

Original Contributions

Pain Update

Intracranial tumor manifesting as mandibular pain

A case report

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CLINICAL PROBLEM

Trigeminal neuralgia (TN) or tic douloureux is a painful disorder characterized by perioral or intraoral unilateral, sharp, shooting electric pain. According to the International Classification of Headache Disorders 3rd edition beta classification, TN can be classified as classical TN or painful trigeminal neuropathy.¹ Various causes for symptomatic TN include acute herpes zoster, trauma, demyelinating processes such as multiple sclerosis, space-occupying lesions, and vascular compression of the nerve root.^{1,2} Often patients first seek care at a dental office because the pain often mimics a toothache. Here we present the case of a patient who sought care at a dental office with a symptom of toothache, which we diagnosed as TN secondary to an intracranial space-occupying lesion.

CASE PRESENTATION

A 68-year-old woman reported to our clinic with the chief symptom of pain in the right side of her mandible for the past 5 months. She described the pain as like “being tasered” on the right side of her face. She had seen her primary care physician and dentist, who referred her to an endodontist for the “toothache” in teeth nos. 30 and 31. The endodontist performed thermal testing on her teeth and found no abnormality. She saw her dentist again who then suspected TN and prescribed 100 milligrams of carbamazepine (CBZ) twice per day 3 days before she sought care at our clinic.

At the time the patient sought care, she rated her pain as 0 of 10 on a numerical analog scale, whereas at worst it could be 8 of 10. She described the pain as sharp, shooting, and like an electrical jolt. Her pain was intermittent, with attacks occurring 4 or 5 times per hour and lasting 15 to 20 seconds each time. She was completely pain free between the attacks. The area of the chief symptom was around the mandibular first and second molars and corner of the lip on the right side. Attacks were precipitated by brushing her teeth, touching her face, sleeping on the right side, and clothes or bedding touching her face. She reported that the CBZ was helping and was taking the edge off of her pain.

Her medical history was clinically significant for breast cancer 10 years previously. She had undergone surgery and radiation therapy and was cancer free. Her medical history was also clinically significant for acid reflux, hypercholesterolemia, and arthritis. Current medication included atorvastatin, ranitidine, and naproxen. Her family history was not available because she was adopted. Her adult daughter, however, had received a diagnosis of multiple sclerosis.

The physical examination results revealed no abnormalities. The stomatognathic examination results were within normal limits. There was a click in the left temporomandibular joint at wide opening, and we noted bilateral moderate crepitus in both temporomandibular joints. There was mild to moderate pain on palpation of the masticatory muscles bilaterally, as well as bilateral tenderness in the sternocleidomastoid, trapezius, and splenius capitis muscles bilaterally. None of the muscle palpations replicated her chief symptom. Intraoral examination results were within normal limits. We saw no soft- or hard-tissue lesions. Her teeth were not sensitive to percussion, and vitality test results were normal. We used a bite stick to rule out a cracked tooth.

We noted no abnormality during the neurologic examination. Results of static and dynamic allodynia testing of cranial nerve V both extraorally or intraorally were negative.

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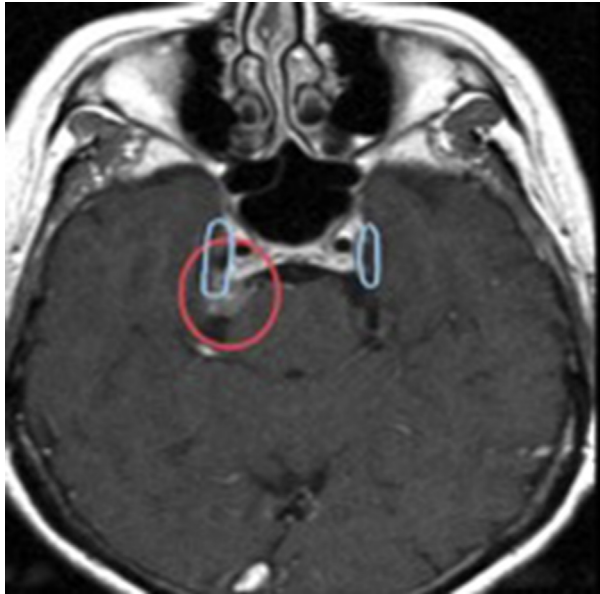


Figure 1. Axial magnetic resonance image obtained with contrast material: the red circle outlines the lesion and the blue circles outline the Meckel cave.

On the basis of the history and physical findings, we diagnosed classical TN¹ of the right V₃ distribution of the trigeminal nerve. We gave the patient written instructions to titrate up the dose of CBZ to a therapeutic level of 800 mg per day in divided doses, with follow-up in 2 weeks. We ordered a blood test, including a complete blood cell count with a differential and a comprehensive metabolic panel to assess liver function. The blood test results were within normal limits.

CBZ is metabolized in the liver and is a known enzyme inducer. Furthermore, CBZ causes bone marrow suppression. Hence, it is important to perform pretreatment blood tests as baseline and closely monitor the patient for any changes, especially in the initial period when the dose is being adjusted. Blood tests are performed every month during the up-titration period, followed by every 3 to 6 months during the maintenance period.

In addition, we ordered magnetic resonance (MR) imaging of the brain and brainstem with and without contrast material, with use of T1-weighted imaging, T2-weighted imaging, and fast imaging employing steady-state acquisition (known as *FIESTA*), with coronal, axial, and sagittal views. We also included a request to perform thin-section imaging through the posterior fossa as well as use of a vascular loop protocol to see whether there was evidence of vascular compression of the right trigeminal root. Cerebrospinal fluid appears dark on T1-weighted images and bright on T2-weighted images, and fat and blood products appear bright on T1-weighted images. Fast imaging employing steady-state acquisition helps detect any blood vessels compressing the nerve or trigeminal root. Given the patient's history of breast cancer, it was vital to rule out brain metastasis as a possible cause for the nerve pain.

Two weeks later, the patient reported she was taking 800 mg of CBZ in divided doses as instructed. She was pain free and had had no recent attacks of pain. She had not yet undergone MR imaging. However, she had been feeling dizzy and unstable and had gone to the emergency department after falling and hitting her head. Emergency MR imaging was performed in the emergency department, and it revealed a 1.3-centimeter extra-axial mass compressing the right trigeminal nerve and posterior Meckel cave. The radiologist's report stated that the appearance was highly suggestive of meningioma (Figures 1 and 2).

Our final diagnosis was painful trigeminal neuropathy attributed to a space-occupying lesion.¹ The TN was secondary to a possible meningioma pressing on the root of the right trigeminal nerve. We counseled the patient about her condition, and we discussed other possible treatment options besides medication. We told her that the dizziness could be a symptom of the tumor itself or a medication adverse effect. We then instructed her to titrate the CBZ down slowly and watch for any change in the dizziness along with acceptable pain control. We referred her to a

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