

Clinical Diagnosis of Herpes Zoster Presenting as Odontogenic Pain

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ABSTRACT

Herpes zoster, an acute viral infection produced by the varicella zoster virus, may affect any of the trigeminal branches. This case report presents a patient with symptoms mimicking odontogenic pain. No obvious cause of the symptoms could be found based on clinical and radiographic examinations. After a dermatologist made a diagnosis of herpes zoster involving the third trigeminal branch, the patient was given antiviral therapy. Two months later, the facial lesions and pain had almost disappeared, and residual pigmented scars were present. During the diagnostic process, clinicians should keep in mind the possibility that orofacial pain might be related to herpes zoster. [J Kor Acad Cons Dent 33(5):452-456, 2008]

Key words : Herpes zoster, Trigeminal nerve, Odontogenic pain

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I. INTRODUCTION

Diagnostic assessment in patients with orofacial pain may be challenging due to the close proximity between the teeth and other orofacial tissues, and symptoms associated with neurological disorders. Herpes zoster (shingles) is caused by the reactivation of the latent varicella-zoster virus from a chickenpox infection¹⁾. Factors associated with recurrence are older age, immunocompromise, stress, and tumors affecting the brain or spinal cord^{2,3)}.

Herpes zoster may affect any sensory ganglia and its cutaneous nerve, including cranial nerves. Among the cranial nerves, the trigeminal nerve is

affected by the reactivation of the latent herpes zoster virus the most. The first division of the trigeminal nerve is commonly affected, whereas the second and third divisions are rarely involved⁴⁾. If the third division of the trigeminal nerve is affected, it may be characterized by pulpitis in the mandibular molars and vesicular skin eruptions in the affected sensory nerve area.

During the prodromal stage of herpes zoster in particular, the only presenting symptoms may be similar to pulpitis; this may be a diagnostic challenge to the clinician who is not familiar with herpes zoster of the trigeminal nerve⁵⁾. However, to our knowledge, there have been few case reports on herpes zoster infection involving the third branch of the trigeminal nerve and presenting as odontogenic pain. Therefore, the objective of this report is to present a brief review of herpes zoster infection involving the third branch of the trigeminal nerve, along with a treatment modality and diagnostic considerations.

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II . CASE REPORT

A 43-year-old man presented with severe pain and a swelling sensation in the right mandibular molar area. He had been experiencing a severe toothache for two days in the right mandibular area. He reported a history of gold inlay restoration on the right mandibular first premolar, first molar and second molar, which were treated a few years ago.

A clinical examination did not reveal a sinus tract or swelling in the patient's face. There were moderate calculus and 4-mm periodontal pockets in the lower molar. No intraoral lesions were observed, and all of the teeth in the lower and upper right quadrant responded normally to cold stimuli, with the exception of the mandibular second premolar, which had little response. Radiographically, no periapical pathosis was apparent (Figure 1 and 2).

Initially, we decided to treat the second premolar due to a tentative diagnosis of apical periodontitis for that tooth. However, no periapical pathosis was seen radiographically. Pulpal and periapical diagnostic testing, in conjunction with a radiographic examination, revealed that the second premolar responded normally to all tests, including a percussion test, electrical pulp test, and cold/hot test, and that no periradicular

involvement was noted. Furthermore, anesthetic test did not relieve the pain. Therefore it was decided to control the pain with analgesics and to re-evaluate the symptoms in a few days. We also considered the possibility of non-odontogenic pain such as trigeminal neuralgia, migraine, temporomandibular joint disorder, etc.

Three days later, the patient returned to the clinic complaining of intense pain and a rash on the right side of the face. The rash and blisters were localized to the right mandible and chin (Figure 3A). Therefore, we suspected that it might be non-odontogenic pain related to the trigeminal nerve, specifically related to herpes zoster. But it was difficult to accurately diagnose it as herpes zoster. Therefore, we referred the patient to a dermatologist for an accurate diagnosis. The dermatologist reported that it was diagnosed as herpes zoster involving the mandibular branch of the trigeminal nerve. The patient was given antiviral therapy by the dermatologist. It was found that the patient had been given prescriptions for betamethasone, acetaminophen, hydroxyzine, famciclovir, gabapentin, antidepressant, etc.

Two months later, the patient returned to our clinic for a follow-up evaluation of his condition. The facial lesions, rash, and blisters, had almost disappeared but the patient still noted a little

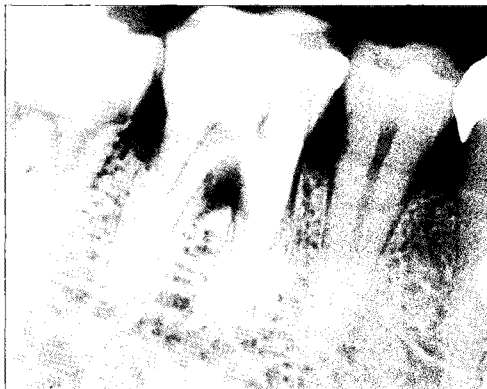


Figure 1. Normal periapical radiograph of lower right first premolar and first and second molars. First and second molar have gold restorations.

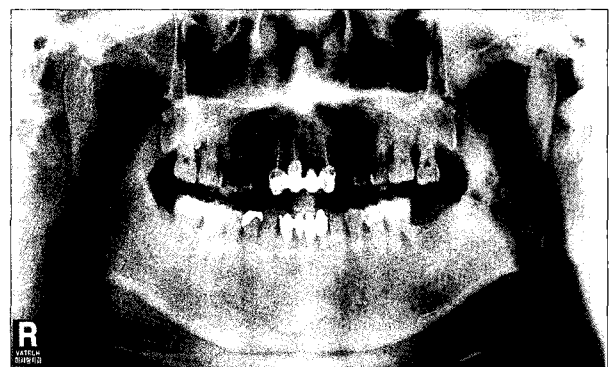


Figure 2. Panoramic radiograph showing no specific pathosis on the lower left molar area.

pain in the right jaw area, and residual pigmented scars were present (Figure 3B). The dermatologist informed the patient that drugs might be necessary for an extended period of time.

III. DISCUSSION

Herpes zoster occurs when the varicella zoster virus that has remained latent is reactivated⁶⁾. Herpes Zoster is a less common disease and the factors causing reactivation are still not well known, but it occurs more often in older and/or immunocompromised individuals⁷⁾.

Clinicians should understand that when herpes zoster involves the mandibular branch, it can mimic a toothache. Because it can appear in the presence or absence of skin lesions, its diagnosis might be difficult for clinicians.

Patients with a herpes zoster infection usually progress through three stages: a prodromal stage, active stage (also called acute stage), and chronic stage^{8,9)}. The pain of the prodromal stage, 3-5 days before vesicular eruption^{2,10)}, can simulate odontogenic pain. Therefore if there is no convincing evidence of disease of the pulp, unnecessary treatment must be avoided.

In this case report, when the patient visited our clinic presenting odontogenic pain on the lower right mandible, it may have been the prodromal stage with no skin lesions. He complained of pain

and a swelling sensation on the lower right mandible. It is believed that these sensory changes are the result of degeneration of nerve fibrils from viral infection activity. This usually precedes the rash of the active stage by a few hours to several days^{5,8,9)}.

Ragozzio et al.^{10,11)} reported that the incidence of trigeminal herpes zoster virus is relatively low, especially in the second and third branch; it only accounts for about 1.7% of all reported cases. In this report, the herpes zoster was involved with the 3rd branch, the mandibular nerve, of the trigeminal nerve. Symptoms mimic odontogenic pain, especially pulpitis in the lower right molars.

For the treatment of herpes zoster, (i) patients with herpes zoster infection should be isolated due to the contagious nature of the infection, (ii) pain should be reduced by analgesics, such as acetaminophen, codeine, and nonsteroidal anti-inflammatory agents, and (iii) antiviral therapy must be swift and precise. Acyclovir has been the drug of choice for a number of years and other antiviral agents, such as famciclovir and valacyclovir, can also be used, (iv) the treatment of post-herpetic neuralgia includes the topical use of capsaicin cream, transcutaneous nerve stimulation, topical anesthetics, injected local anesthetics, and low dose amitriptyline¹²⁾. Strommen et al.⁹⁾ offered an in-depth review of the use of antidepressants and neurolytics in the management

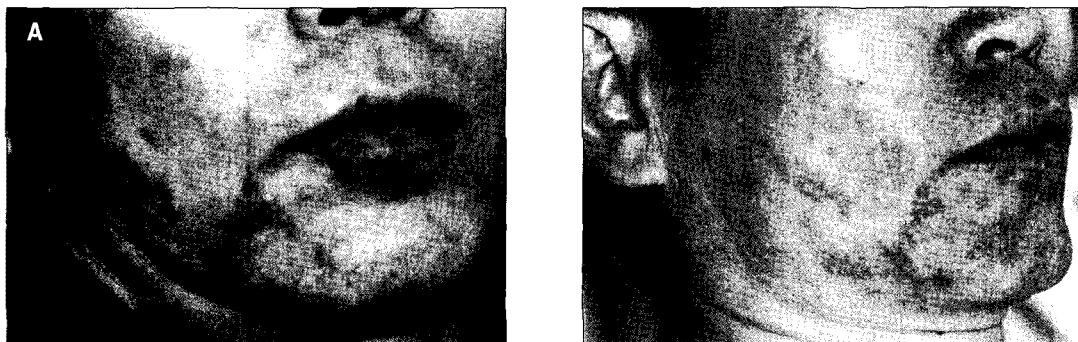


Figure 3. (A) Three days after the initial visit: extraoral lesions or rash show the distribution of the involved nerve. (B) Two months after the dermatological referral, no rash is present but pigmented scars can be seen on the lower right facial area.

of post-herpetic neuralgia.

This case showed that the signs and symptoms of a herpes zoster infection in the mandibular branch can be misdiagnosed. During the prodromal stage, the presenting symptoms may include odontalgia, which may prove to be a diagnostic challenge for the dentist, since many diseases can cause orofacial pain that is similar to pulpitis. Therefore the diagnosis must be established before any invasive treatment, such as endodontic treatment or extraction.

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국문초록

치성동통과 유사한 증상을 나타내는 Herpes zoster의 임상적 진단

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Herpes zoster는 varicella zoster 바이러스에 의해 발생하는 급성 바이러스성 감염질환으로 삼차신경의 분지들을 침범할 수 있다. 치성동통과 유사한 증상을 보이는 43세 남자 환자가 내원하였으며 임상 및 방사선 검사 후에도 명확한 원인을 발견할 수 없었다. 피부과의사에 의해 삼차신경의 세 번째 분지에 발생한 herpes zoster로 진단되었고 항바이러스 치료를 시행하였다. 2개월 뒤, 환자의 피부 병소 및 동통은 대부분 사라졌으나 반흔조직은 다소 남아있었다. 진단과정 중 임상가는 구강안면부 동통이 herpes zoster와 연관될 수 있다는 가능성을 숙지하여야 할 것이다.

주요단어 : Herpes zoster, 치성동통, 삼차신경