



Refractory Facial Pain and Headache: Cluster Headache vs Trigeminal Neuralgia

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Introduction

- Pathogenesis is complex and remains incompletely understood
 - hypothalamic activation with secondary activation of trigeminal-autonomic reflex
 - vascular theory: neurogenic inflammation within walls of cavernous sinus due to obliteration of venous outflow that injures the traversing trigeminal c-fibers and sympathetic fibers along intracranial ICA
- Epidemiology and risk factors
 - mostly affect males, ratio 4.3:1
 - Age 20-40 years
 - Lifetime prevalence 124/100,000 ~ 0.1%
 - Risk factors: family history, tobacco use, head trauma

Case Presentation

- 34M presents with left-sided refractory facial pain and headache associated with otalgia, rhinorrhea, eye redness, and sensitivity to noise and light. Pain was throbbing, frequently unilateral, duration 1-3hrs. He was seen by multiple specialists:
 - Dentist: suspected nerve damage from impinging teeth, resulting in extraction of 9 teeth
 - HEENT: suspicions for nasal polyps and nasal/maxillary sinus endoscopy
 - Neurologist: MRI with blood vessel loop around trigeminal nerve with suspicion for trigeminal neuralgia. Failed medical management with Tegretol and gabapentin. Underwent microvascular decompression surgery and received a TENS unit
 - Pain clinic: sphenopalatine ganglion block, triptans and 6 months of botulinum A injections
 - Other modalities tried: repetitive transcranial magnetic stimulation, acupuncture, vitamin B12 infusion, light therapy, steamy showers
- Patient presents to our clinic
 - Patient described a constant pressure and burning pain start at the distal posterior left otalgia, below the left angle of the mandible deep into the left sternocleidomastoid muscles that travels and transforms into a throbbing pain in the left forehead
 - Associated with rhinorrhea and rhinitis with postnasal drip and cough, lacrimation, eye redness, and eye pressure
 - Upon review of previous negative workups including negative intracranial pathologies, patient diagnosed the patient with left-sided chronic cluster headache (CCH)
 - Pt responded well to glucocorticoids and oxygen therapy

Discussion

- Clinical Features
 - Headache:
 - Severe, sharp/stabbing pain periorbital or temporal regions
 - Strictly unilateral, almost always stays on one side during attack (15% side shift phenomenon)
 - Duration: 15min to 180 min
 - Occurs from every other day to 8 times a day, separated by periods of remission
 - Associated with psychiatric comorbidity
 - Lifetime risk of depression is 44%
 - Autonomic symptoms
 - occurs simultaneously with attacks
 - ipsilateral to headache: ptosis, miosis, lacrimation, conjunctival injection, rhinorrhea, and/or nasal congestion, sweating
 - Absent in 3% of patients with cluster headache
 - Patterns of symptom recurrence: rhythmicity of short lived (15-180min) headaches
 - Episodic cluster bouts: 80-90%
 - bouts last from 7 days to 12 months if untreated
 - Remission lasts at least 3 months
 - Chronic cluster bouts: 10-20%
 - bouts lasts more than 12 months
 - continual attacks (persisting bouts) with short periods of remission less than 3 months
 - may arise de novo or evolve from episodic type
- Diagnosis Criteria
- Evaluation/Workup
 - Neuroimaging: MRI brain with gadolinium contrast, CT head with contrast as alternative
 - Other: specific imaging, labs, electrophysiological tests, lumbar puncture should not be routine
- Differential Diagnosis: Multiple types of headache may coexist in a patient
 - Primary headache syndromes
 - Other trigeminal autonomic cephalalgias
 - Paroxysmal hemicrania
 - hemicrania continua
 - Short-lasting unilateral neuralgiform headache attacks
 - Cluster headache
 - Trigeminal neuralgia: cluster-tic syndrome
 - Primary stabbing headaches
 - Secondary headache syndromes
 - Vascular pathologies
 - Neoplasms
 - Inflammatory or infectious pathologies
 - Others

	CLUSTER HEADACHE	TRIGEMINAL NEURALGIA
Sex	Male	Female
Predominance		
Pain		
Type	Stabbing	Electric, burning, stinging
Severity	Excruciating	Severe
Site	Orbital or temporal	Divisions of trigeminal nerve
Frequency	1 every other day to 8 daily	Highly variable
Duration	15 to 180 minutes	Seconds to 2 min
Autonomic features?	Yes	None or sparse
Triggers	Alcohol	Trigger zone when touched or excited
Refractory period	No	Yes
Abortive treatment	Triptans (intravenous or nasal) Oxygen	N/A
Prophylactic treatment	Verapamil Glucocorticoids Galcanezumab Lithium Topiramate	First line: Carbamazepine or oxcarbazepine Second line: gabapentin, lamotrigine, baclofen

Conclusions

- Cluster headaches are often difficult to diagnose due to overlapping symptoms with other types of headaches and etiologies
- Cluster headaches can be diagnosed by clinical presentation and history
- Ancillary test and imaging, including interventions, should only be pursued for atypical presentations or concerning findings

References