

Cervicogenic Headache

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History of Cervicogenic Headache

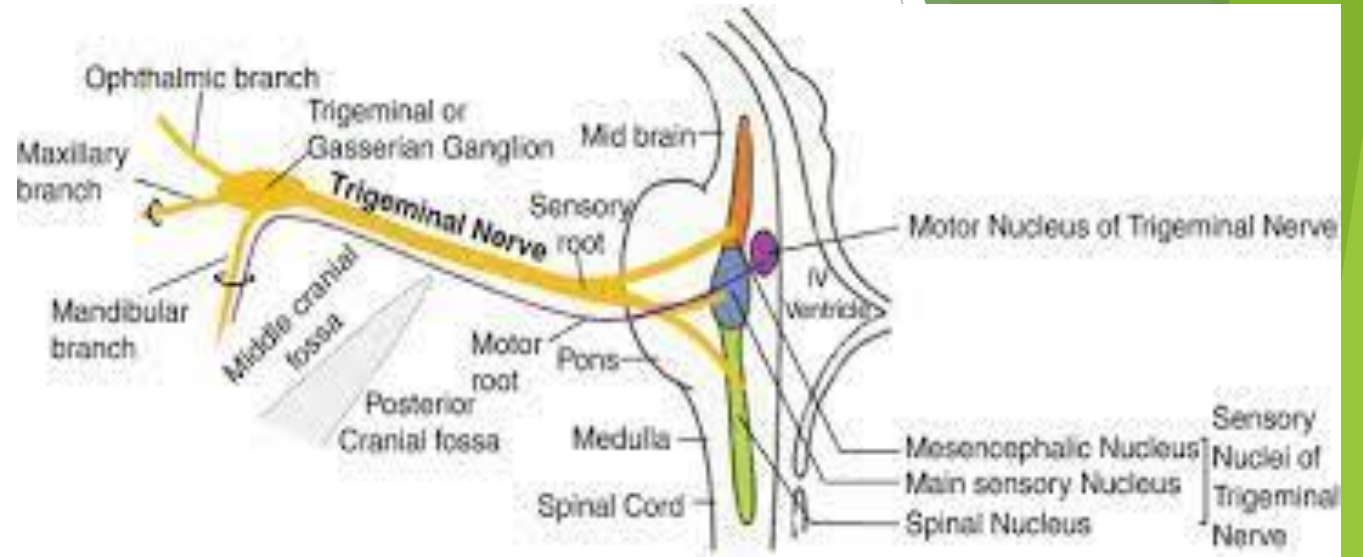
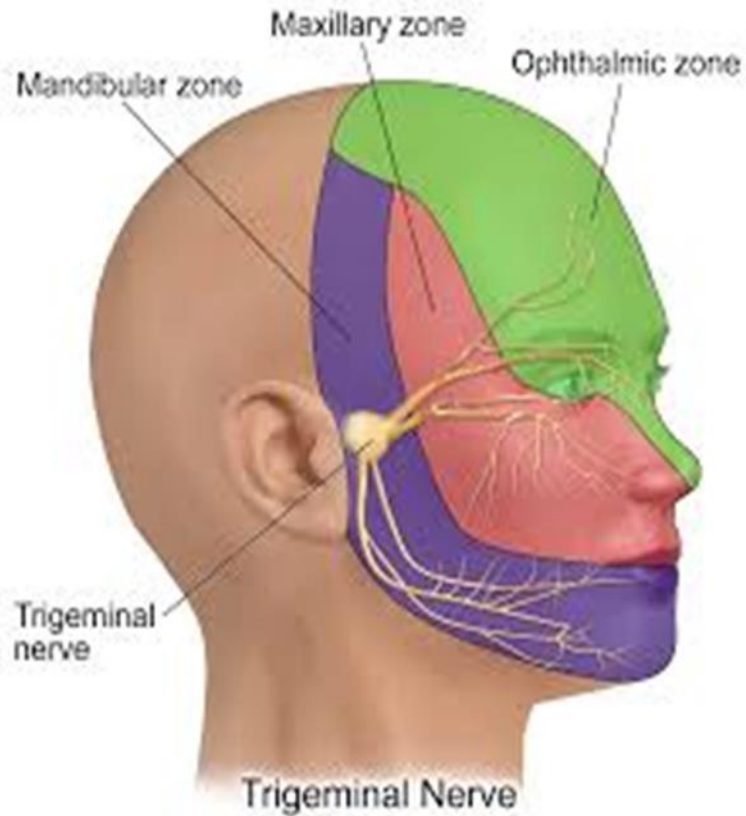
- ▶ Norwegian physician **Dr. Ottar Sjaastad** coined the term, “cervicogenic headache” in 1983 by recognizing a subgroup of headache patients with concomitant head and neck pain; therefore, CGHs are considered “**secondary headaches.**”
- ▶ Cervicogenic headaches are **unilateral**, starting from one side of the posterior head and neck, migrating to the front, and sometimes are associated with ipsilateral arm discomfort
- ▶ Sjaastad et al identified another type of CGH with bilateral head and neck pain, aggravated by neck positions and specific occupations such as hair-dressing

Epidemiology

- ▶ Its prevalence among patients with headache is 1% to 4%
- ▶ Prevalence estimates range from 0.4% to 2.5% of the general population
- ▶ It affects females and males about the same.
- ▶ Age at onset is thought to be the early 30s, but the mean age of patients with this condition is 43 years.

pathophysiology

► Trigeminal pathway theory



- **C2-C3 facet injection with hypertonic saline** in normal volunteers.....
- The trigeminal pathway theory is somewhat supported by the fact that **injection of the greater and lesser occipital nerves** with steroids decrease headaches by blocking the trigeminal relay.
- Convergence of cervical and trigeminal afferents in the trigeminocervical nucleus, and its bidirectionality, could explain the presence of **neck pain in migraineurs** and pain perceived as headache in those with cervicogenic headache.

Pathophysiology/ etiology

- ▶ Upper cervical facets(C2-C3 facet joint is the cause of 70% of CGH cases)
- ▶ Upper cervical muscles(such as trigger points)
- ▶ C2-3 intervertebral disc
- ▶ Neck trauma, whiplash, strain, or chronic spasm of the scalp, neck, or shoulder muscles...
- ▶ Vertebral and internal carotid arteries
- ▶ pathologies of the upper Cervical spinal cord
- ▶ Posterior cranial fossa
- ▶
- ▶ A lower pain threshold makes patients more susceptible to more severe pain.

Clinical characteristics of cervicogenic headache

- ▶ Unilateral head or face pain **without side-shift**; the pain may occasionally be bilateral
- ▶ Pain localized to the occipital, frontal, temporal, or orbital regions
- ▶ Moderate to severe pain intensity
- ▶ Intermittent attacks of pain lasting hours to days or constant pain or constant pain with superimposed attacks of pain
- ▶ Pain is generally deep and **non-throbbing** in character

Clinical characteristics of...

- ▶ **Head pain is triggered by** neck movement, sustained or awkward neck postures; digital pressure to the suboccipital, C2, C3, or C4 regions or over the greater occipital nerve,; Valsalva, cough, or sneeze might also trigger pain
- ▶ Restricted active and passive neck ROM; Neck stiffness
- ▶ Cervical muscle weakness
- ▶ Tenderness in suboccipital or upper Cervical structure such as Vertebra, facet, muscle....

- ▶ **Associated signs and symptoms:** vomiting, photophobia, phonophobia, and dizziness; others include ipsilateral blurred vision, lacrimation, and conjunctival injection

Cervicogenic Headache International Study Group criteria (I)

Major criteria*

- I. Symptoms and signs of neck involvement
 - la. Precipitation of head pain, similar to the usually occurring one:
 - la1) by neck movement and/or sustained, awkward head positioning, and/or:
 - la2) by external pressure over the upper cervical or occipital region on the symptomatic side.
 - lb. Restriction of range of motion (ROM) in the neck.
 - lc. Ipsilateral neck, shoulder or arm pain of a rather vague, non-radicular nature, or—occasionally—arm pain of a radicular nature.
- II. Confirmatory evidence by diagnostic anesthetic blockades.
- III. Unilaterality of the head pain, without side shift.

Head pain characteristics

- IV. Moderate–severe, non-throbbing pain, usually starting in the neck. Episodes of varying duration, or: fluctuating, continuous pain.

Other characteristics of some importance

- V. Only marginal effect or lack of effect of indometacin. Only marginal effect or lack of effect of ergotamine and sumatriptan. Female sex. Not infrequent occurrence of head or indirect neck trauma by history, usually of more than only medium severity.

Other features of lesser importance

- VI. Various attack-related phenomena, only occasionally present, and/or moderately expressed when present: a) nausea, b) phono- and photophobia, c) dizziness, d) ipsilateral “blurred vision”, e) difficulties swallowing, f) ipsilateral edema, mostly in the periorcular area.

Differential diagnosis

- ▶ **Migraine** or **tension-type headaches** can also present with neck pain, further complicating differential diagnosis; in fact, some migraine patients experience more neck pain than nausea.
- ▶ incorrect diagnosis in ~ 50% of cases and subsequently, inappropriate treatment choices

DIFFERENTIAL DIAGNOSIS OF HEADACHE

Clinical features	Cervicogenic headache	Migraine	Tension-type headache
Female:Male	50:50	75:25	60:40
Lateralization	Unilateral without sideshift	60% unilateral with sideshift	Diffuse bilateral
Location	Occipital to frontoparietal and orbital	Frontal, periorbital, temporal	Diffuse
Frequency	Chronic, episodic	1-4 per month	1-30 per month
Severity	Moderate-severe	Moderate/Severe	Mild/moderate
Duration	1 hour to weeks	4-72 h	Days to weeks
Pain character	Non-throbbing, and non-lancinating, pain usually starts in the neck	Throbbing, pulsating	Dull
Triggers	Neck movement, and postures, limited ROM, pressure over C0-C3	Multiple, neck movement not typical	Multiple, neck movement not typical
Associated Symptoms	Usually absent or similar to migraine but milder, decreased ROM	Nausea, vomiting, visual changes, phonophobia, photophobia	Occasionally decreased appetite, phonophobia or photophobia

Assessment of patients with Cervicogenic headache

- ▶ Red flag symptoms requiring further medical evaluation include:
 - ▶ Headaches that are getting worse over time
 - ▶ Headache associated with focal neurologic signs
 - ▶ Sudden onset of severe headache
 - ▶ Headaches associated with high fever, stiff neck, or rash
 - ▶ Onset of headache after head injury
 - ▶ Problems with vision or profound dizziness

It is important to differentiate from serious pathology such as:

- ▶ Vascular Pathologies(vertebral artery dissection present with concomitant headache and neck pain)
- ▶ Cervical Instability
- ▶ Cervical Myelopathy

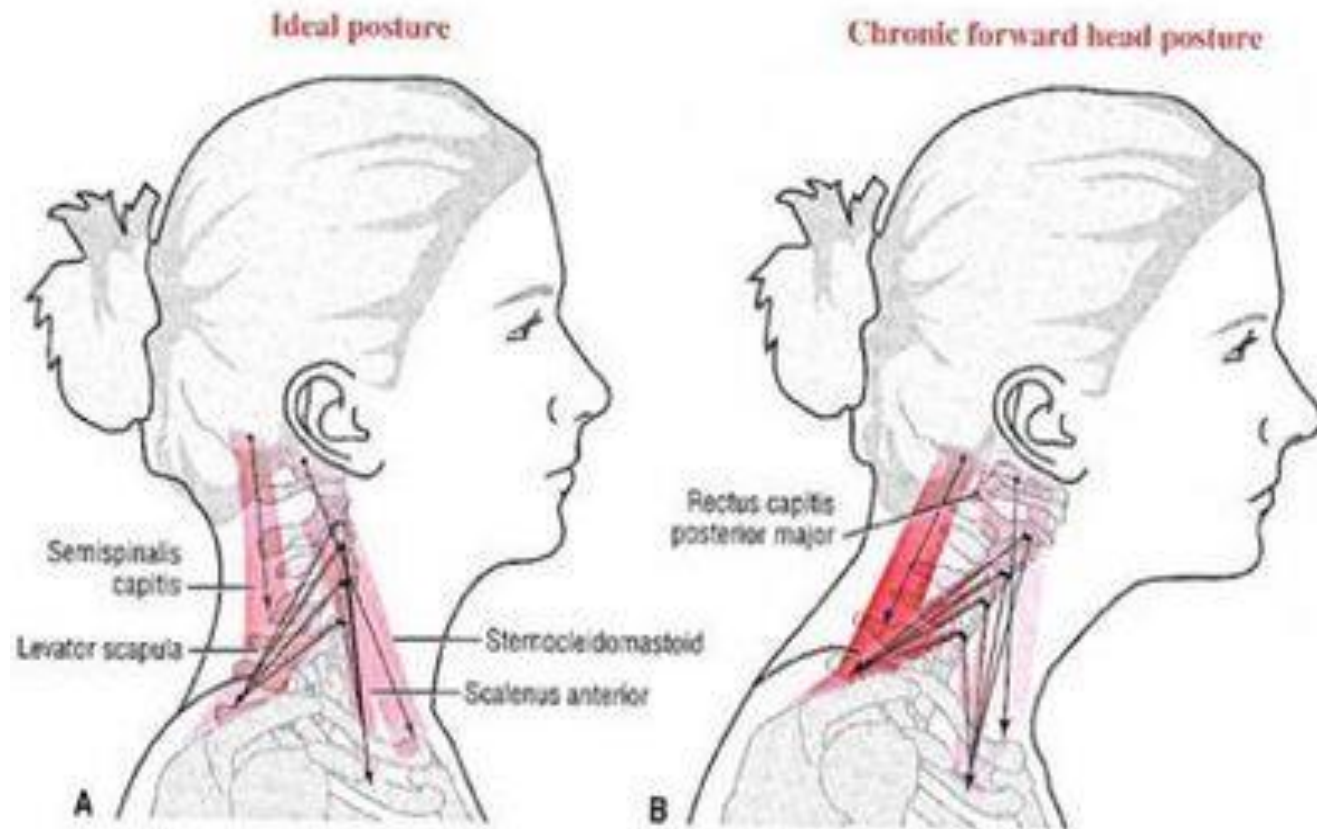
Assessment of cervical spine

- ▶ Patient history
- ▶ Inspection
- ▶ Palpation
- ▶ Examination of movement
- ▶ Neurological exam.
- ▶ Special tests

Patient history

- ▶ Age and gender
- ▶ Occupation
- ▶ History of cervical trauma
- ▶ Location of pain or other symptom
- ▶ Intensity/duration/frequency
- ▶ Onset of problem
- ▶ Activities causing or relieve pain
- ▶ Radicular or non-radicular pain
- ▶ accompanying symptoms of pain

inspection

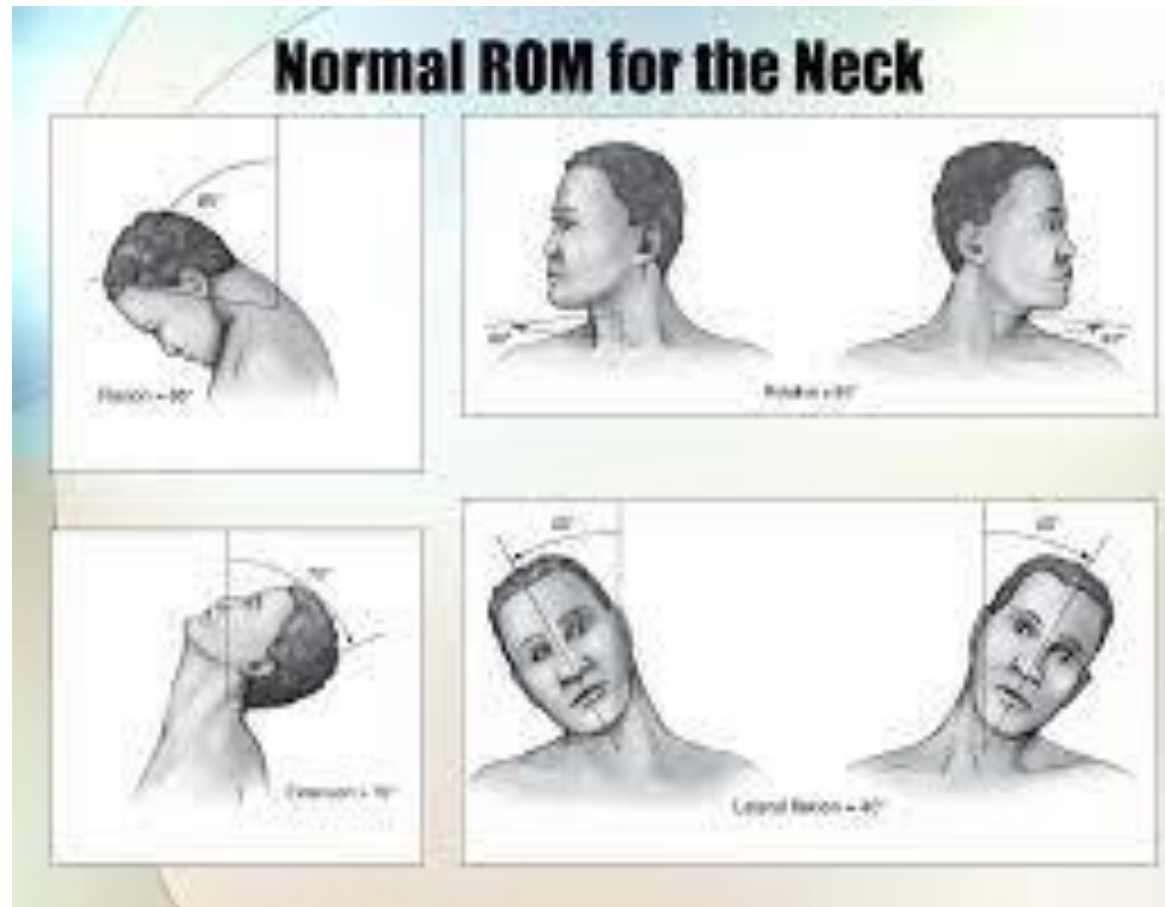


palpation

- ▶ Tenderness in :
 - ▶ spinus process
 - ▶ facet joint
 - ▶ soft tissues such as cervical muscles(muscle tonicity ,trigger point/taut bands),

Cervical ROM

active and passive

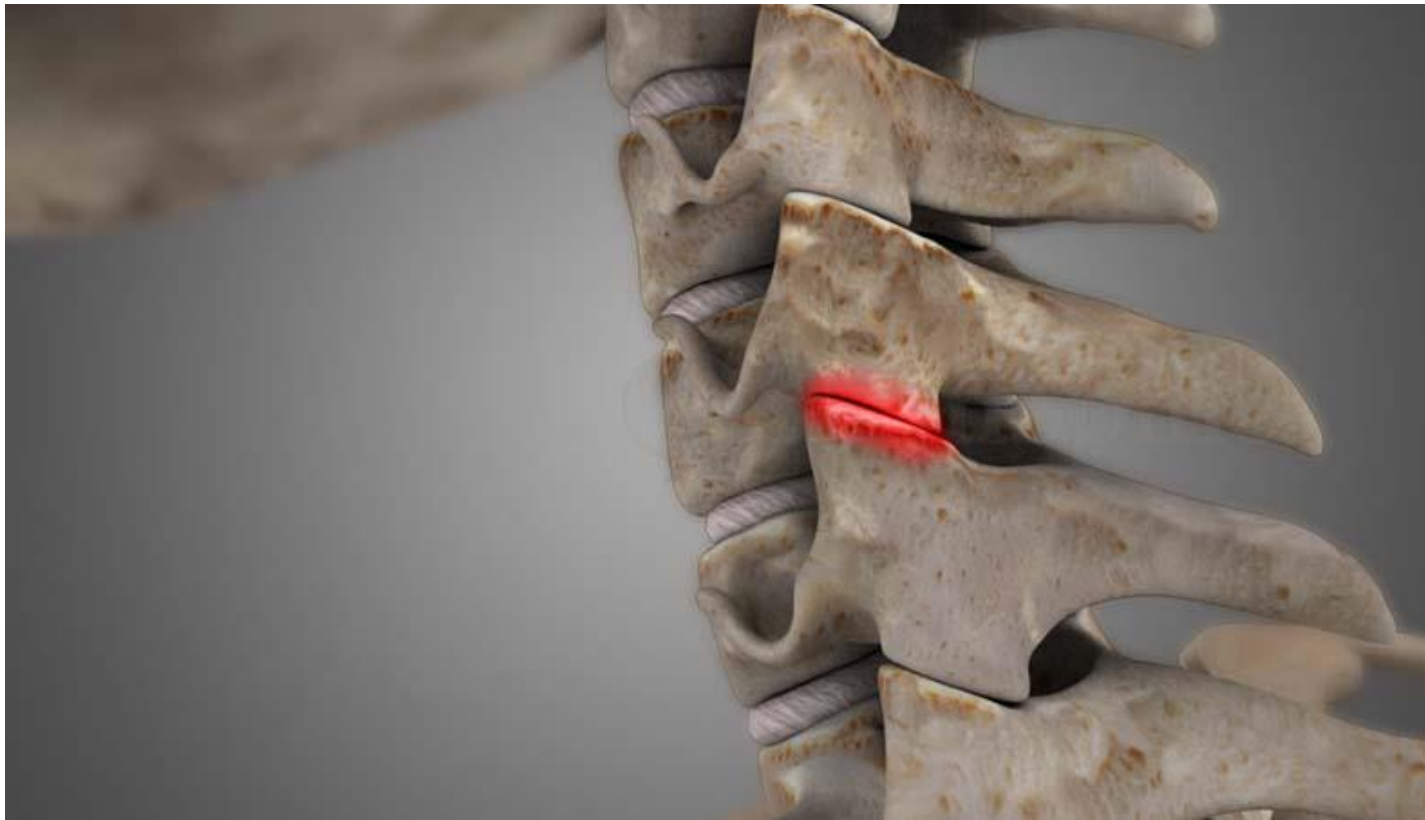


Cervical and upper limbs neurologic exam

- ▶ MMT
- ▶ DTR
- ▶ Sensory exam
- ▶ Special tests: spurling, cervical compression/distraction, Hoffmann,.....

Cervical facet joint pain

(Zygapophyseal joint)

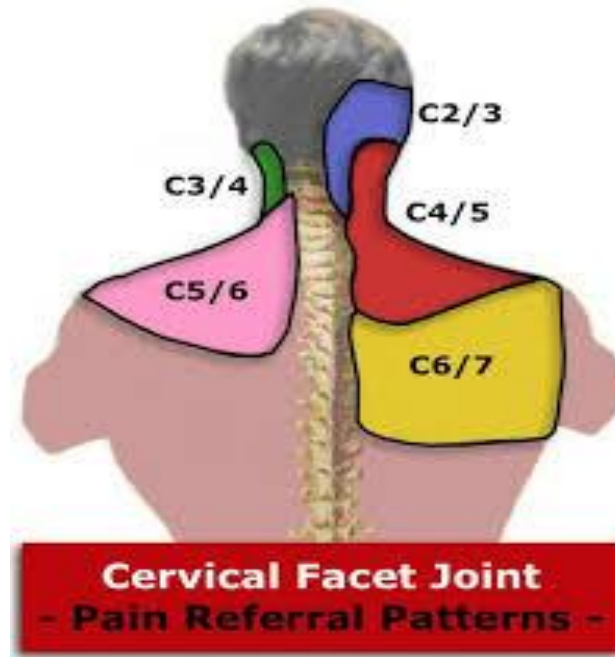


Cervical facet joint pain/dysfunction

- ▶ 36% to 60% of patients with neck pain
- ▶ The most commonly symptomatic level: C2-C3, C5-C6, C6-C7
- ▶ A common source of chronic posttraumatic neck pain
- ▶ Painful cervical facet joint can occur concurrent with a disk disease at same level .
- ▶ 58% to 88% complain of associated headache
- ▶ C2-C3 joint is more likely to cause unilateral occipital headache rather than neck pain
- ▶ Nontraumatic facet pain can be caused by spondylosis or improper biomechanics.

Cervical facet syndrome diagnosis

- ▶ Unilateral paramidline neck pain with or without periscapular symptoms.
- ▶ Unilateral occipital headache specially in upper cervical facet joints pain.
- ▶ Patient can pinpoint a localized spot of maximal pain or define an area of pain typical for the referral distribution of a particular facet joint.
- ▶ Posterolaterally focal tenderness
- ▶ Increased focal suboccipital pain that occurs or is exacerbated with 45 degrees of cervical flexion and then axial rotation suggests a painful C1-C2 facet joint.



Imaging study for cervicogenic headache

- ▶ Diagnostic imaging cannot confirm the diagnosis of cervicogenic headache but can lend support to its diagnosis.
- ▶ x-rays or CT of the cervical spine for evaluation of Fracture/ subluxation or osteoarthritis
- ▶ MRI for evaluation of soft tissue and discopathy
- ▶ nuclear image: increased uptake in abnormal facet but cannot discriminate between symptomatic and asymptomatic abnormalities

Cervicogenic Headache treatments

- ▶ Pharmacological
- ▶ Non-pharmacologic
- ▶ Interventional
- ▶ Surgical

Pharmacological treatments

- ▶ TCAs(amitriptyline, nortriptyline, doxepin, desipramine,...)
- ▶ Antiepileptic drugs(gabapentin, carbamazepine, topiramate,..)
- ▶ Muscle relaxants(tizanidine, baclofen
- ▶ NSIADs and other analgesics such as acetaminophen
- ▶ Corticosteroids
- ▶ Narcotic analgesics a may be cautiously prescribed for temporary pain relief

Non-pharmacological treatments

- ▶ Correction of cervical posture and biomechanics
- ▶ Manipulative or manual therapies
- ▶ Physical therapy
- ▶ exercise
- ▶ Biofeedback
- ▶ Individual psychotherapy

Interventional treatments

- ▶ Trigger point injection with lidocaine or dry needle
- ▶ Anesthetic blockade: 1. spinal roots, nerves, rami, or branches 2. facet joints
- ▶ Neurolytic procedure such as radiofrequency thermal neurolysis
- ▶ Botulinum toxin injections
- ▶ Occipital nerve stimulator