secondary pain from disease:

- Eye
- Ear
- Neck
- Sinus
- *Temporo mandibular joint*
- Cervical artery

Introduction

There are several factor from secondary pain:

- Neurologic
- Vascular
- Neoplastic : nasofaring tumor or metastasis
- Disease of dental or sinus
- Occipital Neuralgia
- Herpes Zoster Ophthalmic

Classification

1. Musculoligamentous/ soft tissue

2. Dental

3. Neurological/ Vascular

Table 1 Classification of orofacial pain

Musculoligamentous/soft tissue	Dentoalveolar	Neurological/vascular
Temporomandibular joint (TMJ) pain	Dentinal	Trigeminal neuralgia
Facial arthromyalgia, myofascial pain	Periodontal	Glossopharyngeal neuralgia
Atypical facial pain/idiopathic orofacial pain	Pulpal	Nerve compression
Salivary gland disease	Cracked tooth syndrome	Cluster headache
Optic neuritis	Maxillary sinusitis	Post-herpetic neuralgia
Internal derangements TMJ		Cranial arteritis
Burning mouth	Thermal sensitivities	Pre-trigeminal neuralgia
Candidiasis	Atypical odontalgia	SUNCT
Cancer, sinuses, nasopharynx, brain		Ramsay Hunt
		Tolosa Hunt syndrome

SUNCT, short lasting unilateral neuralgiform headache attacks with conjunctival injection and tearing.

Pain Impulse Transmission

There are 3 potential pathways for pain impulses:

- Pain sensation that is carried centrally by sensory nerves
- Transmission of pain through the sympathetic nervous system
- Pain from irritation of the extracephalic region and the viscera like the somatic nerve connected to the vagus nerve

Ocular and orbital causes of pain

- o Causes: direct nerve ending stimulation or a combination of one or more mechanisms in response to inflammatory products that affect the terminal nerve:

network
distortion

Vasodilation

heat perception
and
chemoreceptors

- The degree of pain depends on the part of the eye that is damaged, the extent, and underlying causes.

Trigeminal Neuralgia

- Also known as *tic douloureux*
- 80%-90% caused by compressed N.V
- A posterior fossa mass lesion
- Demyelinating disease

Glossopharyngeal neuralgia

- Paroxysmal pain occurs unilaterally
- In the region of the larynx, tongue, tonsil, and ear.

Temporomandibular disease

- Pain from the temporomandibular area may arise from either the joint or the muscle.
- Joint pain exacerbated by chewing or talking suggests joint disease.

Occipital Neuralgia

- Paroxysmal stabbing pain in the distribution of the greater or lesser occipital nerves.
- Tenderness may be elicited with pressure over the affected nerve.

Carotid Dissection

- Typically produces pain localized to the face.
- Accompanied by sympathetic dysfunction (Horner syndrome)

Management principles

The aim of treatment can be summarised as below:

- Eliminate or minimize the facial pain
- Eliminate or minimize negative cognitive, behavioral, and emotional factors
- Increase efficacy of drug treatment by careful choice
- Encourage self management which increases control over pain.
- Treatments divide into medical, surgical, and alternative : acupuncture to cognitive behaviour therapy) and patients may need a variety of these.

Cornea and Sclera

- Mechanical stimulation after erosion, foreign body and corneal ulcer
- Pain from corneal foreign bodies or abrasion followed by lacrimation, photophobia, blepharospasm and radiation to forehead.
- Pain from anterior scleritis: tissue distortion, vasodilation, and chemoreceptor stimulation.
- Pain from posterior scleritis: direct damage to the posterior ciliary nerves brevis or inflammation of the extraocular muscles or surrounding orbital structures.

Iris

- Pain from anterior uveitis often spreads: in the ear, teeth, or sinuses.
- Throbbing or neuralgic pain accompanied by photophobia, hyperlacrimation and blepharospasm.
- Pain in iritis: damage to the blood aqueous barrier causes kinin and prostaglandin E1 released from polymorphonuclear cell poly and release of substance P and polypeptides from the iris will stimulate chemoreceptors in the ciliary body.

Optic Nerve

- Pain in acute optic neuritis: 90% : Light - severe, exacerbated by eye movements.
- Causes: inflammation or edema of the optic nerve sheath innervated by small branches of the trigeminal nerve

Orbit

- Inflammation and orbital infection (eg ; orbital cellulitis) and expansion of orbital sinusitis moderate to severe pain : damage or trigeminal sensory nerve irritation in the orbit.
- Pain can be an early symptom of the tumor in the orbital apex or cavernous sinus: severe, continuous, facial dysesthesia, chronic, burning, distribution including one or more trigeminal nerve divisions →suspected perineural infiltration of neoplastic cells derived from basalioma, squamous cell carcinoma or nasopharyngeal carcinoma.
- Pain can also occur in post-traumatic or post-operative patients.

Post Herpetic Pain

- Herpes zoster is a viral infection that often involves the ophthalmic division of the trigeminal nerve.
- Inflammation of arteries, peripheral branches of the trigeminal nerve and gasserian ganglion.
- Pain from 2-3 days before the appearance of vesicular rash (prodromal)
- Herpes zoster pain is different from trigeminal neuralgia pain: The pain of Herpes zoster persists and continues, throbbing and its intensity decreases gradually, felt in all distributions of the trigeminal nerve --> especially the forehead
- Spontaneous regression pain within 2 or 3 weeks can progress to postherpetic pain.

Post herpetic neuralgia

- Pain, burning sensation and dysesthesia, hyperalgesia or hypalgesia can be found. After resolution of pain, scarring can occur, skin pigmentation, weakness of the masseter muscle and pterygoid muscles on the ipsilateral side.
- Treatment of acute pain in herpes zoster and pain post herpetic neuralgia --> difficult.
- Acyclovir, systemic analgesics and opioids, topical lidocaine, neuroactive agents.



THANK YOU