



Maxillary Sinusitis Resembling Trigeminal Neuralgia

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Chronic maxillary sinusitis is a common disease, with symptoms of dull, aching pain or pressure below the eyes and signs such as tenderness over the involved sinus, whereas trigeminal neuralgia is described as severe, paroxysmal, and lancinating brief pain limited in distributions of one or more divisions of trigeminal nerve. In cases where these two non-odontogenic toothache symptoms overlaps, the diagnostic process can be confusing. Here, we report a case of a 54-year-old male patient with chief complaints of intermittent, severe, and electric-like pain in the upper left premolar and first molar area, initially diagnosed with trigeminal neuralgia but finally with maxillary sinusitis after pain recurrence 2 years after that. Therefore, thorough history taking and precise imaging interpretation should be considered to make correct diagnose especially in case of a patient with newly developed or altered or atypical symptoms.

Keywords: Facial pain; Maxillary sinusitis; Toothache; Trigeminal neuralgia

INTRODUCTION

Non-odontogenic toothache is a painful condition occurring without any clinically evident causes in the teeth or periodontal tissues. It can be categorized into eight groups based on primary disorders: myofascial pain referred to tooth/teeth, neuropathic toothache, idiopathic toothache, neurovascular toothache, sinus pain referred to tooth/teeth, cardiac pain referred to tooth/teeth, psychogenic toothache or toothache of psychosocial origin, and toothache caused by various other disorders [1,2]. Among them, toothache originating from maxillary sinusitis and trigeminal neuralgia is the most common.

Chronic maxillary sinusitis is a common asymptomatic disease characterized by symptoms such as dull, aching pain or pressure below the eyes and signs like tenderness over the involved sinus [1,3].

Trigeminal neuralgia is one of the most painful diseases characterized by severe, paroxysmal, and lancinating brief pain limited in distributions of one or more divisions of the trigeminal nerve. Although classic trigeminal neuralgia can be easily diagnosed based on typical pain characteristics, atypical trigeminal neuralgia or symptoms mimicking trigeminal neuralgia can easily be misdiagnosed. Only a few case reports demonstrated sinusitis (including maxillary sinusitis) resembling trigeminal-neuralgia-like pain.

We report a case of a 54-year-old male patient with chief complaints of intermittent, severe, electric-like pain in the upper left premolar and first molar area, initially diagnosed with trigeminal neuralgia but finally diagnosed with maxillary sinusitis after pain recurrence 2 years after. This study was conducted after obtaining approval from the Institutional Review Board (IRB) of the Dental Hospital, Yonsei University (IRB no. 2-2022-0027).

CASE REPORT

A 54-year-old man visited the Department of Orofacial Pain and Oral Medicine of Yonsei University Dental Hospital (Seoul, Korea) with a complaint of pain in his upper left posterior premolar and first molar areas occurring from the past 3 months. He experienced the same pain temporarily 1 year ago.

During his first visit, he complained electric-like sharp pain in his upper left premolar and first molar areas triggered by brushing the teeth, cold wind, or body movement in the morning. The pain was intense (Numeric Rating Scale, NRS 6 to 7) and short-lasting (<1 min). The sharp pain was not triggered by eating; however, spontaneous dull aching pain was induced after eating. Dull aching pain was also induced by washing the face. He had no previously known systemic diseases, except for chronic rhinitis. This pain was not aggravated by lowering his head down. Oral examination and imaging revealed no tooth abnormalities (Fig. 1). His initial diagnosis was trigeminal neuralgia. Brain magnetic resonance imaging (MRI) revealed no lesion, except for nonspecific T2 hyperintensities in the bilateral white matter. He was prescribed carbamazepine (Carmazepine; Myung In Pharm, Seoul, Korea) 100 mg twice a day for 2 weeks. The pain decreased to NRS 2 during his second visit. On his third visit, he once complained of severe pain (NRS 8) when blowing his nose and bowing his head to shampoo his hair. Thereafter, Carmazepine dose was increased to 200 mg twice a day, which completely eliminated the pain 6 weeks after his first visit. Therefore, Carmazepine was reduced to 100 mg for two more months and was discontinued, and then, he was discharged.

He revisited the clinic about 2 years after that. He

complained of pain recurrence that started 3 months before. He complained of episodic, severe, brief, lancinating spontaneous pain (NRS 8). The pain was not triggered by brushing the teeth, eating, or washing the face. The pain was induced by bowing his head and blowing his nose. His friends once noticed swelling on his left face. In his panoramic image (Fig. 2), mild haziness was detected in the left maxillary sinus area. No positive response to percussion was observed in his upper molar area and no tenderness over the maxillary sinus area. Thus, his initial diagnosis was maxillary sinusitis, and maxilla cone beam computed tomography (CT) was performed. He was prescribed Carmazepine 100 mg twice a day to control paroxysmal sharp pain. The pain decreased (NRS 4) after 2 weeks. The maxillary cone beam CT (Fig. 3) revealed left maxillary sinusitis, and therefore, he was referred to an otorhinolaryngologist, and Carmazepine was discontinued. Endoscope-assisted sinus surgery on the left maxillary sinus was performed, which decreased the pain (NRS 2) 5 days and disappeared 1 month after surgery. Biopsy showed chronic nonspecific inflammation, confirming maxillary sinusitis. The pain disappeared until the last

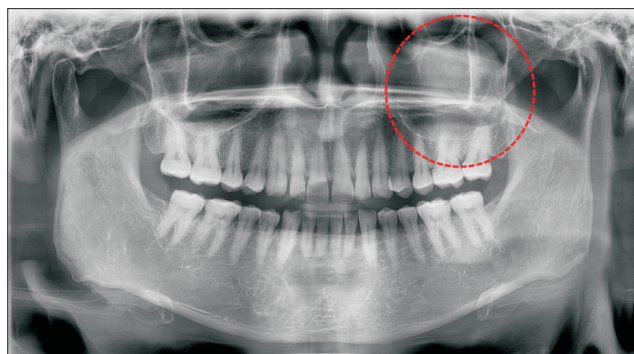


Fig. 2. Panoramic image obtained after the pain recurrence. The dotted circle shows mild haziness in the left maxillary sinus area.

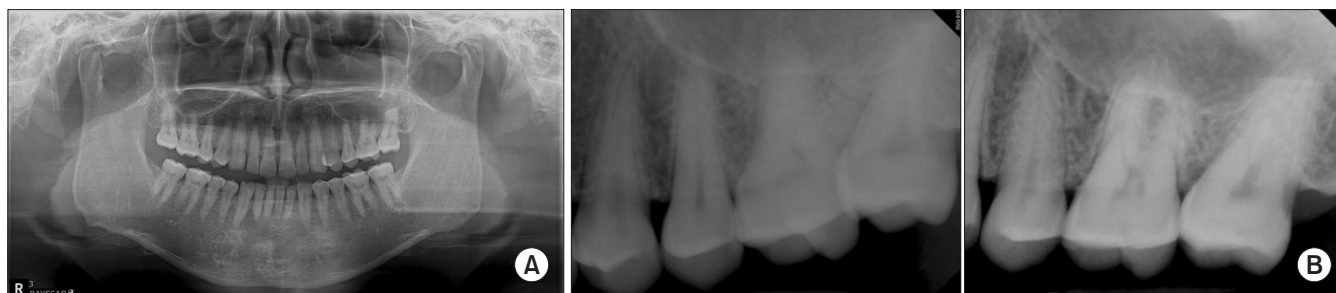


Fig. 1. Panoramic (A) and #24-27 periapical (B) images obtained during the first visit.

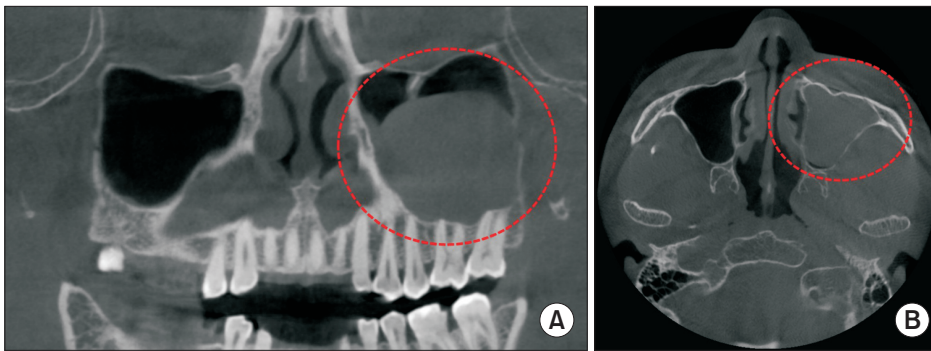


Fig. 3. Cone beam computed tomography image obtained after the pain recurrence. The dotted circles show mucosal thickening in the left maxillary sinus. (A) Coronal view. (B) Axial view.

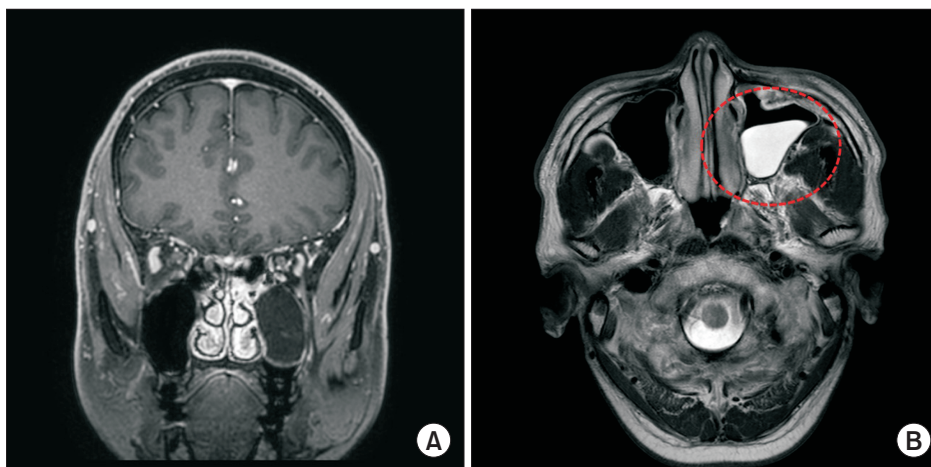


Fig. 4. Brain magnetic resonance imaging was obtained on the first visit. The dotted circle shows fluids filling the left maxillary sinus. (A) T1-weighted image. (B) T2-weighted image.

visit (3 months after surgery).

DISCUSSION

Sinus pain can be presented as a continuous dull aching pain in the maxillary teeth with sensitivity to percussion, mastication, and/or temperature [4], whereas trigeminal neuralgia can be manifested as sharp, electric-like, paroxysmal, and moderate to severe pain [5]. However, only a few reports demonstrated trigeminal neuralgia-like pain caused by sinusitis [6-8]. This can be explained by the anatomic variation of the route of the posterior superior alveolar nerve and canal in the bony wall of the maxillary sinus. In a study with dry skulls, about 17% to 20% of the patients revealed a fragmented (intraosseous and extraosseous) canal along the course of the posterior superior alveolar nerve [9,10]. Thus, maxillary sinus lesions may compress and demyelinate the nerve exposed to the sinus wall, inducing trigeminal neuralgia-like pain.

Although various nonodontogenic toothaches have

distinct pain characteristics, advanced imaging such as CT or MRI can be helpful to make an accurate diagnosis of accompanying atypical symptoms. Here, short-lasting, severe, lancinating pain and the effectiveness of carbamazepine are typical characteristics of trigeminal neuralgia, whereas stimulus-triggering pain was not.

Lastly, symptom recurrence can lure clinicians into their trap because they may overlook newly developed or altered symptoms and may not read new or previous images thoroughly with fresh eyes. If more attention was paid to the previously obtained brain MRI, we could have noticed the high T2 signal filling the left maxillary sinus (Fig. 4).

This is a case of maxillary sinusitis confused with trigeminal neuralgia due to pain characteristics overlooked in imaging. Thorough history taking and precise interpretation of imaging are needed to make correct diagnosis especially in newly developed or altered or atypical symptoms.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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