

### Case Study: Trigeminal Neuralgia

A 45-year-old man is referred to the neurology clinic by his primary care physician with right facial pain. The pain has been present for the past month. He states that it is a sharp shooting pain radiating over his right cheek. It is exacerbated by chewing, brushing his teeth, and shaving. The pain is intense and disrupts his activities of daily living. The pain is 9/10 and continuous with intermittent increases to 10/10 when he is chewing. He has lost 10 lbs in the past month from not wanting to eat for fear of exacerbating the pain. He denies any hearing change, or change in taste. Initially he thought that it must be related to a tooth-ache. He had a full dental evaluation with a cavity filled and a tooth extracted with no relief in pain. He has tried acetaminophen with no improvement. Two weeks ago he was started on ibuprofen by his primary care physician. He has no other medical problems. He has not had surgeries in the past. He is currently taking ibuprofen 800mg twice a day. He does not smoke. He drinks a few beers a week. There is no family history of headaches or other neurological problems.

Review of systems: The patient denies weight loss, visual changes, or difficulties with swallowing. He denies difficulties with chest pain or shortness of breath. There is no history of asthma or pulmonary disease. He denies constipation, diarrhea, or urinary complaints. He has no bleeding difficulties, heat/cold intolerance, or mood difficulties. He denies sleep difficulties.

On physical examination he is well nourished and in no acute distress. Blood pressure is 120/70, HR is 88 and regular, and RR is 12. On cognitive testing he is able to remember 3/3 objects in 5 min. His naming, repetition, and tests of attention are normal. He is able to read, write, and copy a picture. Cranial nerve testing reveals a normal fundoscopic examination, visual fields are full, PERLLA, EOMI, facial sensation is intact to light touch bilaterally. Motor strength is symmetric bilaterally. Hearing is intact bilaterally to finger rub. Palate, tongue and uvula are midline. Sternocleidomastoid is 5/5 bilaterally. Motor strength is 5/5 in the upper and lower extremities, with normal bulk and tone. Reflexes are 2/4 throughout, and toes are down going. Sensory testing is normal to light touch, pinprick, proprioception, and vibration. Coordination testing reveals normal finger to finger and heel to shin testing. Gait testing reveals normal toe, heel, and tandem testing. Palpation around the right jaw and the cheek causes acute pain. Testing of jaw strength also elicits severe pain though the muscles are of full strength. No carotid bruits. Heart: regular rate and rhythm, no murmurs, rubs, or gallops. Pulmonary: lungs clear to auscultation.

- 1) What is the diagnosis?
- A. Cluster headache
  - B. Trigeminal neuralgia
  - C. Ice pick headache
  - D. Paroxysmal hemicrania
  - E. Migraine

**Correct answer is B. Trigeminal neuralgia (TN) is irritation of the trigeminal nerve. It can involve any or all of the three nerve branches. It is typically triggered by chewing, or stimulation to the affected side of the face.**

- 2) In patients with TN routine head imaging identifies structural lesions in \_\_\_\_\_% of cases.
- A. 5%
  - B. 10%
  - C. 15%
  - D. 20%
  - E. 25%

**Correct answer is C. Trigeminal sensory deficits, bilateral involvement of the trigeminal nerve, and abnormal trigeminal reflexes are associated with an increased risk for a structural lesion.**

- 3) There are several medications used to treat TN. The one with Level A evidence based medicine guideline support is:
- A) Baclofen
  - B) Lamotrigine
  - C) Oxcarbazepine
  - D) Carbamazepine
  - E) Ibuprofen

**Correct answer is D. Carbamazepine (Level A) or oxcarbazepine (Level B) should be offered for pain control while baclofen and lamotrigine (Level C) may be considered useful.**

**Assessment/Plan:**

Trigeminal neuralgia: Patient with sensory changes and pain in the right trigeminal nerve distribution. His neurological examination is otherwise non focal and he has no additional complaints. He has tried only over the counter medications without success. He will start a trial of carbamazepine. He was instructed on how to titrate the medication over the next few weeks. He was advised of the side effects of carbamazepine to include sedation, ataxia, and electrolyte changes. An MRI of the brain was ordered with special attention to the brainstem. Laboratory testing including a complete blood count and liver function testing was ordered with repeat testing every 2 months

**ICD-9-CM Coding:**

The code for TN is:

**350.1 Trigeminal neuralgia**

This code would be used as the primary code for classic TN. For symptomatic TN, code first the cause, such as MS or tumor, then as a second code list **350.1**.

**E&M Coding**

The E&M coding for this case would be a level 5 new patient or consultation (99205 or 99245 respectively). The history is comprehensive as it contains a chief complaint, at least 4 features describing the history of present illness, 1 point each for the past history, family history, and social history, a full review of system, a 23 point single system neurologic examination, and high complexity medical decision making (a new complaint to the neurologist requiring further testing) and high risk of treatment as the patient is being treated with carbamazepine).