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Case Report

Bell's Palsy Precipitated by Activation of Herpes Zoster Virus During 3rd Molar Removal

Salim Shayan., Andrew Newman., James J. Closmann., Thomas J. Borris

University of Colorado School of Dental Medicine, USA

*Corresponding author: Shayan Salim, University of Colorado School of Dental Medicine, Department of Surgical Dentistry, Mail Stop F847, 13065 East 17th Avenue Aurora, CO 80045, USA, Tel: 480-650-2323; Email: shayan.salim@ucdenver.edu

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Abstract

Facial paralysis and paresis is an uncommon complication from out-patient dental surgeries. Not always is it caused by local anesthetic injection complications. Presented in this manuscript is a case of Bell's Palsy associated with Herpes Zoster precipitated by 3rd molar extraction in an otherwise healthy patient.

Keywords: Extraction; Herpes Zoster; Bell's Palsy; Oral Surgery

Introduction

Herpes Zoster (HZ) infection also known as shingles, typically presents as a unilateral often painful dermatomal vesicular eruption along the affected sensory nerves. This infection is due to the Varicella Zoster Virus. The virus is able to establish latency, lying dormant for many years, in the dorsal root or the trigeminal or geniculate ganglia. Reactivation of the dormant infection induces active symptoms of the virus. During and even after the dermatomal vesicular rash resolves, a pain syndrome can persist for months to years. This pain syndrome is known as postherpetic neuralgia (PHN). The incidence of PHN rises with immunosuppression and advanced age. Oral manifestations of the disease result from involvement of the Trigeminal nerve. These manifestations include; Unilateral intraoral vesicular eruptions on the oral mucosa, unilateral rapid bone loss, spontaneous tooth exfoliation, neuropathic pain, and osteonecrosis of the jaws. When the ophthalmic division of the trigeminal nerve is involved, it is referred to as HZ ophthalmicus. The manifestations of HZ ophthalmicus involve chronic ocular inflammation, uveitis, ocular palsies, pain and vision loss. When the geniculate

ganglion of the facial nerve is involved, it is referred to as Ramsay Hunt syndrome. The manifestations of Ramsay Hunt syndrome involve cutaneous vesicular eruptions of the external auditory canal, with ipsilateral facial paralysis and vestibular symptoms [1].

Case

A 24-year-old male presented to his oral surgeon for removal of his impacted 3rd molars. The medical history was reviewed and noted. The patient related a history of chicken pox as a child. Otherwise, he denies a history of heart, lung, liver, kidney disease, hepatitis, diabetes, neurologic or psychiatric disorder, malignancy, bleeding disorder and drug allergy. The patient was scheduled for removal of all 4 vertically impacted third molars under intravenous sedation with local anesthetic. A standard 3rd molar consent was signed delineating the more common complications of impacted 3rd molar surgery. The surgery was accomplished without incident and considered "routine" by the office standards. The patient received 180mg of 2% lidocaine with 1:100,000 epinephrine, fentanyl, versed, dexamethasone (8mg) and

ketorolac (30mg) to accomplish the surgery. On postoperative day #3 the patient called the office and stated that his face was “drooping” on the left side and he was having difficulty closing his left eyelid. The patient was instructed to return to the office immediately for evaluation. The patient presented with a chief complaint of unilateral facial droop, paralysis, and bilateral pain and discomfort. On intraoral exam he was noted to have the expected surgical edema and swelling, contributing to the bilateral pain. There were no signs of infection, no purulence, and no fever. His maximum incisal opening was 40mm. On extraoral exam he had immobility of the left muscles of facial expression and inability to close his left eyelid. [Figure 1 & 2].



Figure 1. Patient with Bell's Palsy, day 3 post-operative, unable to move facial muscles of left side of the mouth, compared to that of the right side of his mouth.



Figure 2. Patient with Bell's Palsy, day 3 post-operative, unable to close eyelid left eye.

The patient was empirically placed on Acyclovir 200mg 5 times daily for one week and given an artificial tears solution for the left eye. Additionally, he was instructed to place a protective patch over the left eye when he slept to avoid excessive dryness and corneal abrasion. He was followed at weekly intervals to assess his recovery. At approximately 8 days following surgery the patient was seen for follow up and noted to have scabbing and crusting of some small lesions behind his ear inside the left hairline, extending to the occiput but not crossing the midline. A presumptive diagnosis of herpes zoster was made. The crusty lesions had been noticed at a previous exam; however they were thought to be related to the patient's occupation. The patient continued to heal and slowly regained movement

of this left face. At approximately 6 weeks he had near normal facial nerve function on the left side. [Figure 3 & 4].



Figure 3. Patient with Bell's Palsy, 6 weeks post-operative, has regained most of facial nerve function of the left side of his mouth and face.



Figure 4. Patient with Bell's Palsy, 6 weeks post-operative, has regained his facial nerve function to his left eyelid.

Discussion

Bell's Palsy is described as the paralysis of Cranial Nerve VII, resulting in unilateral facial paralysis and paresis. Having no detectable cause, it is thought to be due to a viral infection of the Facial nerve. Inflammation of the nerve as it passes through the facial canal causes restriction and possibly crushing of the nerve, leading to the presented symptoms [2]. It can be commonly mistaken for the early stages of a more severe infection such as, Ramsay Hunt syndrome. Ramsay Hunt syndrome is defined as Zoster Oticus, facial nerve paralysis, and other signs and symptoms related to the infection of Cranial nerve VII, such as tinnitus, nausea, vomiting, hearing loss, vertigo, nystagmus [3]. Studies by Tazi et.al. [4] and Cakarar et.al. [5] describe Bell's Palsy after maxillary third molar extractions. The onset of these symptoms can be delayed or immediate. Often times confused with facial paralysis due to anesthetic injection for the Inferior Alveolar Nerve, prolonged procedures and dental infection [6].

The reactivation of the dormant viral infection is thought to

be due to a patient's immune system being compromised [10]. This may be due to: increased age, physical trauma (including dental manipulation) [9], psychological stress, malignancy, radiation therapy, and any immune compromised state such as HIV infection or immune suppression due to transplant [11]. A prodromal phase of HZ usually lasts about 2-3 days before evidence of unilateral dermatomal cutaneous findings. The unilateral dermatomal cutaneous findings can persist for 7-10 days. Throbbing pain and paresthesia can occur along the course of the affected sensory nerve. During the acute phase of this outbreak, oral surgical procedures should be limited to palliation only and are best avoided. Oral antiviral agents are the mainstay for treating HZ [1].

Cochrane analyses have shown the effectiveness of treating Bell's Palsy and Ramsay Hunt syndrome early with a 7-10 day regimen of Acyclovir (800mg, five times daily) or Famciclovir (500mg, three times daily) [7]. An antiviral treatment started within the first 72 hours of the onset of signs and symptoms for Herpes Zoster infection has been shown to reduce the rash duration, pain severity, and incidence of post-herpetic neuralgia. The prolonged, consistent pain, with occasional lancinating sensations from Herpes Zoster and post-herpetic neuralgia can be overwhelming and debilitating for individuals suffering from this infection. The American Academy of Neurology has determined, based on evidence, that treatment for post-herpetic neuralgia pain is most effective using tricyclic antidepressants, gabapentin, pregabalin, opioids, and topical lidocaine patches prior to any surgical intervention [8].

In conjunction with the antiviral therapy for treating Bell's Palsy, oral corticosteroids, such as Prednisone, 60mg daily for 3-5 days, has been shown to reduce nerve damage and lead to more recovery of function. Usually symptoms resolve completely by 6 months with proper care and management [2,3,7].

Author's Procedural Recommendations

Within 72 hours the patient should be placed on a week regimen of Valcyclovir (three doses of 1,000 mg administered daily for 7 days) or Famciclovir (three doses of 500mg administered daily for 7 days) antiviral. Instruct the patient to use artificial tears and a patch to protect the eye while he/she lacks function of the muscles of facial expression. Close follow up is recommended to track recovery of the patient's symptoms.

Conclusion

Bell's Palsy precipitated by 3rd molar extraction is a rare and concerning occurrence. HZ can be a debilitating disease that can lead to osteonecrosis of the jaws and vision loss in addition to a prolonged painful syndrome after the typical vesicles have healed. Prompt recognition and treatment with antiviral agents and corticosteroids can minimize the recovery time and

decrease the risk of postherpetic neuralgia [1].

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